Location: Chicago September 3, 2010

To: Brigitte Mayerhofer

From: Mark Wagstaff, Paul Moyano, Brenna Mannion

Subject: **Village of Wilmette Separate Sewer Project Compiled Deliverable**

This document includes all four deliverables of the Village of Wilmette Separate Sewer Study submitted to the client:

Section 1. Separate Sewer Workshop Results

Section 2. Basement Backup Mitigation Implementation Program

Section 3. Construction Cost Estimates
Four programs combined with a quantitative and qualitative evaluation of the feasibility, effectiveness and possible implementation of the programs.

Section 4. Pilot Area Engineering Estimate

Section 1:
Separate Sewer Workshop Results
Original Submittal Date : April 15, 2009

Location: Chicago April 15, 2009

To: Brigitte Mayerhofer

From: Mark Wagstaff, Paul Moyano, Brenna Mannion

Subject: Summary of Village of Wilmette Separate Sewer Workshop

Overview

The purpose of this memorandum is to summarize the results of the January 29th separate sewer system workshop attended by MWH, Village Engineering staff, and Village Department of Public Works employees.

Attendees

Village Engineering Staff	Department of Public Works	MWH
Brigitte Mayerhofer, Director of Engineering	Donna Jakubowski, Director of Public Works	Mark Wagstaff
Jorge Cruz	Mark Anderson	Tom Rowlett
Linda Reilley		Paul Moyano
Scott Hilts		Brenna Mannion

Background

The Village of Wilmette has experienced surcharged and backed up sanitary sewers in their separate sewer system west of Ridge Road. This is due to multiple factors, including aging infrastructure and inadequate sewer capacity. The Village hired MWH to execute a screening level assessment of options available to the Village for reducing sanitary basement backups and flooding in the separate sewer system area.

Summary

The morning began with a meeting with the Village Board's Municipal Services Committee (MSC), which is engaged in developing a Village-wide stormwater management program. MWH and Village staff provided a brief overview of the specific problems the separate sewers were experiencing, though as trustees and residents, they were aware of the issues. MWH provided an overview of the contract scope and schedule as well as the planned output of the study. The group discussed without specific resolution the current and desired "level of service". It was recognized that the current level is insufficient, and that upgrading to a modern design standard would be very expensive.

Immediately following the MSC meeting, Mr. Anderson arrived to join the Village Engineering and MWH employees. The workshop agenda was loosely followed, but the workshop tone was one of dialogue and information sharing. Mr. Rowlett, who has familiarity with the Wilmette sewer system dating back over 20 years, focused the majority of his talking points on describing the state of the west-side system: age, installation, water table depth, and issues confronted in the

past. The Village personnel corroborated certain issues and were especially helpful in identifying specific areas that regularly experience basement flooding. This includes areas affected by backflow from the Harms Road interceptor, the shallow slope of the 36" Lake Avenue sanitary sewer, clogged siphons, low-lying intersections prone to surface flooding, storm sewers prone to debris, and parts of the sanitary system with cracked pipes and poor joints.

Ms. Reilley and Ms. Jakubowski are the two Village personnel who coordinate the most recent sewer improvements completed on the separate sewer system. The Village installed the in-line relief sewer along Hunter and Locust Roads in 1994. Besides that, there has been very little sewer construction on the separate sewer system in the past 25 years.

There is a budget of approximately $400,000 per year for the Village's sewer lining program. Lining existing sewer pipes with structural damage can be a lower cost alternative to replacing the existing sewer pipe. Ms. Reilley made it clear that their lining program has been entirely focused on pipes with significant structural damage and includes point repairs where necessary. It was clear that the Village will need to continue the lining program in conjunction with structural repairs. Additionally, the lining of sanitary and storm sewer trunk mains may play a small part in reducing flooding in portions of the west side of the system after other cross-flow reduction efforts are implemented.

The largest part of the workshop was dedicated to marking maps of the Village and its sewer systems to better understand where and how the system is most often exceeding capacity. There was information shared by Public Works, Village engineers, and Mr. Rowlett. These maps were also marked with recent and future lining areas. The Village had also developed a map based on the results from a survey on the flooding caused by the September 14, 2008 rain event. The responses were associated with their respective addresses and color coded on a map showing which parcels experienced sanitary sewer basement backups, seepage/other, or no flooding at all. This information gave an overall picture of areas that are, or are not, prone to flooding, and what type of flooding is experienced. It should be noted that the flood map generated by the Village is based on survey data that may or may not accurately reflect actual flood experience as many Wilmette residents did not respond. A map and workshop minutes summarizing the issues discussed are included as an attachment to this memo.

Compilation of Assessment Options

The end of the Workshop was devoted to developing a comprehensive list of potential approaches to reduce the Village of Wilmette's sewer backup experience. MWH scribed a tabular list of ideas posed by Village staff and MWH based on previous studies and earlier discussions. Options ranged from infrastructure improvements, to system monitoring, and green stormwater management practices, as well as resident programs and ordinance changes.

Evaluation and Screening of Assessment Options

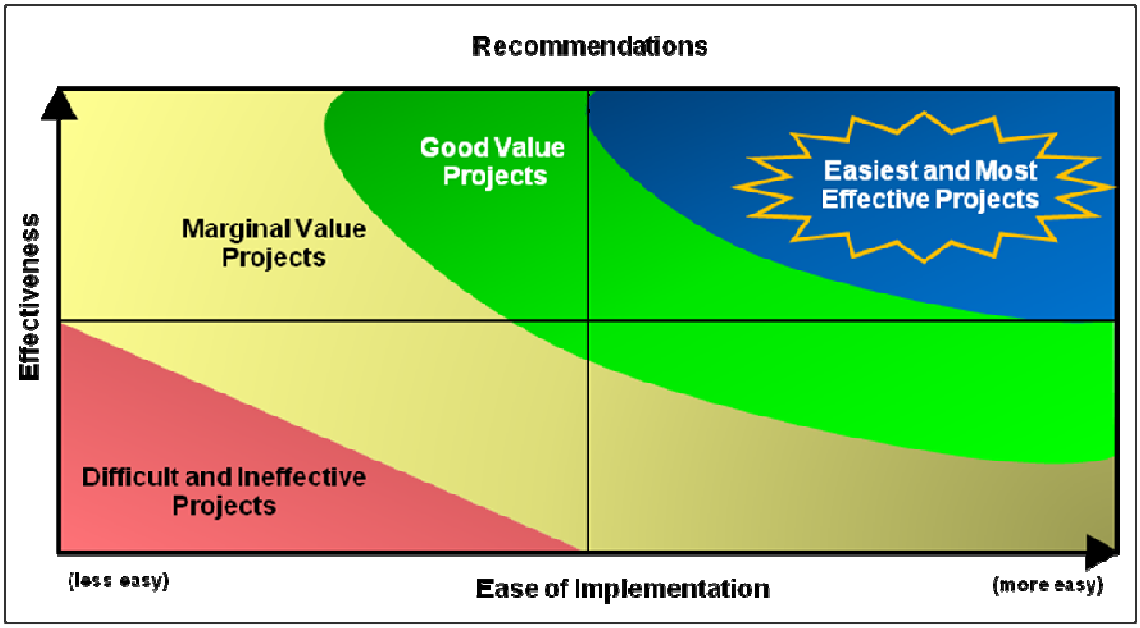
After the completion of the Workshop, MWH summarized and evaluated potential sewer backup and mitigation options. Improvements were summarized into categories. Each improvement was assigned to either the 1) Capital Improvement, 2) Operational Change, or 3) Private Owner categories. The capital improvement projects were further sorted into storm sewer and sanitary

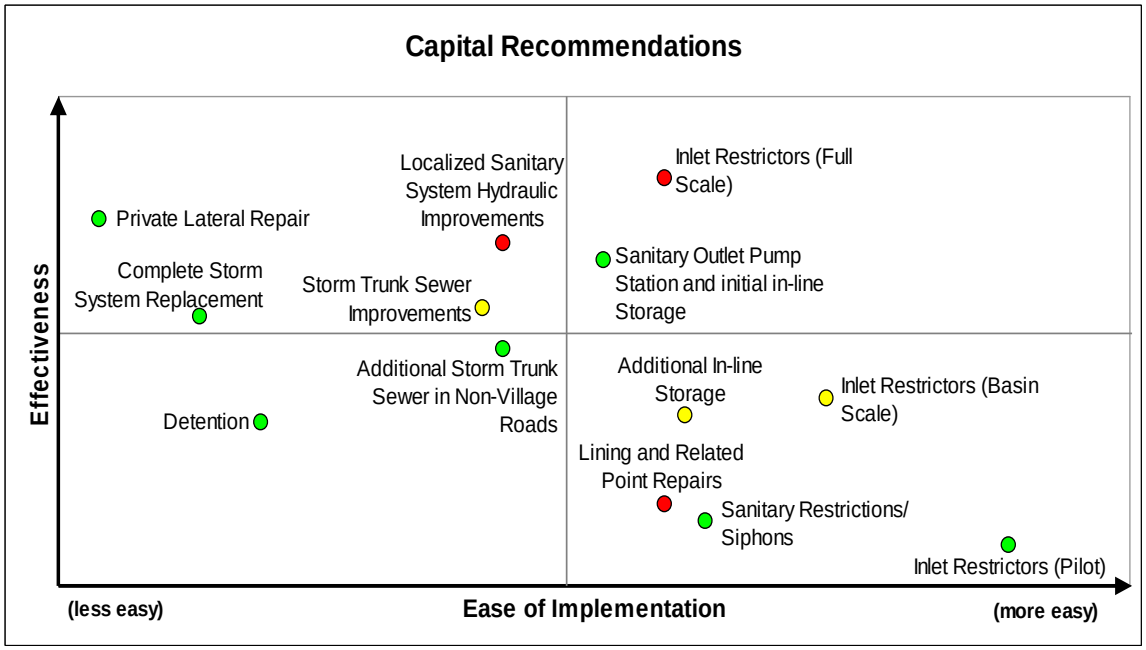
sewer categories. The second step was to determine the relative ease of implementation and effectiveness of each improvement project. The ease is governed by the relative cost, political repercussions or roadblocks, and difficulty of coordination with other entities. The relative effectiveness of each capital and private project at reducing flooding issues was evaluated. The operational change projects were evaluated to determine which projects would provide the most benefit to the Village, as the projects do not directly affect the reduction of backups.

Two tools were used for the evaluation process: the Assessment Table and 4-quadrant charts. The Assessment Table contains textual descriptions and constraints of each improvement, while sorting them into the above categories. The 4-quadrant charts are useful tools for determining the relationship between the effectiveness or benefit and ease of implementation of each improvement option. There are separate Assessment Tables and 4-quadrant charts for Capital, Operational, and Private projects, as they are more easily analyzed when viewed relative to similarly associated projects. Capital projects with predecessors are noted on the chart. The Assessment Tables and 4-Qudrant Charts are attached.

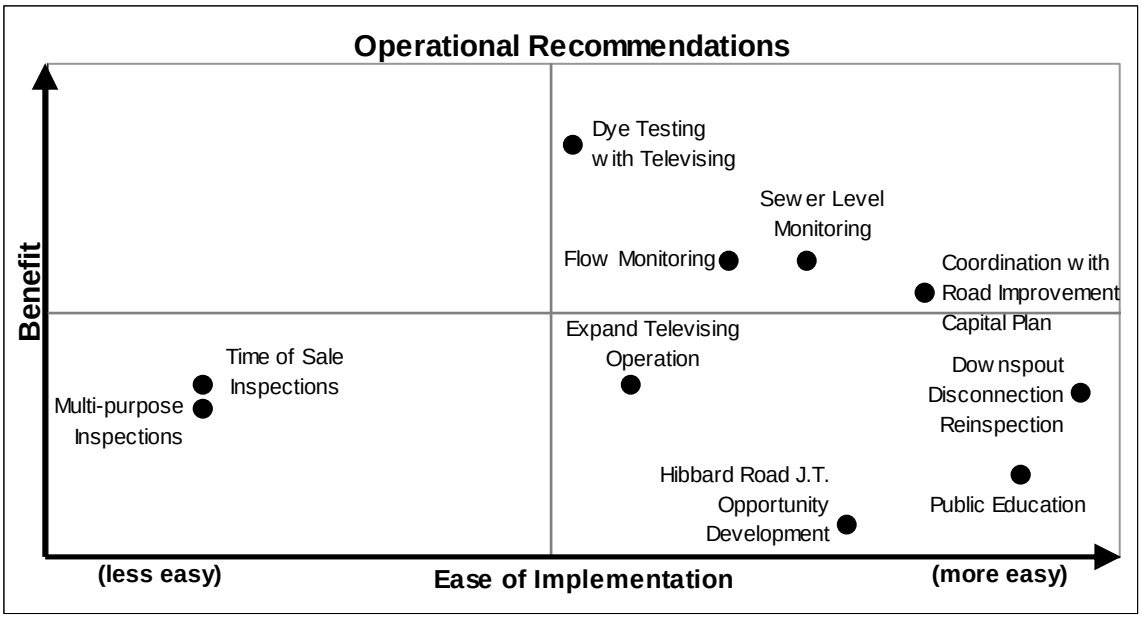
Future Development of Draft Implementation Plan

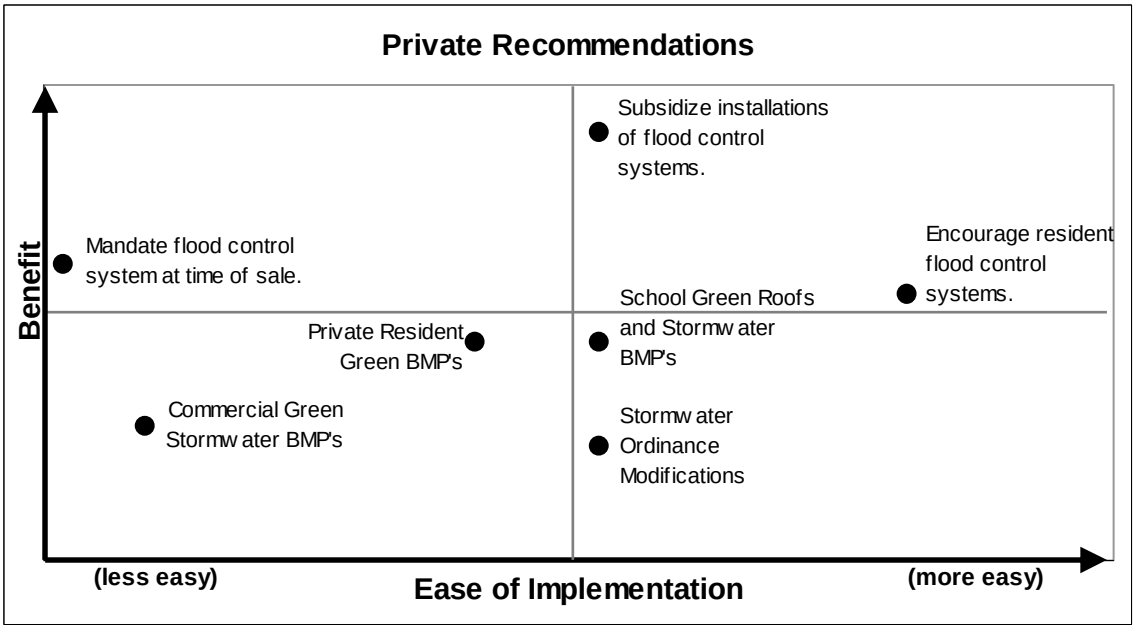
MWH will further evaluate eight projects for which to prepare conceptual level (AACE Class 5) cost estimates. From these projects, MWH will select up to three combinations of projects to include in the first draft implementation schedules. After Village review, the preferred combination will be developed by MWH into a more detailed implementation plan.





- Project can be implemented independently.
- Project has a precursor project that must be completed prior to implementation.
- Project has multiple precursor projects.


Operational Recommendations
Benefit
Dye Testing with Televising
Sewer Level Monitoring
Flow Monitoring
Coordination with Road Improvement Capital Plan
Expand Televising Operation
Time of Sale Inspections
Multi-purpose Inspections
Downspout Disconnection Reinspection
Hibbard Road J.T. Opportunity Development
Public Education
(less easy)
Ease of Implementation
(more easy)


Private Recommendations
Benefit
Subsidize installations of flood control systems.
Mandate flood control system at time of sale.
Encourage resident flood control systems.
School Green Roofs and Stormwater BMP's
Private Resident Green BMP's
Commercial Green Stormwater BMP's
Stormwater Ordinance Modifications
(less easy)
Ease of Implementation
(more easy)

Assessment Table 1
Capital Projects

	Overview: Village of Wilmette Separate Sewer System Study – Project Identification and Screening Level Evaluation				
	Project	**Cost Type**	**Description and Anticipated Benefits**	**Comparative Cost**	**Issues and Constraints**
Sanitary	**Sanitary Restrictions/ Siphons**	Capital	Address siphon capacity at two locations at Greenleaf Ave./Hibbard Rd. and Laramie Ave./Lake Ave. Perform hydraulic calculations to see if there are flow restrictions and if so, consider physical improvements. Village workers prefer Conflict Manholes for ease of construction and maintanance.	**$**	Consider construction logistics and any recent re-paving.
Sanitary	**Lining and Related Point Repairs**	Capital	Lining addresses structural issues first, then to focus on flood reduction by reducing cross flows. Identify inflow and infiltration and then Village will need to prioritize improvements as they relate to flood reduction efforts.	**$$$**	Flood reduction is dependent on first reducing crossflow between sanitary and storm systems via private lateral repair or successful inlet restriction. Lining currently being done to address critical point repairs and structural problems. There is a backlog due to lack of sufficient funds. Village should aim to have 1/2 of all sanitary mains west of Ridge Road lined over five years.
Sanitary	**Sanitary Outlet Pump Station and Initial In-line Storage**	Capital	Pump station at Harms Road with backflow protection, combined with about 20% of 1.5 MG total planned in-line storage (0.3 MG) along Lake Ave.	**$$$**	Phase in-line storage. Existing easement with Glenview north of Lake Avenue, but not south. Cooperation of the Village of Glenview and MWRD required.
Sanitary	**Additional In-line Storage**	Capital	Construct the remaining 80% (1.2 MG) in-line storage along Lake Ave.	**$$$**	Phase in-line storage. Existing easement north of Lake Avenue, but not south. Cooperation of the Village of Glenview and MWRD required.
Sanitary	**Localized Sanitary System Hydraulic Improvements**	Capital	Once Village can reduce total I&I, evaluate and construct sanitary improvements. The process would include focused sanitary trunk main improvements; and would require hydraulic analysis and modeling.	**$$$**	Inflow and Infiltration into the sanitary collection system must first be significantly reduced using other measures.
Sanitary	**Private Lateral Repair**	Capital	To effectively reduce crossflow, the Village must address the problems of the Village residents' private storm and sanitary laterals. Residents routinely experience inflow and infiltration between their private laterals contributing to basement flooding. Repairing the laterals will reduce the volume of water entering the sanitary sewer and contributing to backups.	**$$$$$$**	To be effective, all laterals in an area need to be repaired or replaced from the sewer main to the building. Cost and responsibility would need to be assigned to the residents or shared or assumed by the Village.
Storm	**Inlet Restrictors (Pilot)**	Capital	Pilot storm system restrictor program to document effectiveness at reducing backups. Determine the best pilot area. Determine restrictor size and evaluate two areas.	**$**	Need to identify pilot area that is measurable and close to outlet point. Pilot will include flow-monitoring, sewer televising, dye testing, and observation wells.
Storm	**Inlet Restrictors (Basin Scale)**	Capital	Implementing inlet restrictor program throughout one sewer sub-basin. The sub-basin would be the one in which the pilot program was located. Would require full system study, modeling, purchase and installation of restrictors, and construction.	**$$**	Requires inlet restrictor Pilot test. May cause additional street flooding. Open House respondents indicate that little storage capacity may be available for additional street flooding.

Assessment Table 1 (Cont.)
Capital Projects

Storm

Overview: Village of Wilmette Separate Sewer System Study – Project Identification and Screening Level Evaluation				
Project	**Cost Type**	**Description and Anticipated Benefits**	**Comparative Cost**	**Issues and Constraints**
Inlet Restrictors (Full Scale)	Capital	Depending on inlet restrictor Pilot test. Implement inlet restrictor program throughout Village. Would prioritize basins and only install restrictors in basins which experience backup flooding. Would require full system study, modeling, purchase and installation of restrictors, and construction.	**$$$$**	Requires inlet restrictor Pilot test. May cause additional street flooding. Open House respondents indicate that little storage capacity may be available for additional street flooding in some areas.
Complete Storm System Replacement	Capital	Replace all storm trunk and collection mains to address surcharging issues. Would increase sewer capacity to a design storm protection level. Improvements reduce instances of system pressurization and surface flooding.	**$$$$$$**	Complete replacement would constitute expensive construction contracts which would disrupt normal traffic and day-to-day activities over a long period of time. Would also be invasive and disruptive to roads and surrounding areas, possibly effecting tree-life. Basement flooding may still occur under a storm of greater intensity than designed capacity. May require upgrading Stormwater Pump Station.
Storm Trunk System Replacement	Capital	With inlet restriction, to maintain surface drainage capacity the Village currently has, trunk sewer capacity would need to be increased.	**$$$$$**	This project would be considered in conjunction with basin or full scale inlet restriction. Would need to address areas with most capacity deficiencies.
Additional Storm Trunk Sewer in Non-Village Roads	Capital	In light of IDOT's and Cook County's resistance to inlet restriction along their roadways, the Village may install a storm sewer main along some non-Village roads parallel to the existing sewers. These sewers would operate independently from the local storm sewers and be dedicated to storm runoff from non-Village owned streets. Would remove those streets' runoff volumes from the residential storm sewers and reduce the need to over-restrict residential streets to compensate for non-Village road runoff.	**$$$$**	This project would be considered in conjunction with basin or full scale inlet restriction. May require minor modificaition of existing Stormwater Pump Station.
Detention	Capital	Consideration of underground and surface storage in the system. Location considerations would include Park District or school land; area would also need to be located near a large arterial trunk main for the storage to be effective.	**$$$$$**	Difficult to get parks' and schools' consent. Existing open space is not near large trunk mains which makes surface detention of a necessary scale would not be possible. Cheaper local detention is far less effective at reducing Village flooding.

Capital Project Comparative Cost Legend	
$	< $500,000
$$	$0.5m to $3m
$$$	$3m to $10m
$$$$	$10m - $25m
$$$$$	$25m - $100m
$$$$$$	> $100m

(Note: All costs are estimated to less than AACE Class 5 level, estimated accuracy is -50% to +200%, at best)

MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or other factors likely to affect the Opinion of Probable Construction Cost of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility of the market attributable to Acts of God and other market events beyond the control of the parties. This is a "snapshot in time" and that the reliability of this Opinion of Probable Construction Cost will inherently degrade over time. MWH cannot and does not make any warranty, promise, guarantee, or representation, either express or implied, that proposals, bids, project construction costs, or cost of operation or maintenance will not vary substantially from this good faith less than Class 5 Opinion of Probable Construction Cost.

Assessment Table 2
Operations Projects

Overview: Village of Wilmette Separate Sewer System Study – Project Identification and Screening Level Evaluation				
Project	**Cost Type**	**Description and Anticipated Benefits**	**Comparative Cost**	**Issues and Constraints**
Downspout Disconnection Reinspection	Operations	Inspect residents' downspout disconnections since the 1990's.	**$$**	Village to hire summer interns to complete inspections or evaluate other options to conduct inpsections.
Dye Testing with Televising	Operations	Dye test areas and determine low/medium/high cross-flows. Use these results to determine need to further televise and dye-test laterals. Better locate cross connections in areas with the greatest cross flow.	**$$$**	Review existing maps and determine where additional testing is needed. Village field support is necessary to execute tests.
Expand Televising Operation	Operations	Optimize staffing levels with equipment use (televising truck, etc). Opportunity to televise more and reduce external contractor expenses.	**$$$**	May need to hire additional televising operators.
Flow Monitoring	Operations	Village to implement permanent flow monitoring for constant data. Will be useful for permitting and capital planning. In the past, Village has frequently hired out metering hardware and operations, temporarily missing critical rain events. Flow monitoring is effective for determining pipe sewer capacity issues.	**$$$**	Village will maintain the meters and all data collection. SCADA can be included. Need to identify 4-6 locations.
Sewer Level Monitoring	Operations	Village to install permanent water level monitors in storm and sanitary sewers to better track flooding. Will be useful for understanding storm sewer operations and eventual system modeling. Level monitoring is effective for determining level of flooding after pipes are at maximum capacity.	**$$$**	Village will maintain the meters and all data collection. SCADA can be included.
Hibbard Road J.T. Opportunity Development	Operations	Reduce cost of sewer improvements to the Village by working with IDOT and Cook County to coordinate work.	**$**	Increase communication between sewer rehabilitation personnel and other agencies.
Public Education	Operations	There are different avenues for public education including newspaper ads, mail, email and website information. Dependent upon the recommendations provided, Village will want to educate residents on general sewer system information and flood prevention and reduction strategies. This will also help if any other system improvements end up having side effects such as surface flooding.	**$-$$**	The Village will need to choose the right topics and avenues (cost/benefit) for the information to get to the residents.
Multi-purpose Inspections	Operations	Inspector doing any permitting change, could also check for visible cross connections.	**$**	Village Board policy decision. Advance communication with residents is essential.
Time of Sale Inspections	Operations	Determine where residents' sewers are discharging to at time of sale and addressing anything found. Bonding possible to mitigate sales issues.	**$**	Could encounter owner resistance as may delay sale of property. Village Board policy decision.

Operational Project Comparative Cost Legend		(Note: All costs are estimated to less than AACE Class 5 level, estimated accuracy is -50% to +200%, at best)
$	< $10,000	MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or other factors likely to affect the Opinion of Probable Construction Cost of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility of the market attributable to Acts of God and other market events beyond the control of the parties. This is a "snapshot in time" and that the reliability of this Opinion of Probable Construction Cost will inherently degrade over time. MWH cannot and does not make any warranty, promise, guarantee, or representation, either express or implied, that proposals, bids, project construction costs, or cost of operation or maintenance will not vary substantially from this good faith less than Class 5 Opinion of Probable Construction Cost.
$$	$10,000 - $49,999	
$$$	$50,000 - $149,999	
$$$$	>= $150,000	

Assessment Table 3
Private Projects

Overview: Village of Wilmette Separate Sewer System Study – Project Identification and Screening Level Evaluation			
Project	**Cost Type**	**Description and Anticipated Benefits**	**Issues and Constraints**
Private Flood Control Systems	Residential	Encouraging resident flood control systems.	Village would need to be more proactive and provide more information of each possible FCS.
	Operations & Residential	Subsidizing private installations of flood control systems.	Political repercussions of those residents who installed existing private flood control systems prior to subsidies.
	Residential	Mandate flood control system at time of sale.	May complicate home sales.
Green Stormwater Management BMPs	Institutional	Use Public schools' roofs for green roofs. Especially helpful since schools and their pavements are large contributors of stormwater runoff. There would be shared benefit for the Village and the schools as it would be an example to students and parents of good community stewardship. Possibly involve students.	Involves partnering (i.e. cost-sharing) between Village and Schools.
	Commercial	Encourage any new commercial construction to use LEED building practices and green stormwater BMP's. Includes green roofing, permeable pavements, and ample on-site storage. Consider ordinances.	It can be difficult for the Village to instate these measures on existing commercial properties. However, there might be benefit in having an incentive program for those businesses that do choose to retrofit.
	Residential	For residents, this initiative would include sustainable practices for stormwater management including rain barrels, rain gardens, absorbent grasses, and permeable hardscaping. Village to consider cost sharing or subsidizing installation of such measures.	If Village subsidizes green measures, there could be political repercussions of those residents who installed such systems prior to subsidies. Could rectify that by setting a subsidy cap. Need to adjust residents' conventional thinking about standing rainwater, etc.
Ordinance Revisions	Operations & Private	Ordinance modifications to increase stormwater detention and decrease single home runoff.	This approach would differ from current Village stormwater ordinances, but would be a valuable step in securing responsible stormwater management in the future.

WORKSHOP NOTES

Client:	***Village of Wilmette***	**Date:**	***January 29, 2009***
Project:	***Separate Sewer System Study***	**Time:**	***9:00 AM***
Location:	***1200 Wilmette Ave. Wilmette, IL***	**PM:**	***Mark Wagstaff***
Prepared:	***February 3, 2009***	**Prep By:**	***Brenna Mannion***

(Attendees: Mark Wagstaff, Paul Moyano, Brenna Mannion, Tom Rowlett, Brigitte Mayerhofer, Jorge Cruz, Linda Reilley, Mark Anderson, Donna Jakubowski, Scott Hilts)

Glossary of abbreviations:

HRI	Harms Road Interceptor
LAI	Lake Avenue Interceptor
GPCPD	Gallons per capita per day
DWF	Dry weather flow
RFP	Request for Proposals
IDOT	Illinois Department of Transportation
MWRD	Metropolitan Water Reclamation District
NBCR	North Branch of the Chicago River

1. Review Collection Systems

KENILWORTH GARDENS	• First separate sanitary/storm system in Illinois, Constructed out of clay pipe in the late 1920's. • Most houses have storm and sanitary lateral in the same trench about 1' apart. • Deep laterals in conjunction with high-ish water tables → high DWF. • Village used 8' change in lateral and trunk depths to insert in-line storage.
COOK COUNTY	• MWRD Interceptors built in the 1940's • Late 1940s Harms Road Interceptor (HRI) built • Pre 1950s is assumed to be combined sewer • 1960s-70s Experienced shift to separate system codes

VILLAGE OF WILMETTE	• Very flat • High ground water level • Ridge Rd. is the boundary between the Mississippi River and St. Lawrence Seaway watersheds. • West of Ridge = Separate sewers (dev. After WWI, with west of Locust dev. After WWII) • - West side downspouts disconnected in 90's or pay for test to prove direct cnxn to storm sewers • Subdivision south of Lake Ave., in Glenview, discharges directly into Lake Avenue interceptor (LAI) • Section of Wilmette north of Illinois Rd. and West of Skokie Blvd. stormwater flows directly to NBCR • Permitted sanitary flow to MWRD = 650 GPCPD • Standard Sanitary flows are ~ 100 GPCPD • MWRD flow costs not based on metering (there is none), rather they are based on property taxes. • Almost all west-side homes have at least 2 laterals • Wilmette Elevation: 0' WIL = 579.07' USGS • 1 CFS/ACRE is typical runoff for this region

2. Identify Problem Areas

LAKE AVENUE INTERCEPTOR	• LAI connects to the bottom of the MWRD Interceptor on the west side of the Eden's. There is an 8' drop to go under the Expressway. The LAI has a very flat slope so anytime MWRD is running at high flow there is a backwater condition east from the MWRD Harms Road Interceptor (HRI) into the Village.
	• Mark Anderson (Public Works First Responder):
	  • 1" of rain over 4 hrs = OK
	  • 1" of rain over 30 min = start having LAI problems
	  • 4" of rain over 24 hrs = LAI surcharges
	  • At surcharge condition, the water level in manholes is only 2 or 3 feet below street level. There is stagnant ponding as they check manholes along the LAI. Occurs during storm events.

PRINCETON PLACE CONNECTION	• Tom points out there is a connection to the northern part of MWRD here. • Should have been helped with inline storage installed along Hunter. • Flow diversion has decreased flows which lead to heavy debris. • There is a 30" main that splits the 102" and 72" storage.
BEECHWOOD AREA	• Lots of infiltration through sanitary joints (not laterals) according to Linda.
2200 BLOCK OF KENILWORTH	• Mark Anderson thinks pipe is back-pitched

STREET FLOODING	• Mostly due to inadequately sized storm sewers; some caused by drains clogged with debris or low-lying properties.
GREENLEAF AND HIBBARD	• Sanitary inverted siphon (under storm) is difficult to clean out and often clogged.
LAKE AVE. AND LARAMIE	• Sanitary inverted siphon (under storm) is difficult to clean out and often clogged.
SE OF WEST SIDE	• According to observation and survey data, seems to not be as much flooding because more point repairs there. • Elevations are slightly (~10 or 20 feet) higher than rest of the West Side. Gross Point Area.

3. Identify and Review Recent Inspections and Rehabilitation

LINING PROGRAM	• Village budgets about $400,000/yr for lining, which is equivalent to about 6,000 feet of lining. Initially it all went to point repairs. • Lining almost always dedicated to sanitary, but some storm… • A lot of lining/point repairs in the southern Ridge to Locust Rd. area.
SEWER CLEANING	• Village has one Sewer Cleaning truck that is used once a day at least. And they only have 12 staff. If TVing, sewer must be cleaned, then televised, which can become time consuming. • Storm sewers are the last to be cleaned, and unless you use copper sulfate all the roots grow back.
IN-LINE STORAGE	• 120” Sanitary relief sewer at Hunter Rd. and Indian Hill Rd.
HILL ST AND LINCOLN LN	• Village replaced laterals on Hill Street and any laterals running underneath storm sewers. • Only replaced up to property lines. • Result is no visible improvement.
DYE TESTING	• Dye testing was performed at HRI 15 years ago. See maps. • Other areas are dye tested but rarely as part of a larger plan; Often very localized and not coordinated with televising.

4. Residents' Flood Control Measures

FLOOD CONTROL SYSTEMS	• Some residents install manhole in the front yard with a pump and check valves. Pump pushes flows into the sanitary system under pressure when the collection system is in surcharged condition. • Overhead sewers are another private flood control option, more expensive to install. • Residents install flood control systems which can then further exacerbate or amplify previously existing problems for neighbors
DOWNSPOUTS	• Some are still connected, possibly to sanitary system, though supposed to be disconnected or connected to the storm system. • According to Tom, a 4" lateral can only handle one downspout's flow, but often homes have up to 4 downspouts which causes flooding.
"GREEN" MEASURES	• Rain barrels and rain gardens are sporadically used throughout the Village. • Absorbent grasses, etc.
RESIDENTIAL ASSISTANCE PROGRAM	• Village has RFP's out to develop a list of televising and Home Flood Assessment contractors. • Looking into cost sharing for green measures and sewer lateral replacements (like St. Louis).

5. Possible Recommendations

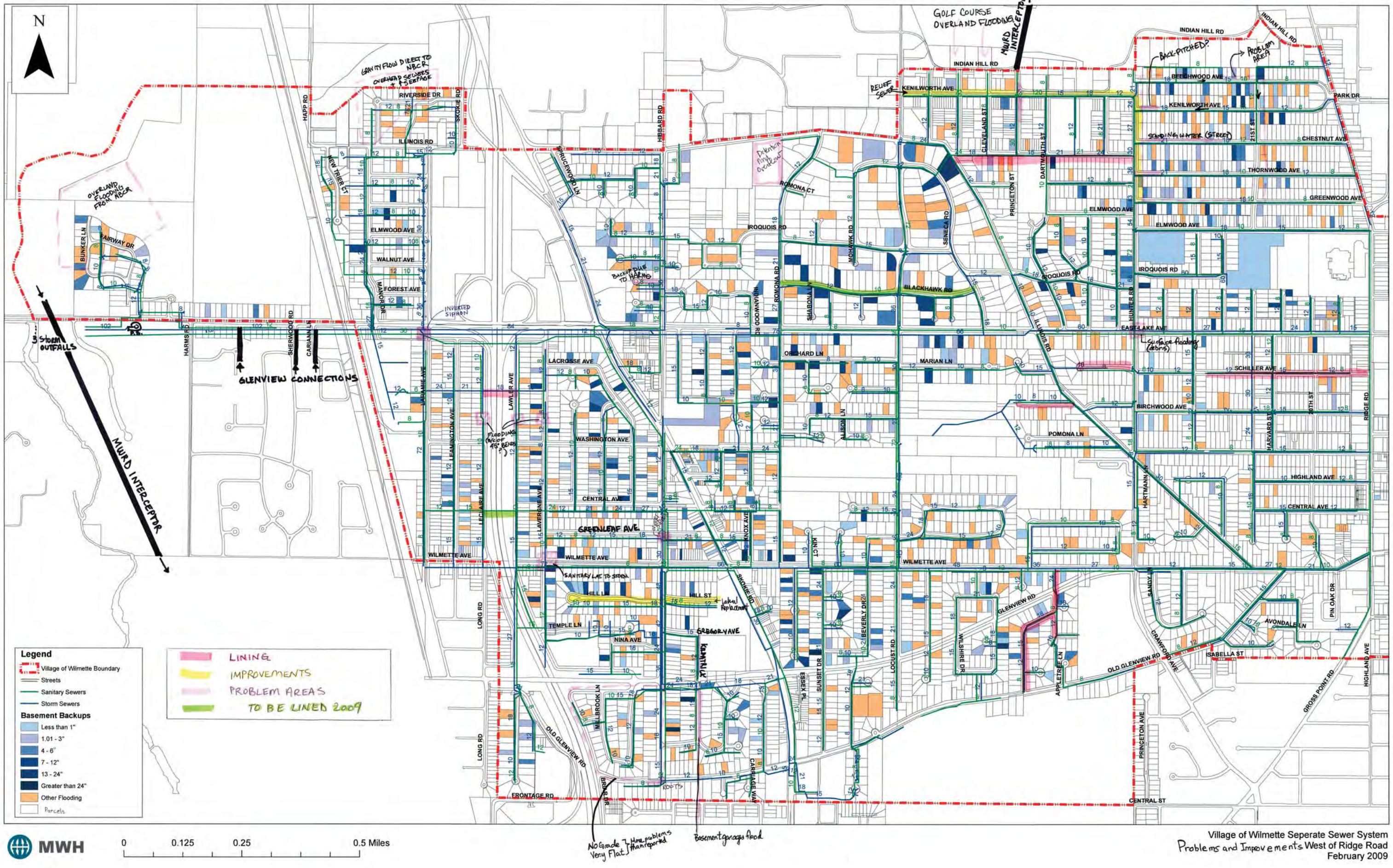
Flow Monitoring	Operations
Downspout Disconnection Reinspection	Operations
Dye Testing with Televising	Operations
Sanitary Restrictions/ Siphons	Capital
Private Flood Control Systems	Private
Time of Sale Inspections	Private
Multi-purpose Inspections	Operations
Clear Backlog	Operations
Staffing Levels/ Televising Optimization	Operations
Lining	Capital
Sanitary Outlet pump station and in-line Storage	Capital

Inlet Restrictors (Pilot vs. Full Scale)	Capital
Localized Sanitary System Hydraulic Improvements	Capital
Coordination with Road Improvement Capital Plan	Operations
Complete System Replacement	Capital
Storm Trunk System Replacement (Bottleneck reduction)	Capital
Public Education	Operations
Detention	Capital
Public Building Green Roof	Private
Green Stormwater Management BMPs	Private/ Operations

6. Miscellaneous

TYPICAL LEVEL OF SERVICE	Participants had a conversation about how most new systems are typically designed to the following levels of service: For storm system = 10 year storm Reservoir = at least 100 year storm
STORM SURVEY SEPT 2008	Out of 11,000 homes, about 2,000 responded, which is roughly 20%. Survey data may not give a complete picture due to people who flooded but did not respond, as well as based on accuracy of returned responses.
CONFLICT MANHOLES	Village prefers them over siphons because they are maintainable and don't pose the head loss restrictions found at siphons.

STORM SEWER	Need to get grade line below sanitary lateral level, so storm system is not operating under pressure. Inlet control on a separate storm system has not been done before – would be in compliance with MWRDGC detention regulations.
LATERAL REPLACEMENT	According to Tom, no regional systems have found the replacement of laterals to be cost effective (costs $6,000 per house to replace). Village has found replacing up to property line is ineffective. St. Louis, MO has had success with a shared cost/sewer lateral replacement program.
HIBBARD RD.	City owns south of Skokie Blvd. and IDOT north of Skokie. Opportunity for a possible jurisdictional transfer.
FLOW METERING	For permanent flow monitoring (which would help Village tremendously) it would be $25K per permanent flow meter with connection to telephone /power lines. Need ~ 4 – 6 monitors.
GLENVIEW	The Village of Glenview experiences flooding in their separately sewered area tributary to the Harms Road Interceptor and has completed studies for addressing these issues. They have also created a Resident Stormwater Task Force that is meeting on a monthly basis to develop a comprehensive stormwater management program to address this and other flooding issues in the Village. MWH is involved in this effort and may be able to facilitate communication between the Villages to investigate the opportunities for addressing common problems.



Village of Wilmette Seperate Sewer System
Problems and Improvements West of Ridge Road
February 2009

Section 2:
Basement Backup Mitigation Implementation Program

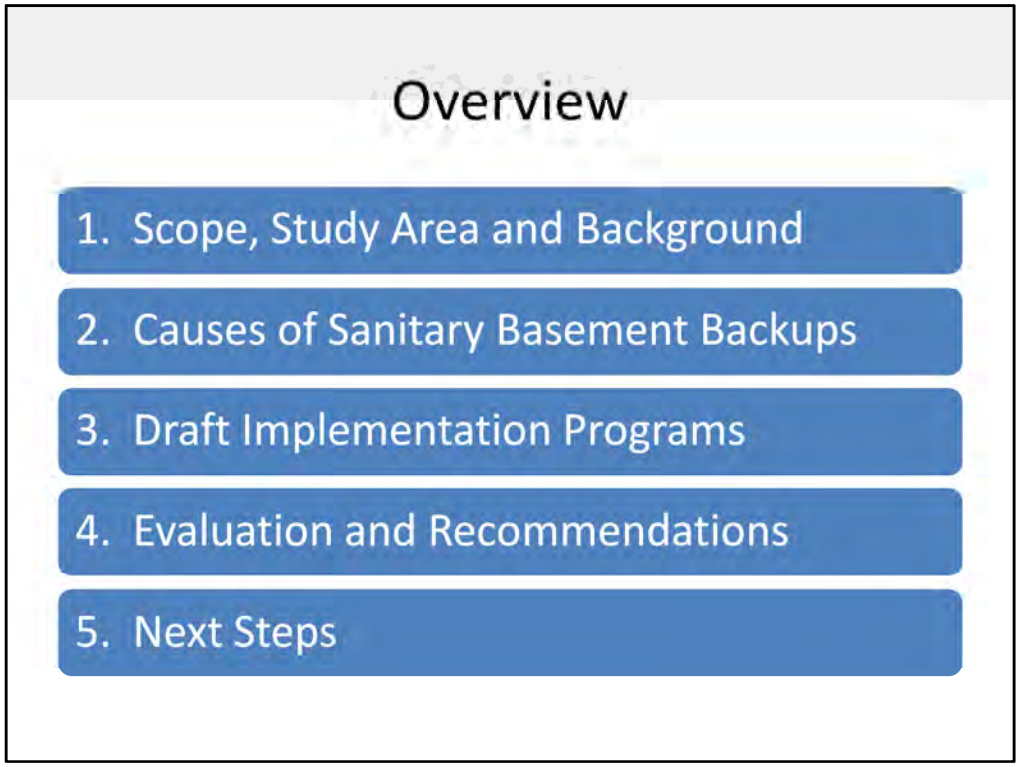
Original Submittal Date : June 19, 2009

Basement Backup Mitigation Implementation Program

Village of Wilmette

Separate Sewer Area Study

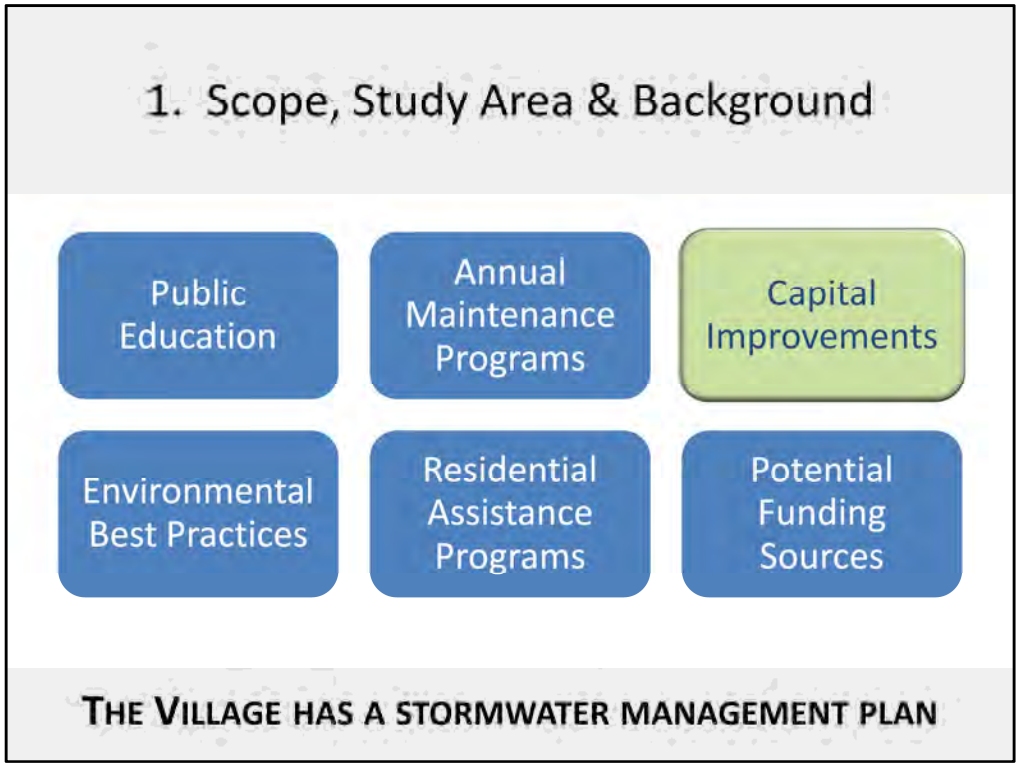
On January 13, 2009 MWH Americas, Inc. (MWH) was retained by the Village of Wilmette to assist in the development of a program of actions to reduce the frequency and severity of sanitary sewer basement back-ups in the separate sewer area of the village.



This document describes the study area, inventories some of the previous studies that have been completed, and describes some of the causes of basement back ups in the study area as well as potential solutions to address those problems.

The individual projects that may be part of a holistic, programmatic approach have been assembled into 4 draft implementation plans, which have been evaluated against a suite of criteria relevant to the Village of Wilmette. A set of preliminary recommendations is also included.

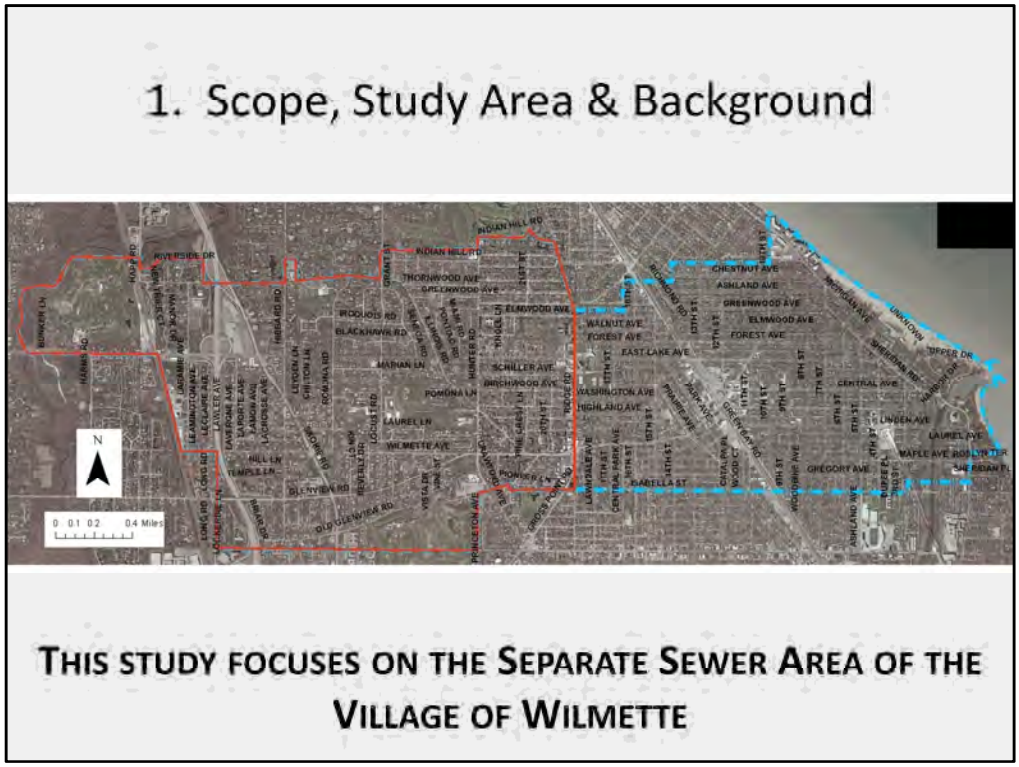
Finally, the next steps for the completion of this study are outlined.



In January, 2009 the Village unveiled a Comprehensive Stormwater Management Plan, which has six primary components:

- Public Education
- Annual Maintenance Programs
- Capital Improvements
- Encourage Environmental Best Practices
- Identify Potential Resident Assistance Programs
- Potential Funding Sources

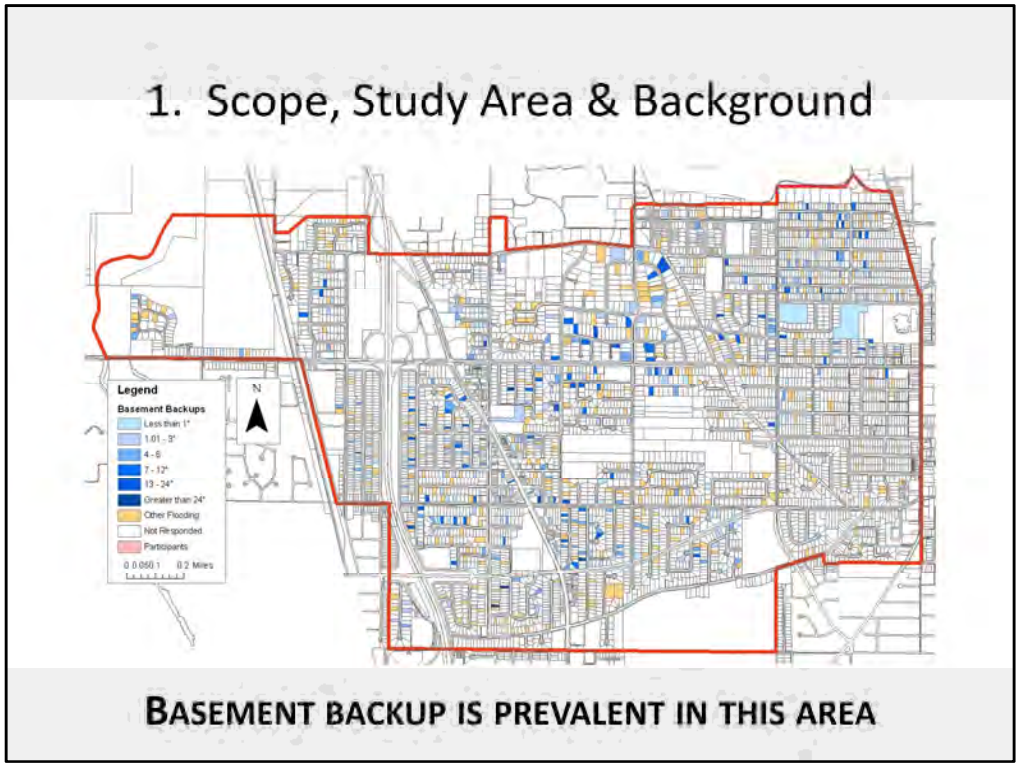
The Village is advancing specific elements of this plan along parallel tracks across the entire village. The work described in this document focuses on the investigation and evaluation of CAPITAL IMPROVEMENT solutions for sanitary basement backups in the separate sewer area, which are primarily driven by excess stormwater.



This study focuses on the part of the Village that is served by a “separate” sewer system – that is stormwater and sanitary waste are conveyed in distinct, separate sewer networks.

In Wilmette, this corresponds to the portion of the Village located west of Ridge Road, outlined on the aerial photograph in red.

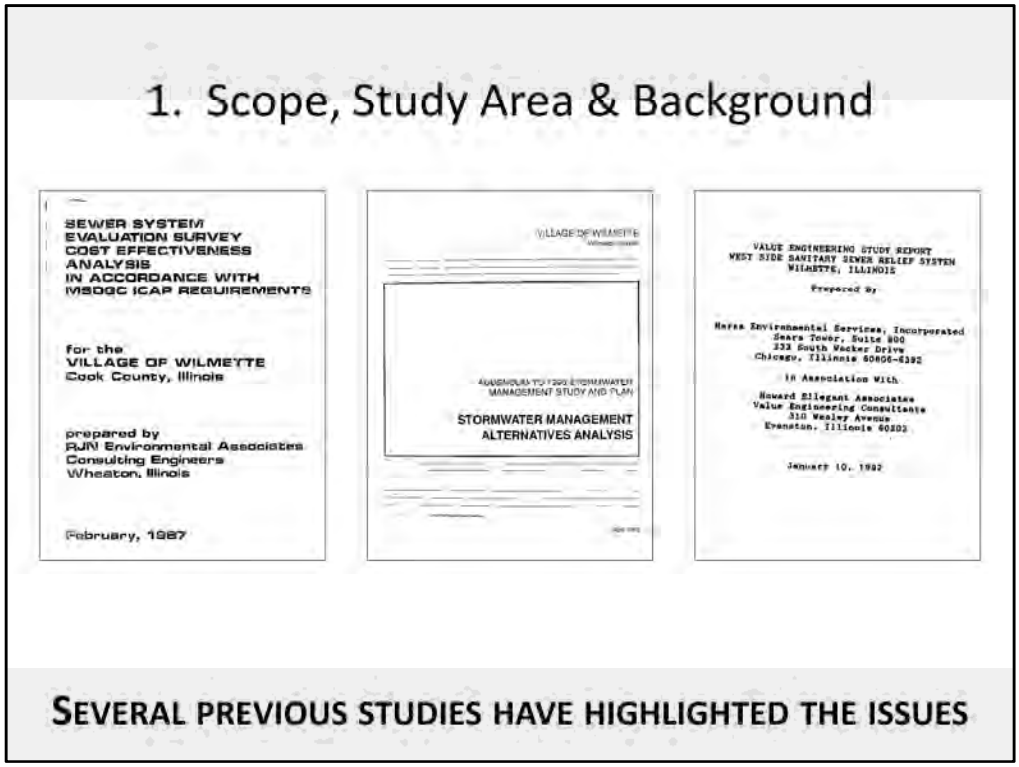
The storm sewer network collects stormwater and conveys it to a stormwater pump station on the far western edge of the Village, where it is discharged to the North Branch of the Chicago River. The sanitary sewer network has two outlets – one on the western edge of the Village into the Metropolitan Water Reclamation District (MWRD) Harms Road Interceptor, and the other at Princeton Place on the northern edge of the Village which drains into the MWRD North Shore #4 Interceptor.



The separate sewer area of the Village of Wilmette experiences sanitary sewer basement backups.

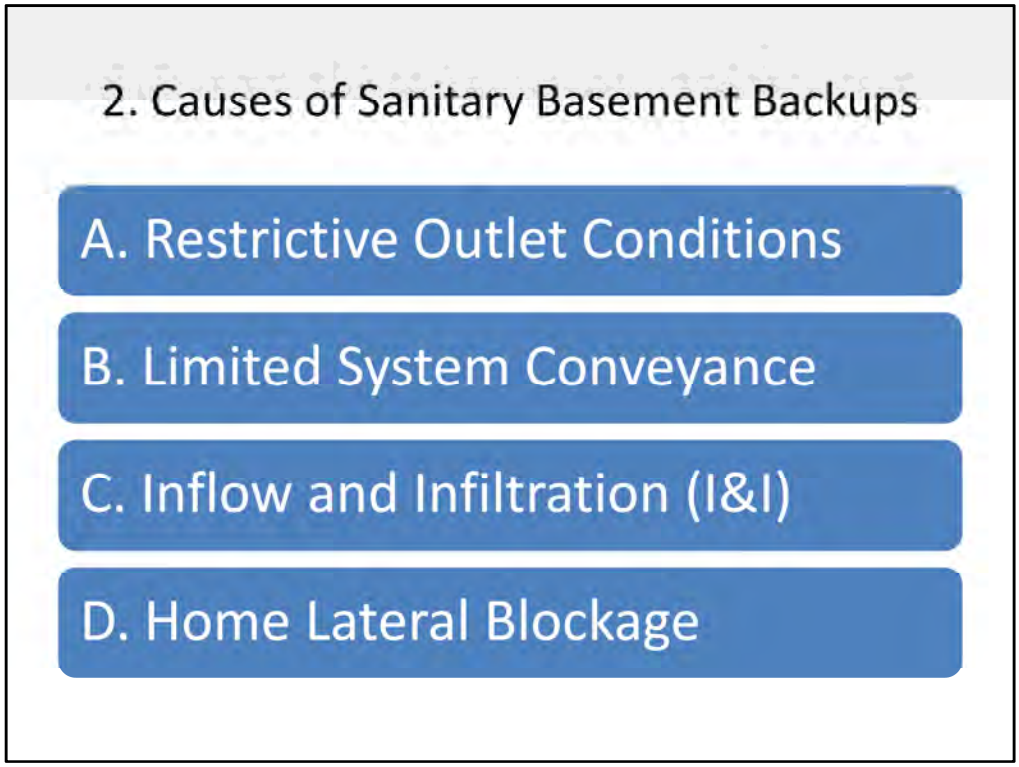
Most recently, heavy rains in February 2009, September 2008, and August 2007 resulted in widespread basement backups and other flooding problems.

Residents have taken advantage of a survey posted on the Village's website, in addition to being sent in the mail, to report flooding problems.



The Village of Wilmette has undertaken several previous studies to identify solutions to issues with the sanitary and storm systems, and has an ongoing program of rehabilitation projects. There is no low cost, easily installed, “silver-bullet” solution, however - there are options that can be considered and developed into a workable program.

A specific element of MWH’s scope of work is to not only identify improvements in the individual sanitary or storm water collection systems, but to lay out an overall implementation plan and funding schedule, which will provide the Village of Wilmette with a necessary roadmap to manage the overall program of work, and a benchmark against which future progress can be reviewed.

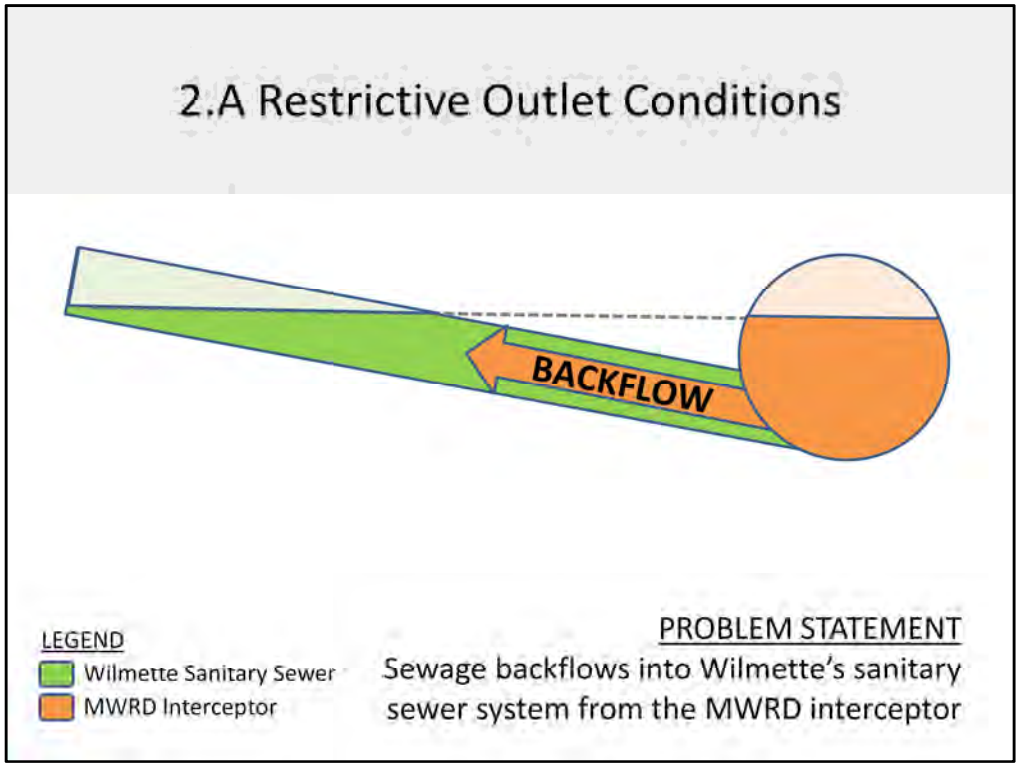


The study area experiences sanitary basement backups as a result of a combination of four distinct problems. All four problems need to be addressed in order to reduce the occurrence of basement backups to an acceptable level.

Starting from the downstream end of the system, the four issues contributing to basement backups are:

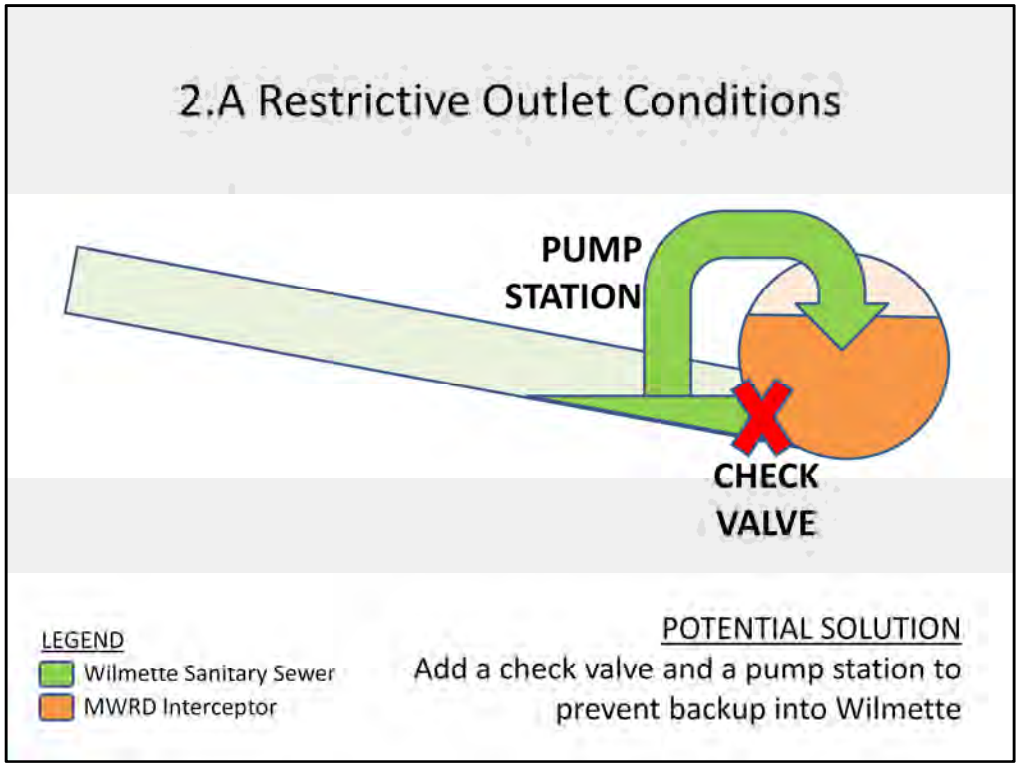
A. Occasional backflow from MWRD's Harms Road Interceptor into the Village's sanitary sewer system, and restrictions on the outlet flow from the Village's system to the MWRD Interceptor;
B. Limited conveyance capacity of the Village's sanitary sewer system;
C. Excessive demand on the Village's sanitary sewer system due to Inflow and Infiltration (I&I); and
D. Home Lateral Blockage

The emphasis in this document is on infrastructure solutions to address causes A, B, and C.



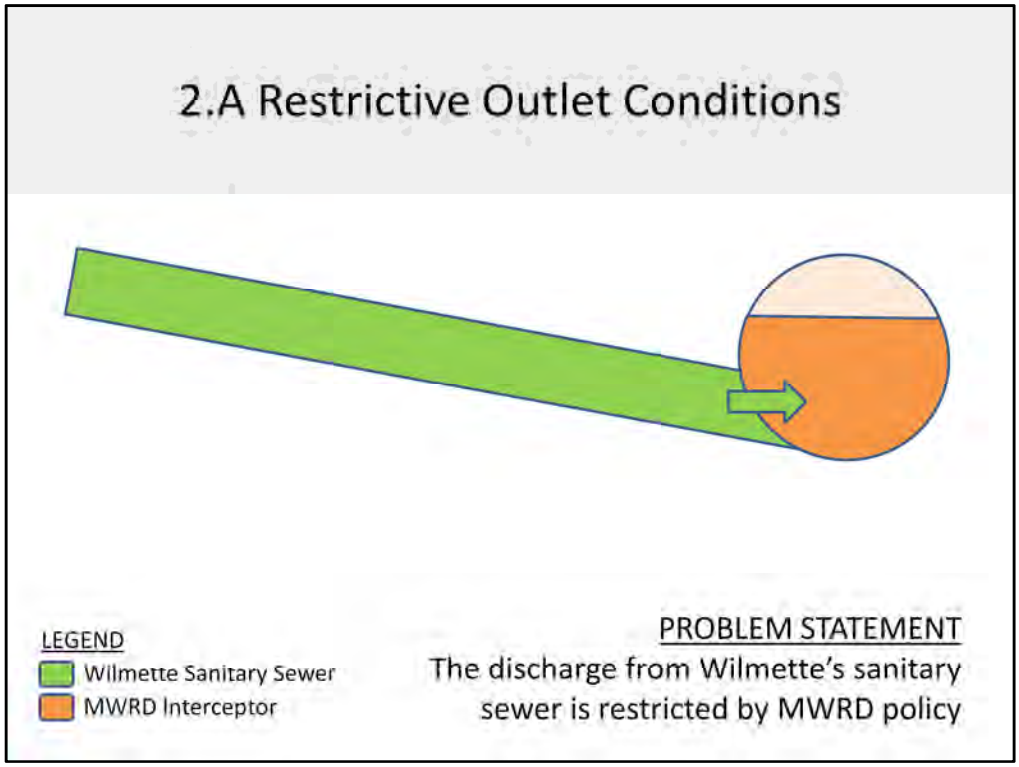
The arrangement of the connection between the Village's sanitary sewer system and the Harms Road Interceptor can allow backflow from the interceptor to enter the Village's system.

The Wilmette discharge is near the invert of the MWRD interceptor. Therefore, significant depth of flow in the interceptor from upstream communities will limit the discharge capacity of Wilmette's sanitary sewer system, and can back up into Wilmette. This prevents the flow from Wilmette's system from leaving, and contributes to the occurrences of basement flooding in the study area.



A solution to this problem is to install a check valve to keep flow from the MWRD Interceptor from backing into the Wilmette system.

A pump station would also be required to force Wilmette flows out past the check valve, whenever there are high flows in the MWRD Interceptor.

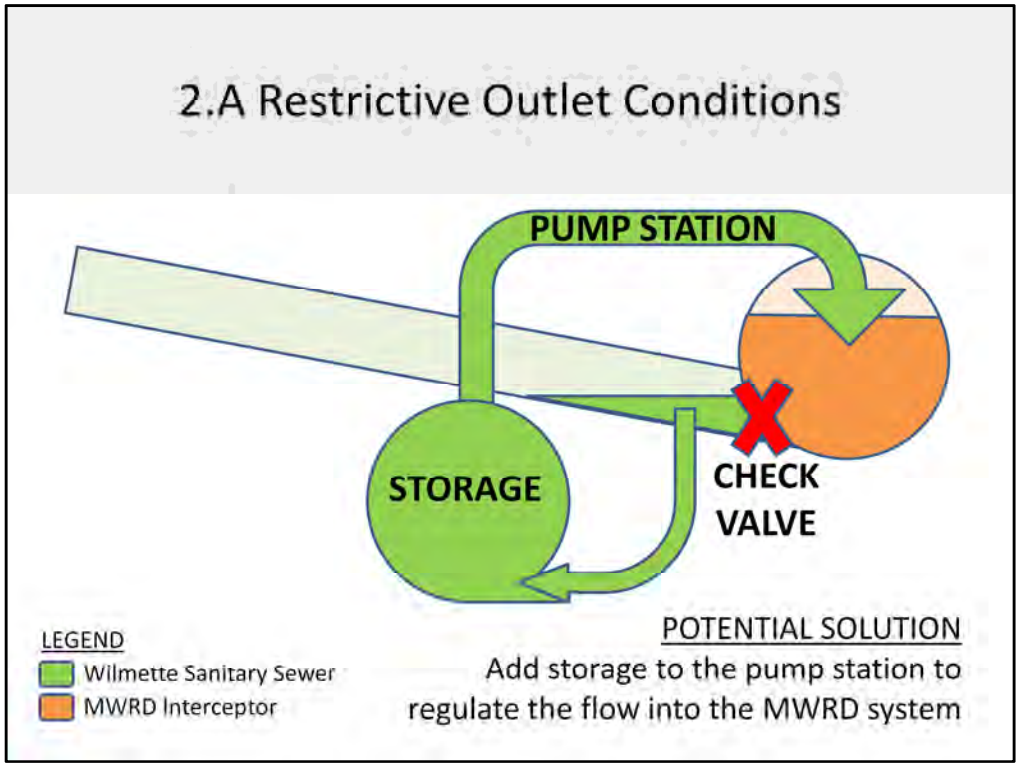


A second challenge for the Village is the capacity of the outlet.

The MWRD Interceptor serves many communities, and MWRD limits the amount of water that individual communities can discharge into the Interceptor.

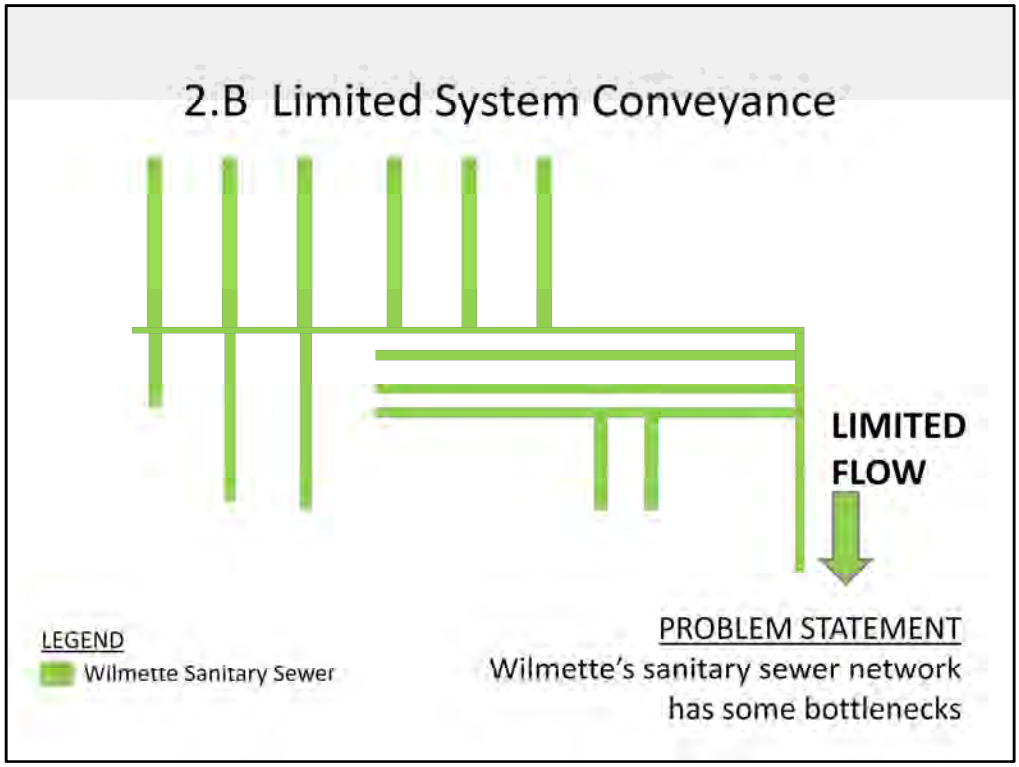
The MWRD standard discharge rate is 150 gpcpd (gallons per capita per day). MWRD has allowed the Village to discharge up to 752 gpcpd during wet weather to account for infiltration and inflow.

However if the Village undertakes major improvements on the sanitary sewer system, MWRD will likely require that the Village reduce the discharge rate to the standard rate.



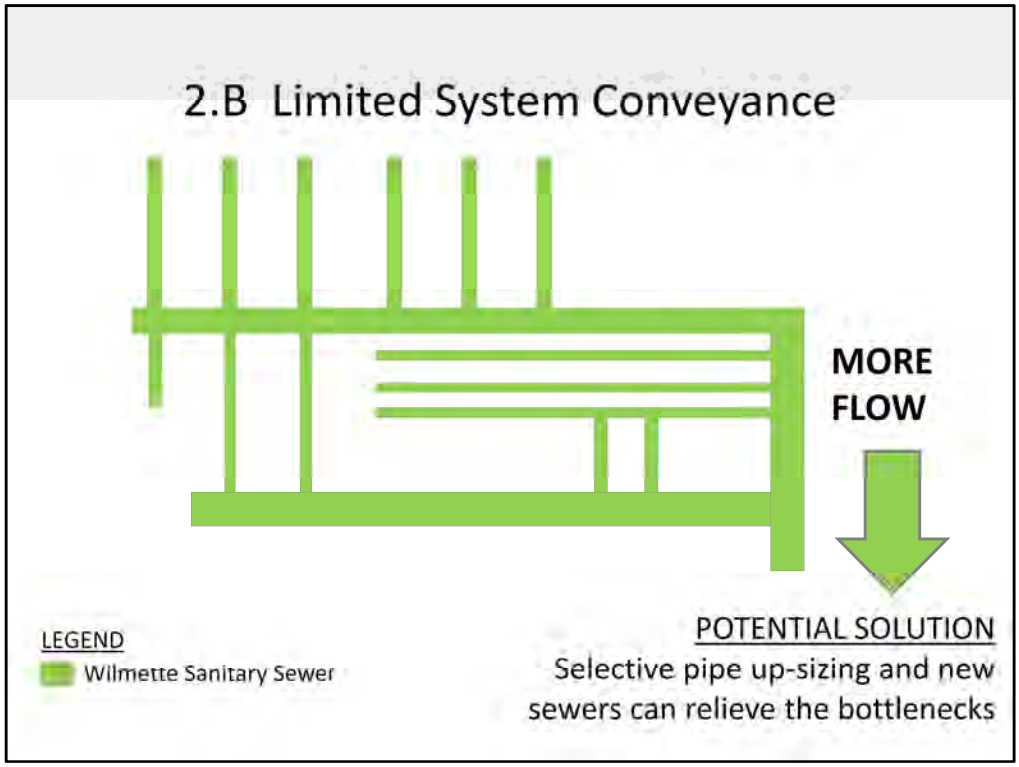
A solution to the outflow discharge limitation is to attenuate the flow by providing storage for the difference between Wilmette's actual discharge rate and the allowable discharge rate, and releasing the flow at a controlled rate via a pump station.

In-line storage to attenuate flows at the Princeton Place outlet has already been provided by an earlier Village project. Pumping was not required at Princeton Place, because there was sufficient elevation difference, and no backflow.



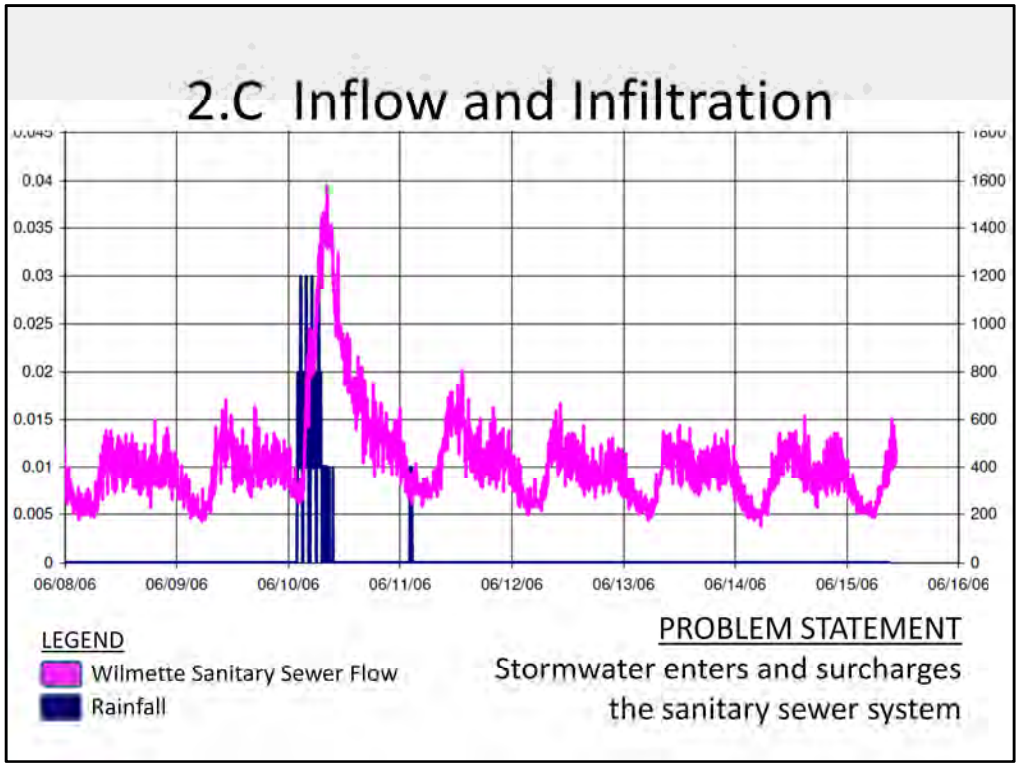
The second cause of sanitary basement backups is limited system capacity of the sanitary conveyance system.

Upstream from the outlet, there are a series of bottlenecks in the collection system that need to be addressed. Some of these have been identified (e.g. siphons) and there are likely other instances of less-than-optimal design due to the way in which the system was developed over several decades.



Bottlenecks need to be identified with a detailed study and hydraulic modeling so that cost-effective improvements, such as discrete sections of pipe upsizing, can be targeted and implemented.

These improvements will not be effective until the outlet condition is addressed, and not practical until inflow and infiltration is reduced (see 2.C).

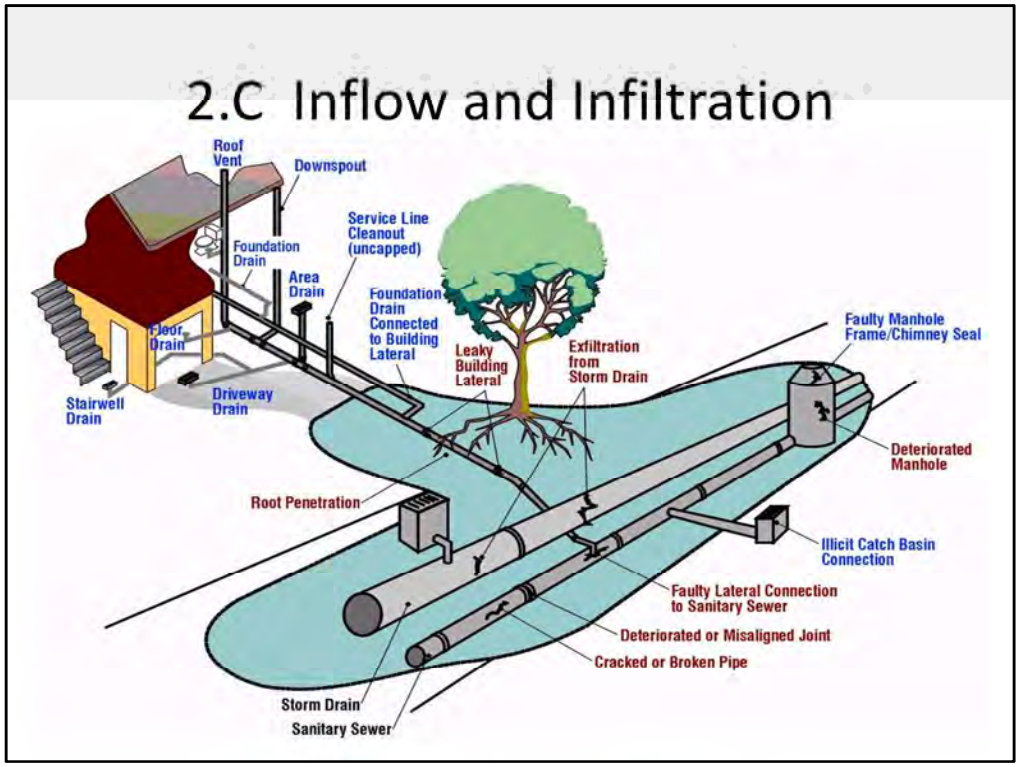


The third contributor to sanitary basement backups is excessive inflow and infiltration (I&I).

Of all the problems facing the Village of Wilmette in the separate sewer system study area, the most difficult to address is the high level of inflow and infiltration (I&I) into the sanitary sewer system.

The current network of sanitary sewers is capable of carrying normal “dry weather flow”, but during intense rain events stormwater fills the sanitary system beyond capacity.

In the late 80’s and early 90’s, the Village began to address this issue as required by the MWRD Sanitary Sewer Evaluation Study / Infiltration-Inflow Corrective Action Program (SSES/ICAP) to reduce I&I to levels acceptable to MWRD. The largest and most easily identifiable sources of I&I were eliminated. However, I&I continues to enter the system at levels great enough to increase the occurrences of basement backups.

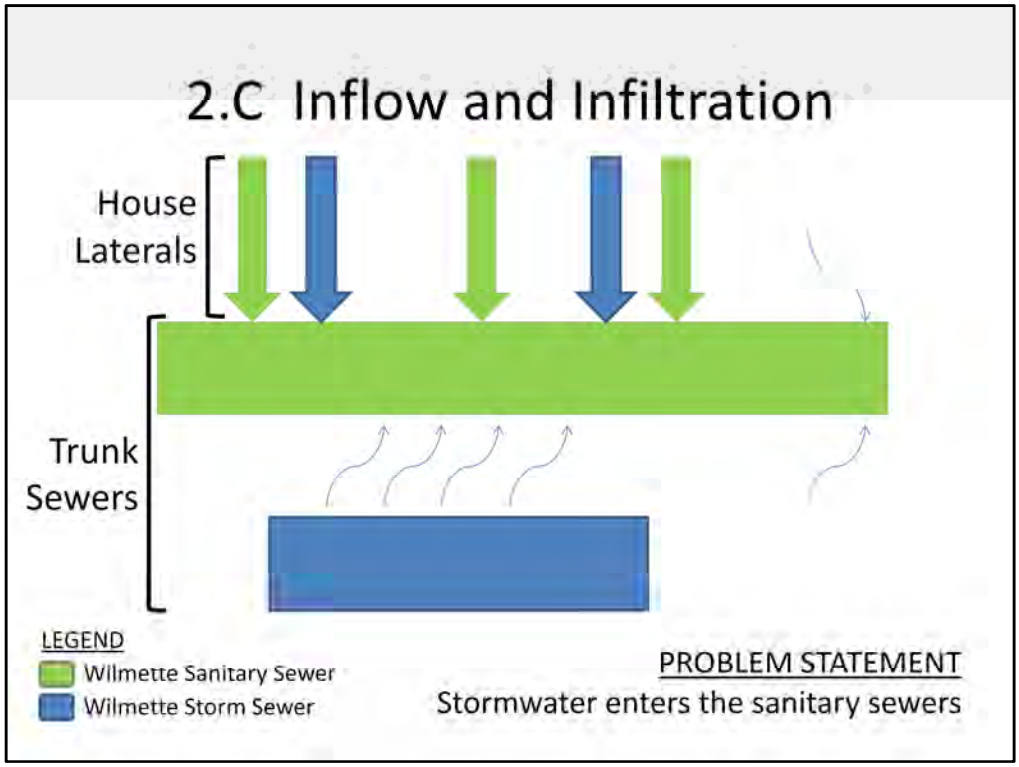


I&I into the sanitary sewer system can come from either stormwater or groundwater, and can enter the sanitary sewer system through a variety of places. I&I is defined as:

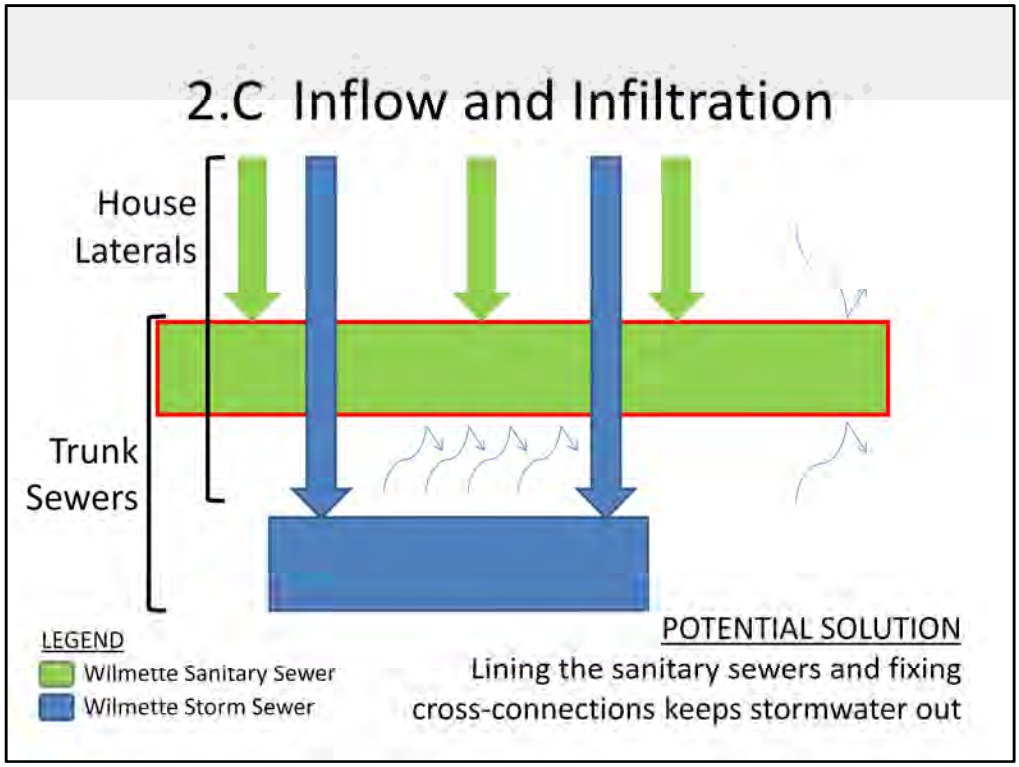
• Inflow; consisting of direct “cross-connections” between the sanitary and storm systems;

• Infiltration; consisting of leaks in the sanitary and storm system house laterals, main lines, and manholes, allowing stormwater to seep out of storm sewers and into sanitary sewers. Infiltration can also originate from high water tables causing groundwater to seep into sanitary sewers.

Infiltration between house laterals is exacerbated by construction techniques which placed both storm and sanitary laterals in common trenches.



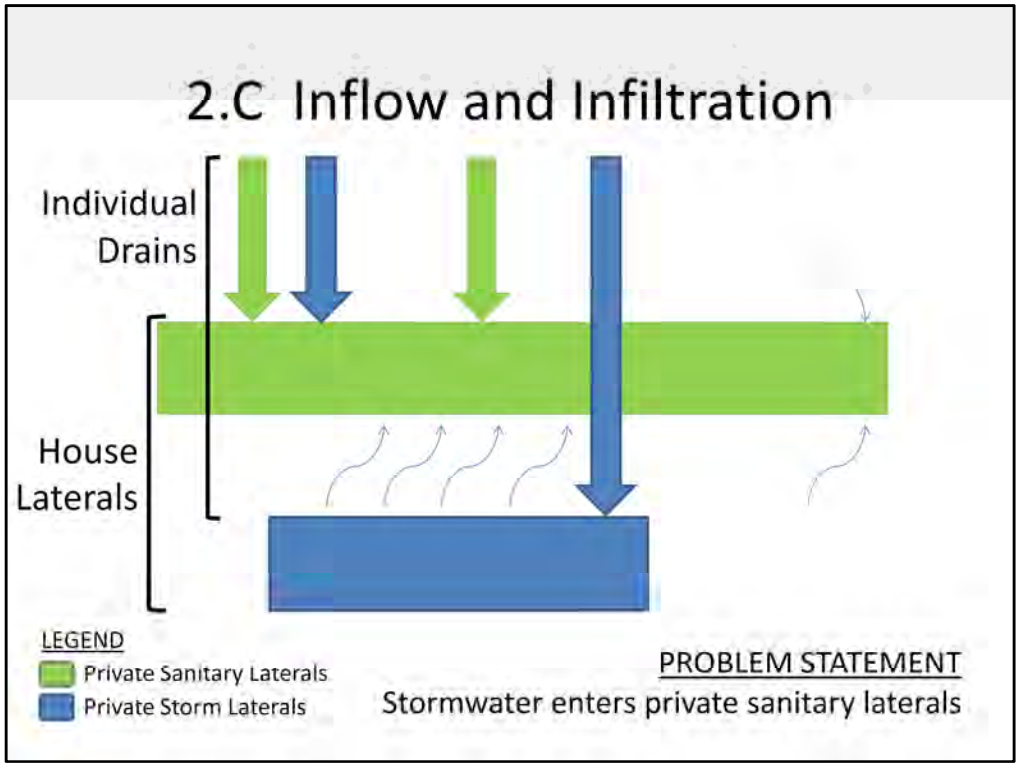
I&I into the sanitary mains is documented through the Village's flow monitoring program and identified by the sanitary sewer televising and dye testing program.



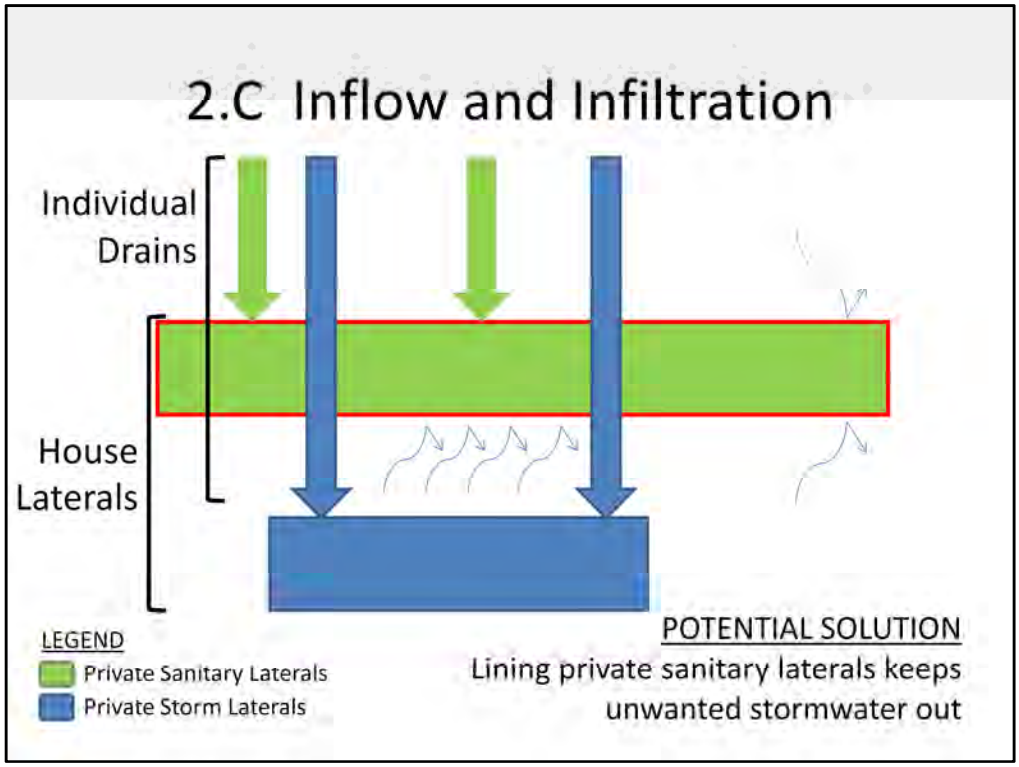
This year, the Village staff will complete point repairs and sewer lining of approximately 5,300 feet of the sanitary system (approx. 1.8 % of Village-owned sanitary sewers) to address sources of I&I into trunk sanitary sewers and address structural deficiencies.

Reducing the I&I load requires a continuing and increasing sanitary sewer televising, lining, and point repair program, and requires the Village to remain vigilant about detecting and correcting direct connections from the storm sewer system.

Additional dye testing associated with the ongoing televising program will assist in locating direct cross connections.



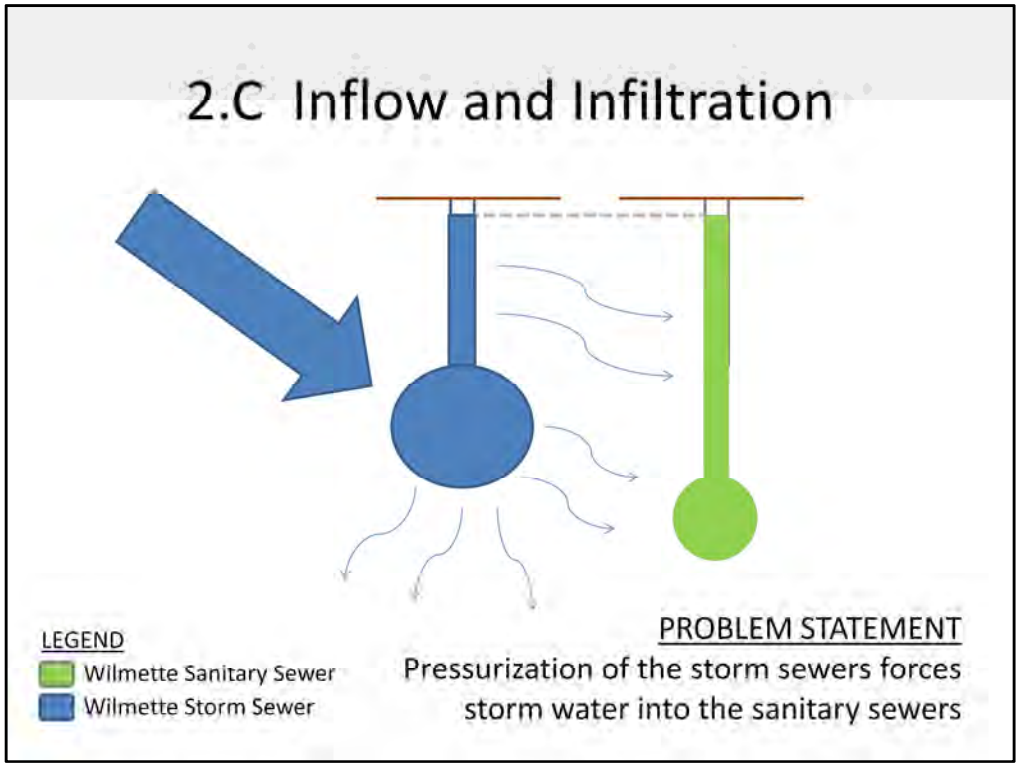
I&I is also a problem along the house laterals. In addition to the 56 miles of Village-owned sanitary sewers, there are approximately 50 miles of sanitary house laterals (which are located primarily on private property – the homeowner owns the lateral up to and including the point of interconnection with the trunk sewers). Some studies have shown that up to 60% of total I&I can be attributed to these laterals.



Addressing the I&I in house laterals requires similar work to what is necessary to address I&I in the main lines. Options include pipe replacement (which involves digging through yards), and lateral lining (which is a less intrusive but more expensive method for repairing sewers). However, a program of universal house lateral rehabilitation presents particular challenges requiring access to private property, coordination with residents, and long-term maintenance of the facilities.

There are many ways to address the non-technical issues involved with addressing house laterals, including cost sharing and loan programs. However, IEPA State Revolving Loan Funds are only eligible for assets owned and maintained by municipalities.

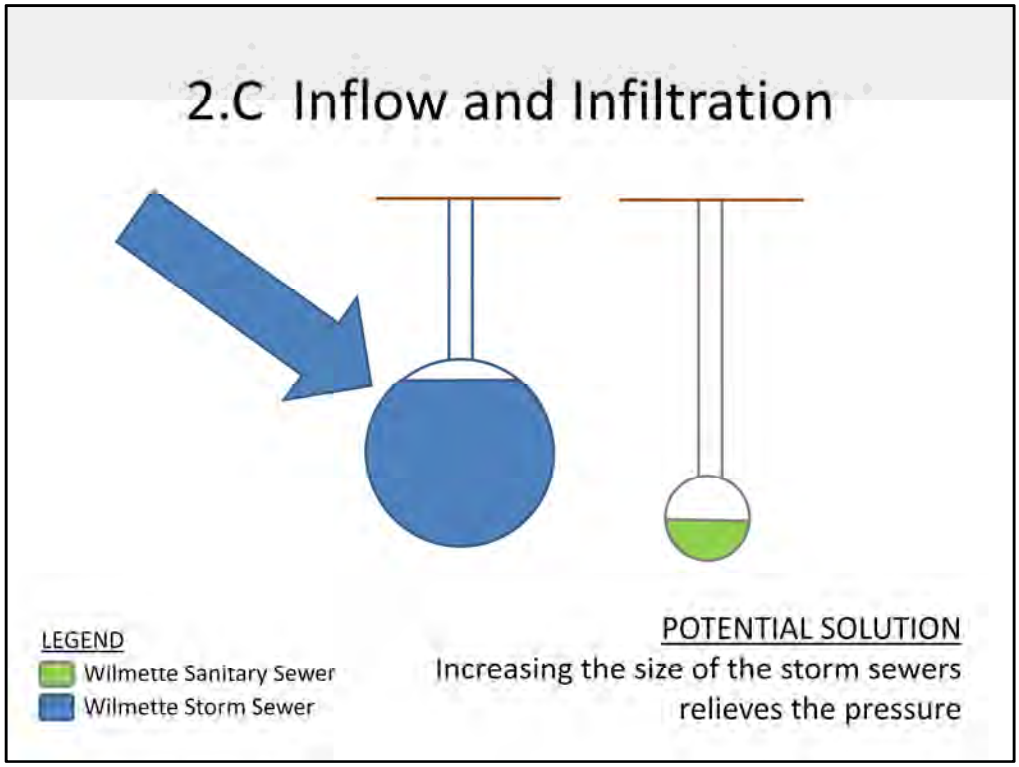
There are a series of flood prevention measures that can be taken by individual homeowners at the house lateral to reduce the incidence of basement backups, including check valves, flood control systems (ejector pumps), and over-head sewers. These measures, which have been installed by some residents, offer protection to the specific home, but don't benefit adjacent properties and may not address the I&I problem.



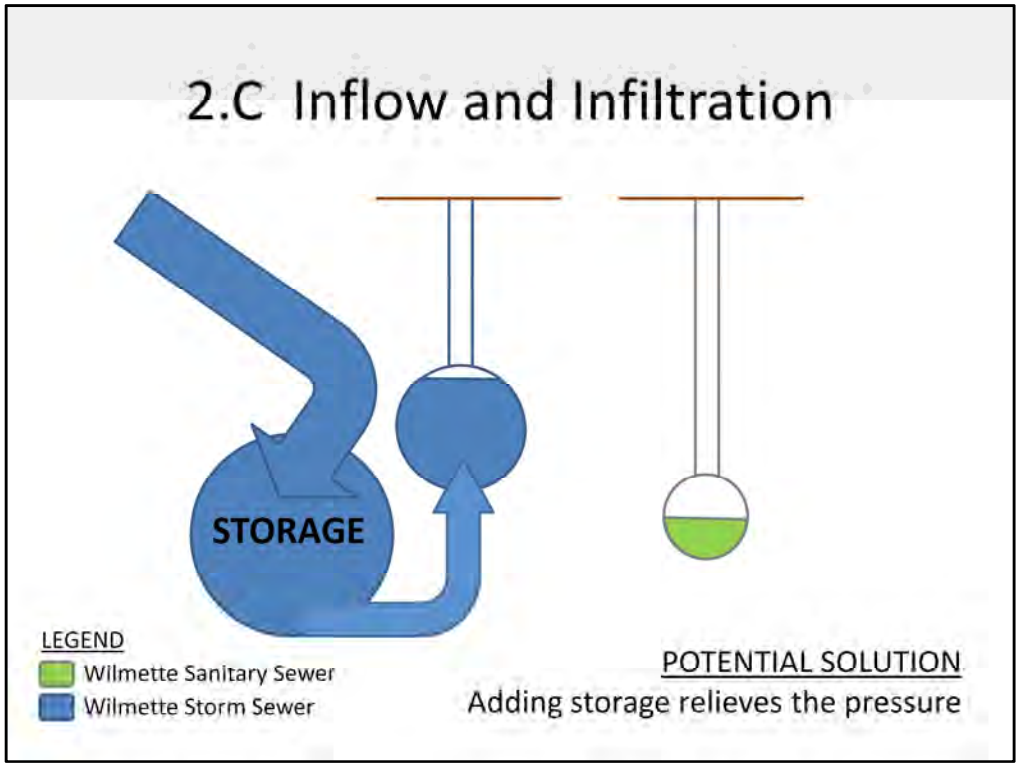
I&I into the sanitary sewer system is further exacerbated by the pressurization of the storm sewer system.

The Village's separate storm sewer system is a gravity system, and the pipes are generally not designed to flow under pressure during most rain events. Most of the storm sewer system is not large enough to convey the flow from rainfall events that on average might be expected to be exceeded about twice a year (for example, 1 inch of rain in 1 hour, or 2 inches of rain in 24 hours). Once the storm sewers reach capacity, the system becomes surcharged and pressurized.

The result of the pressurization of the storm sewer system is water being pushed out of the storm sewer pipes and into any available adjacent place – very frequently a nearby sanitary sewer. This is particularly of concern in the private laterals that were built in common trenches.



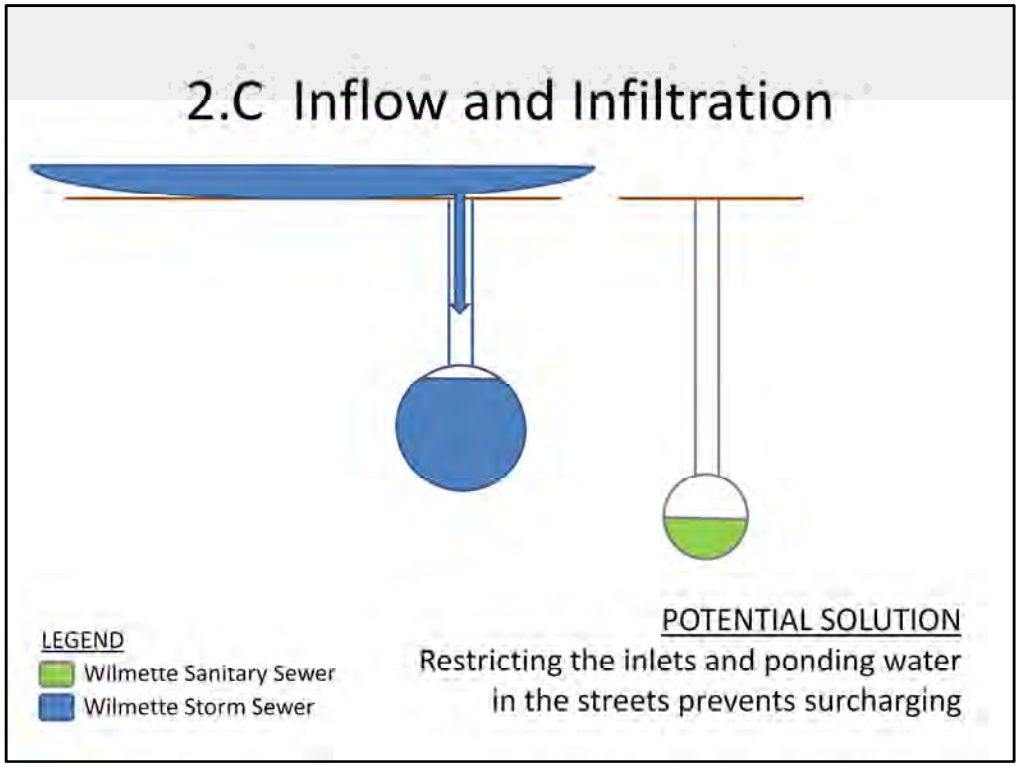
One solution is to increase the size of the pipes in the storm sewer system so they have adequate conveyance capacity, instead of becoming surcharged and pressurized.



Another alternative for reducing surcharging and pressurization of the storm sewer system is to provide large centralized detention. This would give the water somewhere else to go instead of into the sanitary sewer, and would reduce the need for extensive conveyance capacity increases by providing a nearby outlet instead.

However, additional infrastructure, such as storm sewer improvements to convey water to and from the detention area(s) and pump station(s) to drain the basin after rain events, would be required.

Preliminary estimates suggest that on the order of 40 to 60 acre-feet of storage would be required. (One acre-foot of water is equivalent to one foot of water over a one acre area)

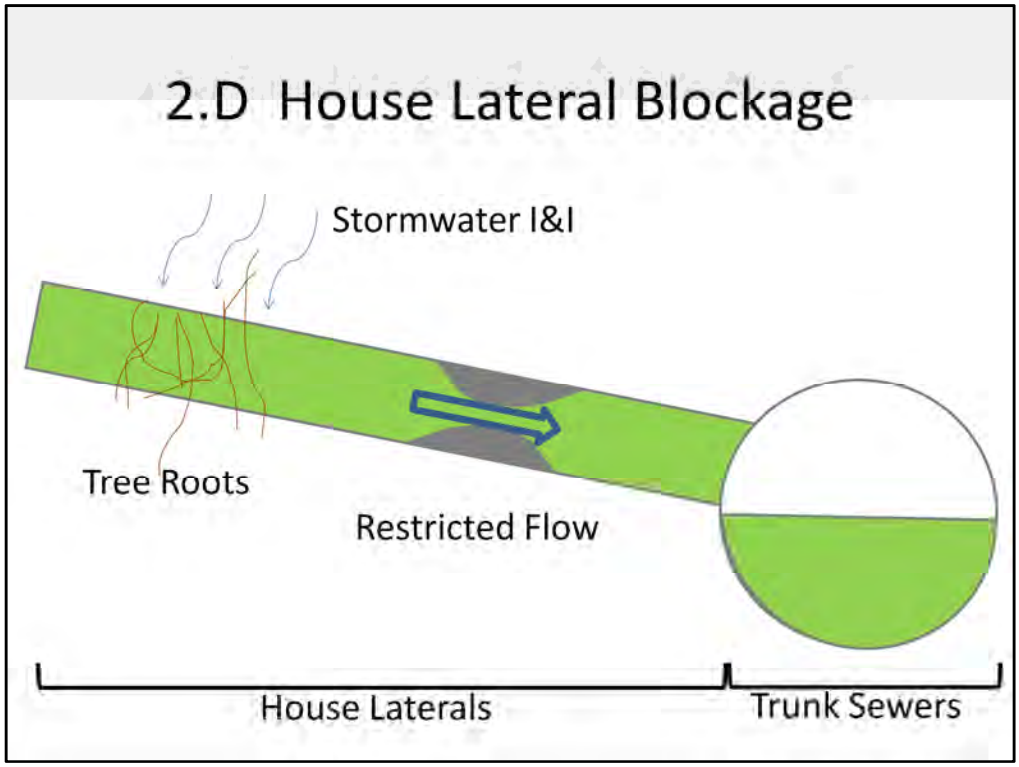


A third alternative to reducing surcharging in the storm sewer system is to restrict the flow allowed into the storm sewers and temporarily store the stormwater in the streets. After the rain has stopped, the water drains from the streets through the storm sewers as normal.

This is the same concept of inlet restriction that is being successfully implemented in the combined sewer areas on the east side of Wilmette.

As well as using restrictors to temporarily pond water in some streets, additional local, distributed storage such as permeable paving, stormwater landscapes and other “green infrastructure” can be incorporated into this type of program.

The more heavily travelled streets, such as Lake Avenue, would not be suitable for restriction, as ponded water could present a safety hazard. Street ponding needs to be implemented with care, with special consideration for low-lying areas and areas with a large number of back-pitched driveways.



A final cause of localized basement backups is deterioration and/or blockages in the house lateral. The homeowner owns the laterals from the house up to and including the connection to the main line trunk sewer. Localized blockages and lateral deterioration are the responsibility of the homeowner**.** A downside to proposed capital improvement projects that focus only on Village-owned assets is that house lateral blockages, which are one of the causes of basement backups, would remain the homeowner's responsibility.

If the Village were to undertake a subsidized, systematic rehabilitation of ALL house laterals, these problems could be temporarily abated. However, localized blockages are a recurring problem that require ongoing vigilance on the part of homeowners.

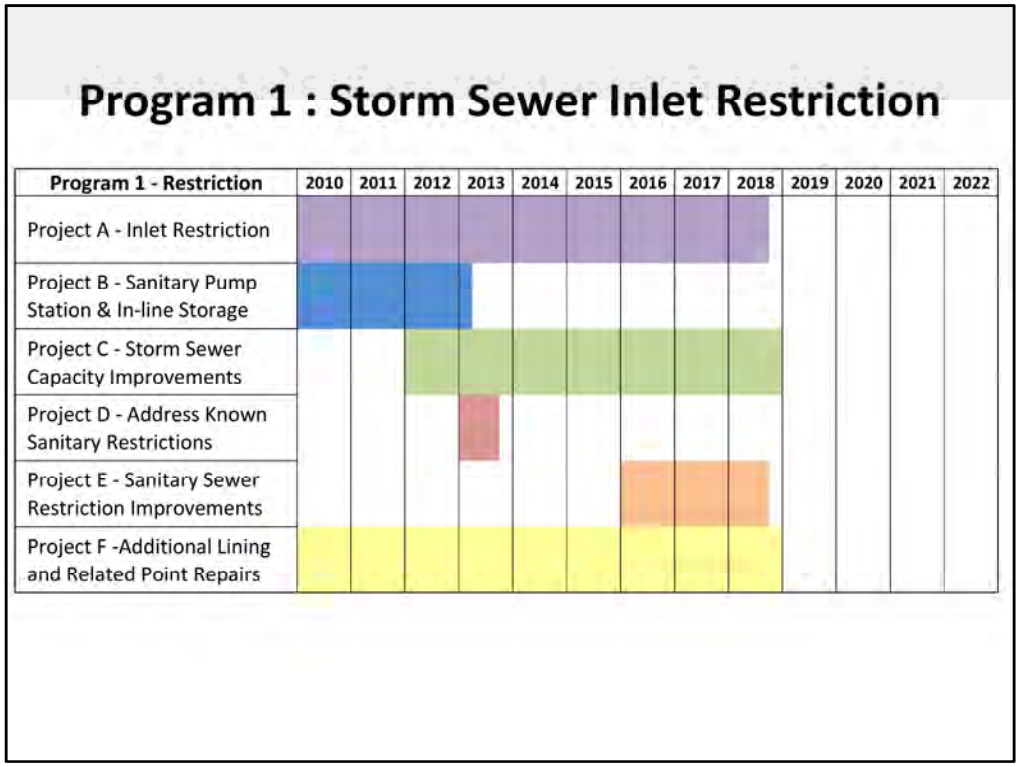
3. Program Development

Solution	Program				Problem Addressed
	1	2	3	4	
Pump Station with In-Line Storage	x	x	x	x	Outlet
Collection System Improvements	x	x	x	x	Conveyance
Sanitary Main Lining and Repair	x	x	x	x	I & I
Restriction / Localized Detention	x				I & I
Centralized Detention		x			I & I
House Lateral Replacement			x		I & I
Storm System Replacement				x	I & I

To provide reliable protection from basement backups, all three major problems (Outlet, Conveyance, and I & I) need to be addressed, and a program eliminating only a single part of the problem will not likely result in an appreciable reduction of basement backups.

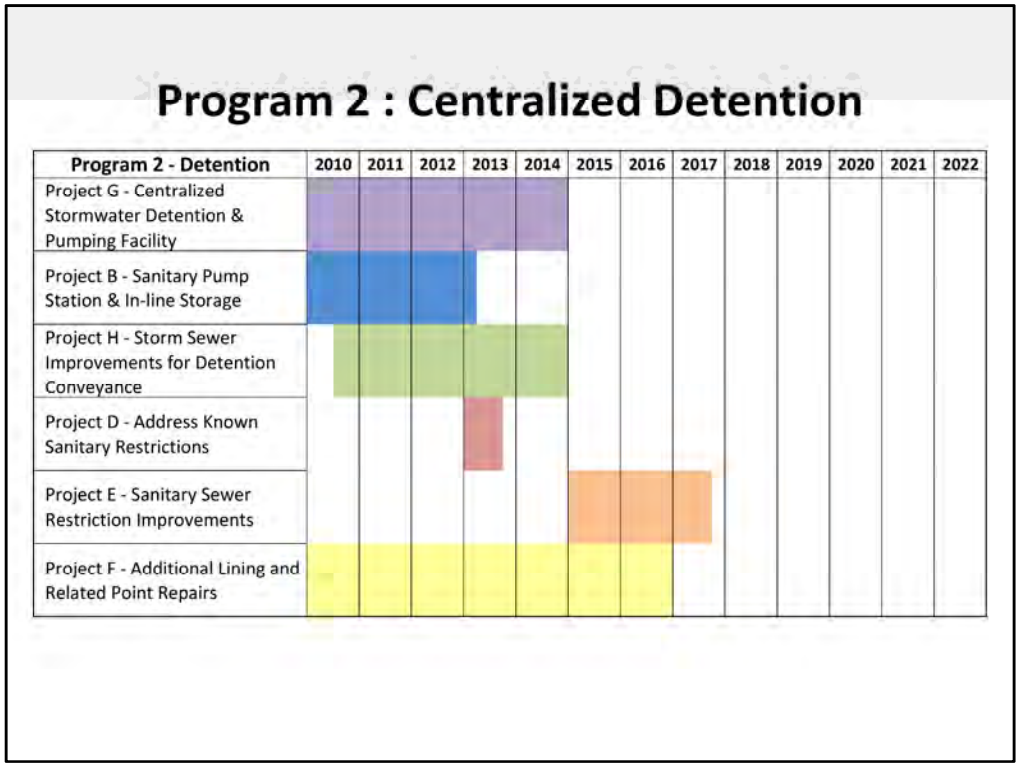
All four programs include the sanitary sewer pump station to control the outlet conditions, collection system improvements for more efficient conveyance, and increased sanitary sewer lining.

The main differences in the approaches are related to how excessive inflow and infiltration is further reduced.



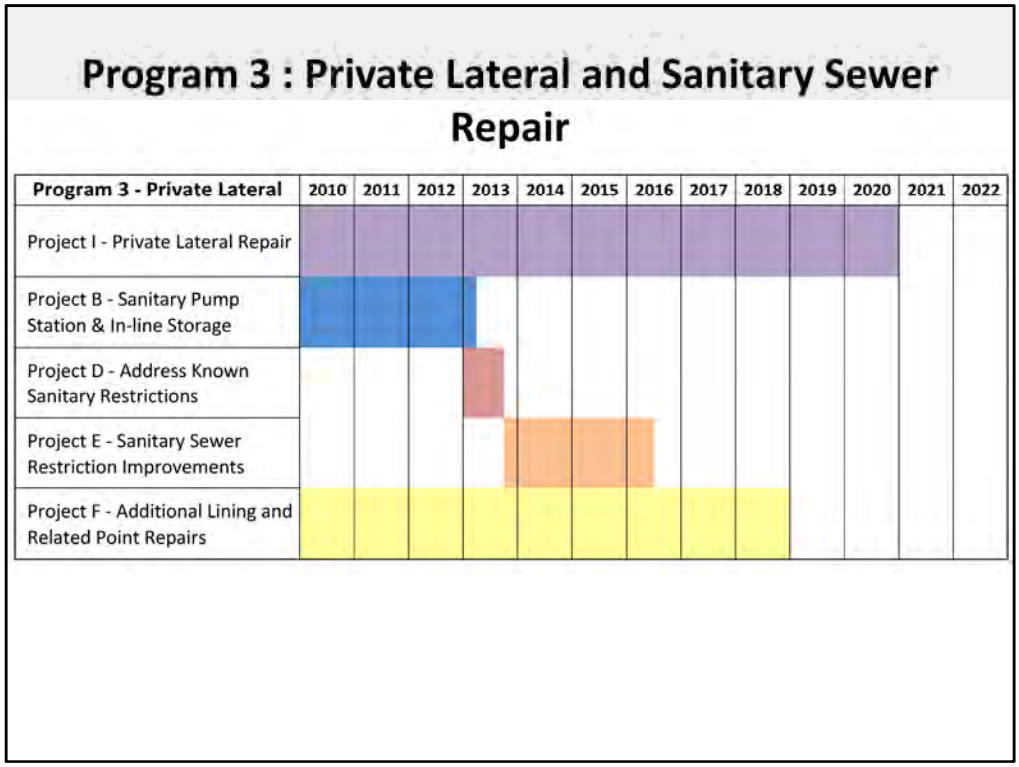
Program 1 is intended to address excess inflow and infiltration from the storm system into the sanitary system using restrictors. Restrictors act to limit the amount of stormwater flowing into a storm sewer through a catch basin during rain events. This in turn prevents the storm sewers from surcharging and operating under pressure, reducing the amount of stormwater being forced from the storm sewers into the sanitary system and up into basements via the sanitary house laterals.

Restriction plans would be implemented in conjunction with a Sanitary pump station; isolated storm sewer capacity improvements to improve conveyance; and lining and point repairs to reduce points of high I&I into the sanitary lines.



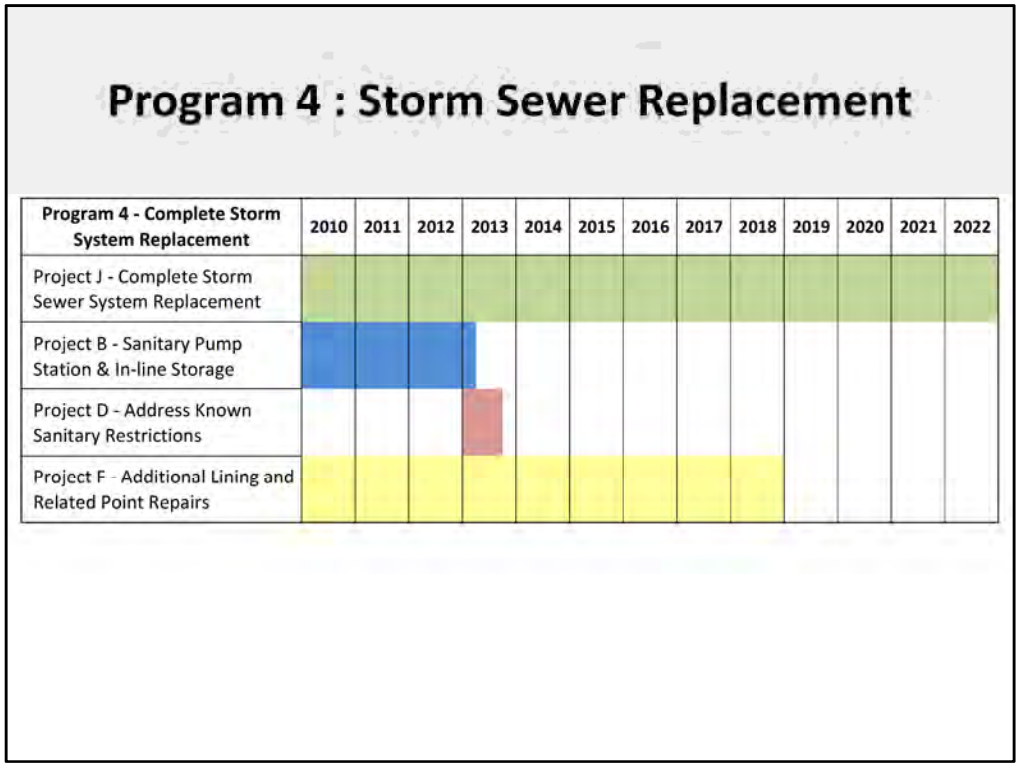
Program 2 provides storage for excess storm flow during wet weather events to reduce surcharging in the storm sewers. A large centralized detention basin would be used to temporarily store stormwater during rain events until it can be pumped to the North Branch of the Chicago River (NBCR) at a later time. Pumping facilities and stormwater sewer conveyance improvements/construction would be necessary due to a lack of available large open sites. Storing stormwater will reduce the amount of flow the Village's stormwater system needs to convey during peak rain events. Preventing the sewers from surcharging and operating under pressure will reduce I&I into the sanitary system.

In addition to the conveyance and pumping improvements associated with detention, this program would be implemented in conjunction with a sanitary pump station; isolated storm sewer capacity improvements to improve conveyance; and lining and point repairs to reduce points of high I&I into the sanitary lines.



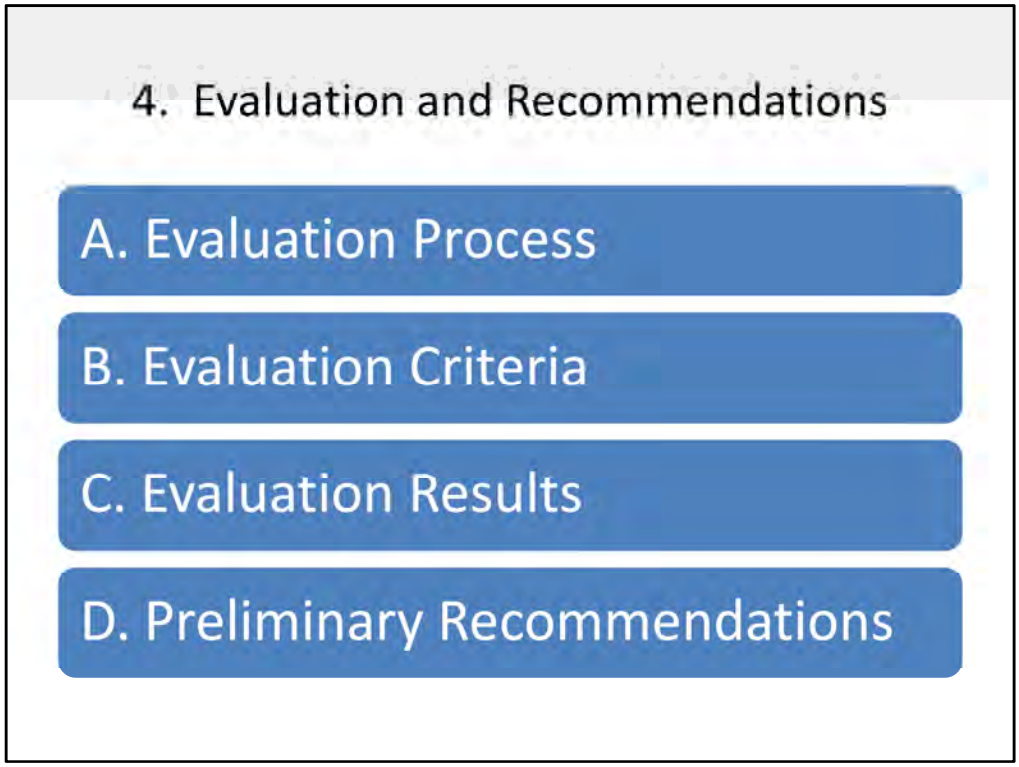
Program 3, which aims to rehabilitate all the sanitary house laterals in the study area, will address Inflow and Infiltration into the sanitary system by sealing the sanitary system off from storm sewer I&I at the laterals. Although the Village is not responsible for the private laterals leading from a family's home to the connection with the sanitary main in the street, taking Village-wide steps to repair laterals as part of a comprehensive I&I reduction plan would allow the sanitary system to operate effectively and reduce basement backups. Taking each set of laterals individually will also allow the Village to eliminate cross connections (where a storm lateral is connecting to a sanitary trunk main, instead of the storm sewer).

In addition to the lateral improvements, the program would be implemented in conjunction with a sanitary pump station; isolated sanitary capacity improvements to improve conveyance; and lining and point repairs to reduce points of high I&I into the sanitary lines.



Program 4 is the complete replacement/repair of the storm sewer system in the study area. By increasing capacity and eliminating surcharge for all but the most extreme events, the sanitary system will be able to operate as designed and surcharging will be reduced.

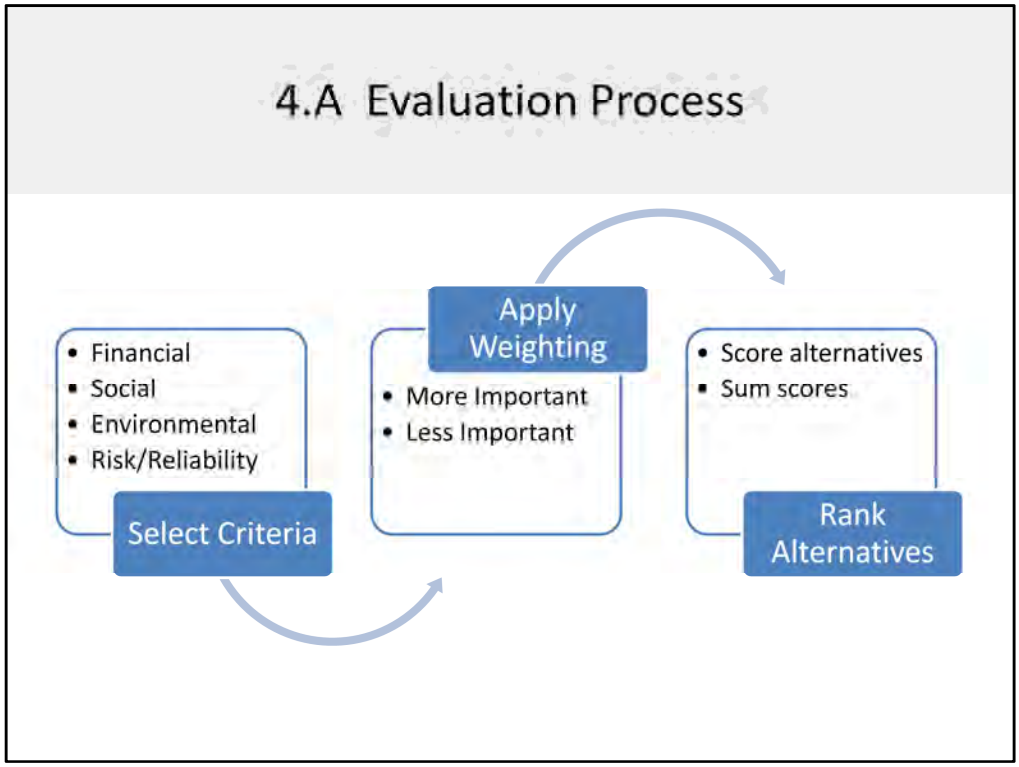
In addition to the storm sewer system replacement, the program would be implemented in conjunction with a sanitary pump station; isolated sanitary restriction improvements; and lining and point repairs to reduce points of high I&I into the sanitary lines.



To assist the Village in comparing the alternative approaches to reducing basement backups in the separate sewer area, a robust evaluation process that incorporates a range of criteria has been developed.

This section describes the overall process, the specific criteria used, and how each proposed program scores against those criteria.

Recognizing that further work remains, preliminary recommendations are offered.

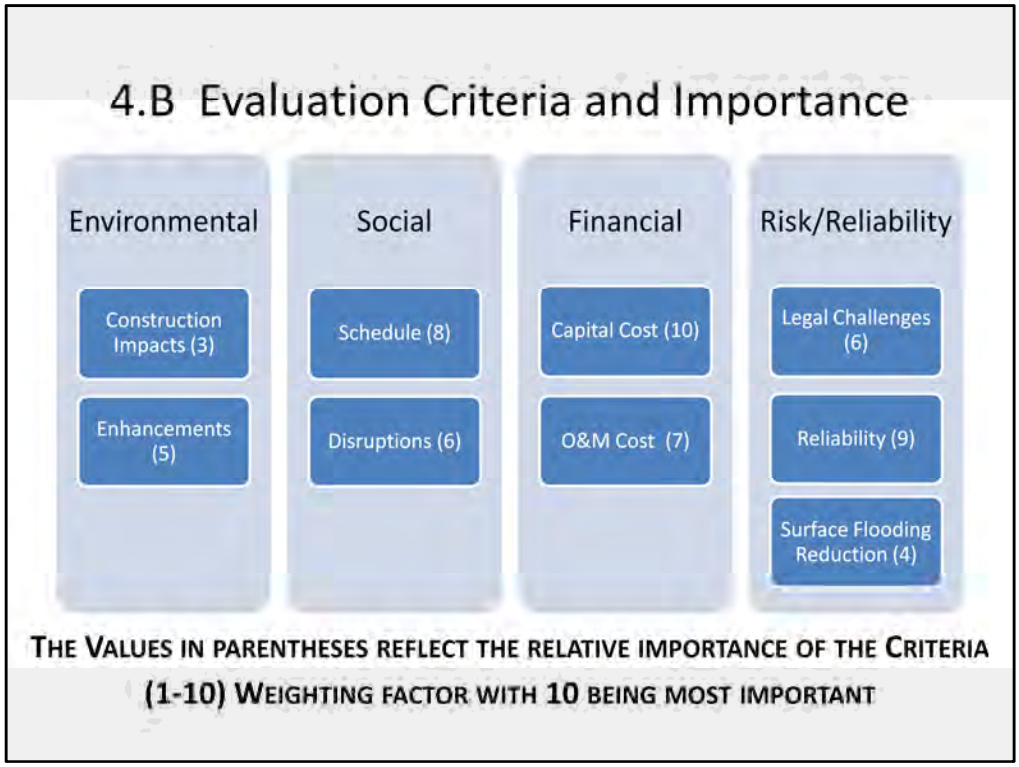


The evaluation process selected for the Village of Wilmette is a robust yet flexible process that can incorporate not only a variety of different criteria, but allows for different weights to be applied to each criteria.

First, criteria are selected across a range of factors. A measurement system for evaluating each alternative must be chosen for each criteria.

Second, those criteria are given weighting factors, that reflect the relative importance of that criteria with respect to the others. For example, construction cost may be judged very important and given a higher weighting factor than other criteria.

Finally, each of the alternatives under consideration is “scored” with respect to the other alternatives against each criteria.



Nine evaluation criteria have been identified in the following broad categories: (A) Environmental, (B) Social, (C) Financial, and (D) Risk/Reliability. Each evaluation criterion has been assigned a "weighting factor" that corresponds to the relative importance of the specific criterion given the programs under evaluation based on a scale of 1 – 10.

Each proposed program will be assessed relative to the others against all of the criteria, and the weighting factors will be used to give greater emphasis to the more important criteria.

The values for the weighting factors were determined by MWH and Village Staff. Input from the Municipal Services Committee regarding the weighting factors is welcomed.

4.C Evaluation Results

Criteria	Weight	Program 1: Restriction	Program 2: Detention	Progam 3: Laterals	Program 4: Storm Rep.
Construction Environmental Impacts	(3)	3	2	4	1
Environmental Enhancement Opportunities	(5)	4	3	3	2
Schedule	(8)	3	4	2	1
Conflicts and Disruption during Construction	(6)	3	2	3	1
Capital Construction Cost	(10)	4	3	3	1
O&M Cost	(7)	2	1	3	5
Legal and Third Party Challenges	(6)	3	1	2	5
Reliability	(9)	4	2	5	3
Associated Surface Flooding Reduction	(4)	2	4	2	5

THE RAW SCORES FOR EACH PROGRAM ARE SHOWN FOR EACH CRITERIA

MWH ranked each program with respect to the 9 criteria where a score of 1 is least attractive and a score of 5 is most attractive. Engineering judgment and past experience with these types of techniques and execution of the technologies were the justifications for each score. For example:

• Capital Construction Cost: Program 1 (Restriction) has the highest score (4) as it is expected to be less expensive than the other programs. Programs 2 (Detention) and 3 (House Laterals) are expected to have similar but higher costs (reflected in the score of 3), while Program 4 (Complete Storm Sewer Replacement) is expected to be significantly higher than the others and has the lowest score (1).

• Reliability: Program 3 (House Laterals) has the highest score (5) as it is designed to eliminate the major sources of I&I into the sanitary sewer system, while the other alternatives are more indirect in that they address the storm sewer capacity. Program 2 (Detention) is seen as the least reliable solution as the design capacity could be exceeded, and because the varying distance of homes from the centralized detention facility may lead some parts of the Village more vulnerable.

4.C Evaluation Results

Criteria	Program 1: Restriction	Program 2: Detention	Progam 3: Laterals	Program 4: Storm Rep.
Construction Environmental Impacts	9	6	12	3
Environmental Enhancement Opportunities	20	15	15	10
Schedule	24	32	16	8
Conflicts and Disruption during Construction	18	12	18	6
Capital Construction Cost	40	30	30	10
O&M Cost	14	7	21	35
Legal and Third Party Challenges	18	6	12	30
Reliability	36	18	45	27
Associated Surface Flooding Reduction	8	16	8	20
Total Score :	**187**	**142**	**177**	**149**

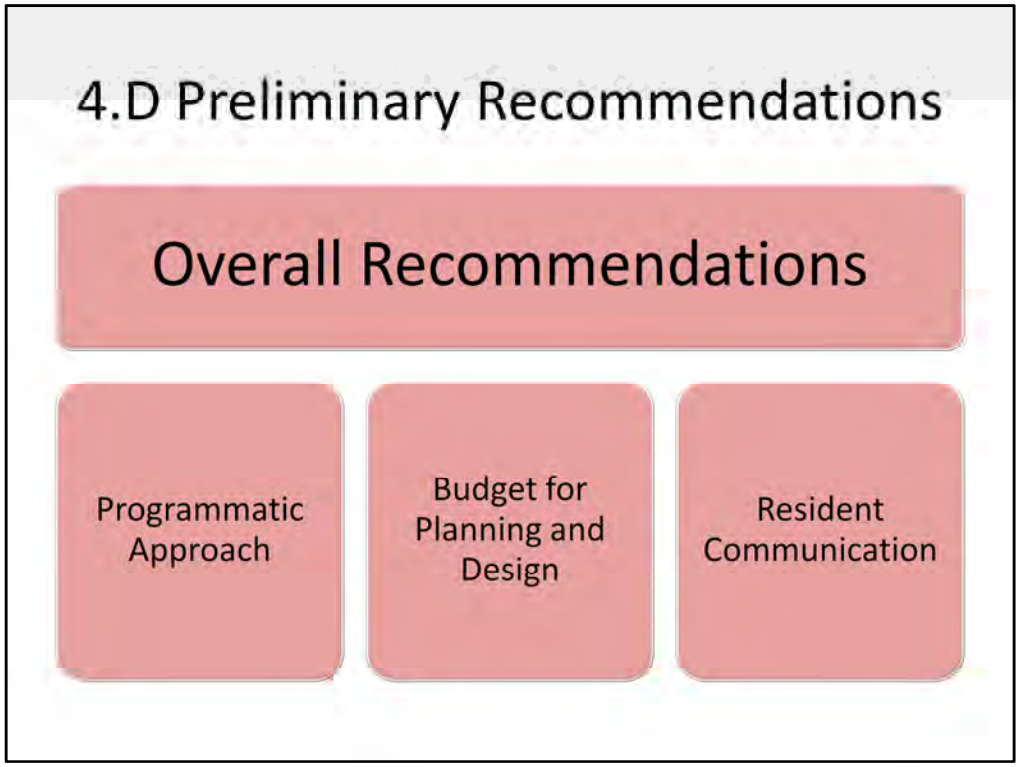
THE FINAL EVALUATION IS DETERMINED BY TALLYING THE WEIGHTED SCORES

The weighted scores are determined by multiplying the raw score (1 – 5) for each program by the corresponding weighting factor for the criteria. The final results are determined by summing the weighted scores for each program across all the evaluation criteria.

The two highest scoring programs based on this evaluation are Program 1: Storm Sewer Inlet Restriction, and Program 3: Private Lateral Rehabilitation. The two lowest scoring programs based on this evaluation are Program 2: Centralized Detention and Program 4: Complete Storm Sewer System Replacement. Review of the weighted scores shows that:

- Inlet Restriction is a reliable, lower cost solution but would add to temporary street flooding;
- Although Centralized Detention offers the quickest solution it is potentially the least reliable and would be the most expensive to maintain;
- Private Lateral Rehabilitation is a reliable solution with few construction environmental impacts, but relies on resident partnership; and
- Complete Storm Sewer System replacement is the most expensive solution but offers additional surface flooding reduction benefits, and would potentially reduce long-term O&M costs.

MWH recommends that the Village take a comprehensive short-term and long-term approach to addressing their separate sewer issues.

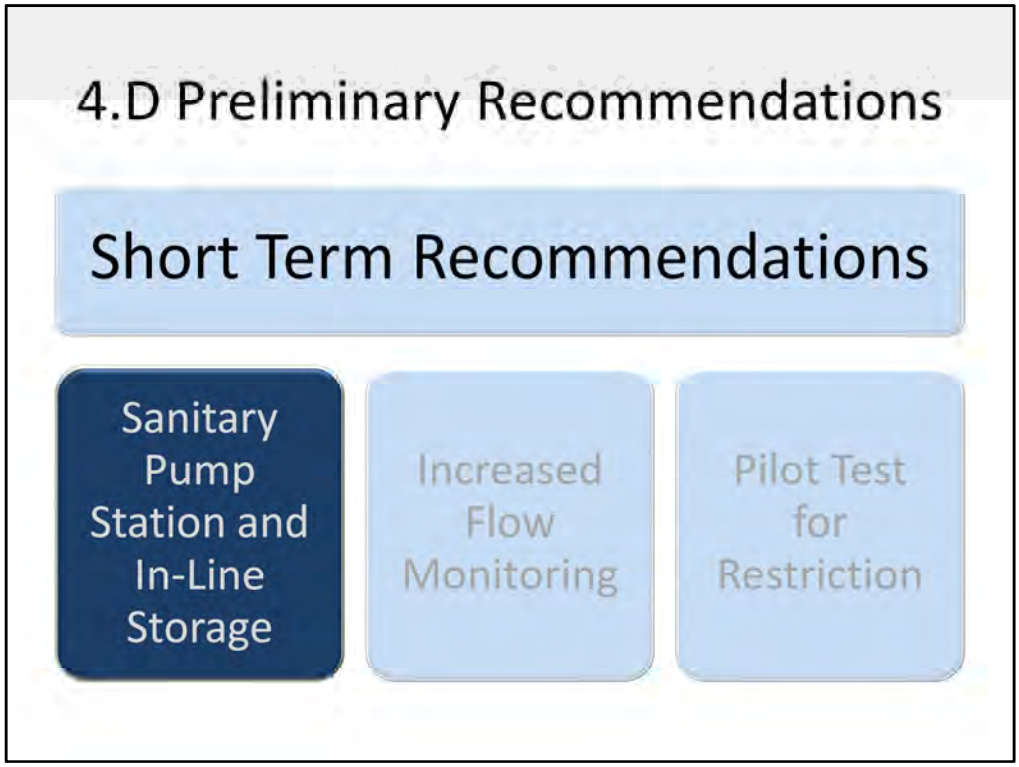


The basement backups frequently experienced in the separate sewer service area can not be eliminated with a single infrastructure project. There is no single “silver bullet” solution. The Village will need to take a comprehensive, programmatic approach to address the various causes, in both the sanitary and storm sewer systems.

The Village has made significant progress in 2009 with the development of a Stormwater Management Program. This momentum needs to be maintained by including necessary capital improvements in the budget process.

Two important messages need to be communicated to residents:

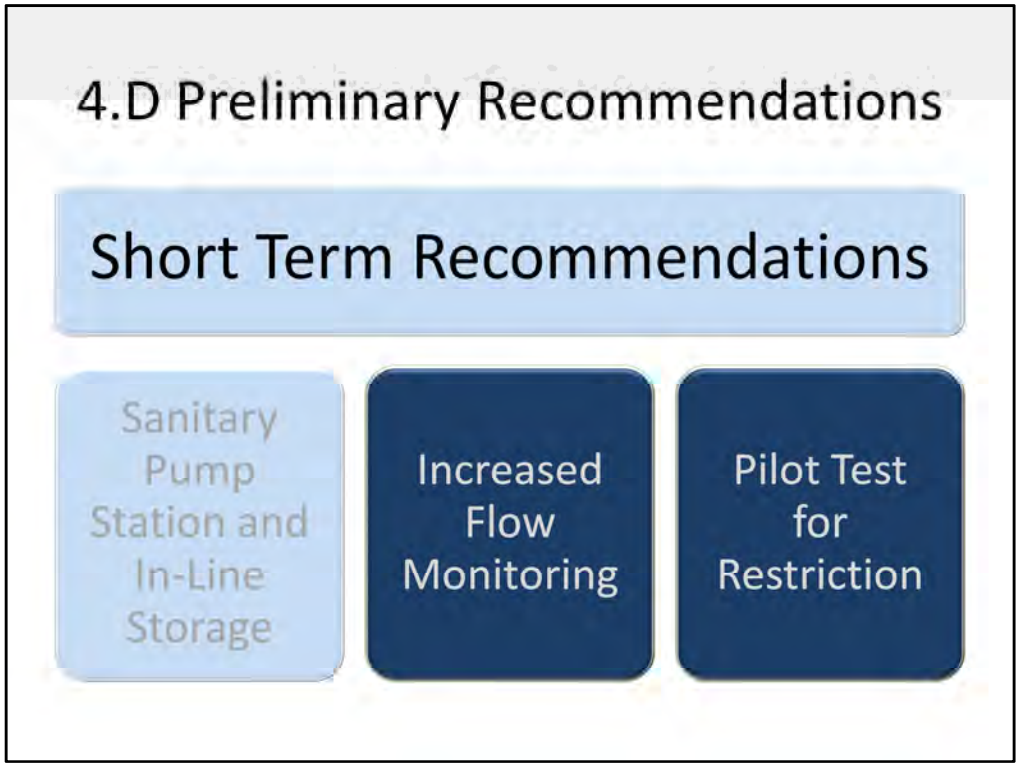
1) Lasting solutions to the basement flooding issues can be achieved; and
2) The necessary work will take time and require significant investment.



Significantly, the Sanitary Pump Station and In-Line Storage project was included in all four implementation plans. This project is an essential precursor to a widespread solution because it:

1) eliminates backflow into the Wilmette system from the MWRD Interceptor; and
2) stores excess sanitary flows during wet weather events.

Since it is a necessary precursor to other system-wide improvements, it is recommended that the Village begin budgeting for the planning, design and construction of the facility as soon as possible, and initiate coordination with MWRD. This is a *relatively* low impact construction project, with significant benefits to the overall sewer system operation.

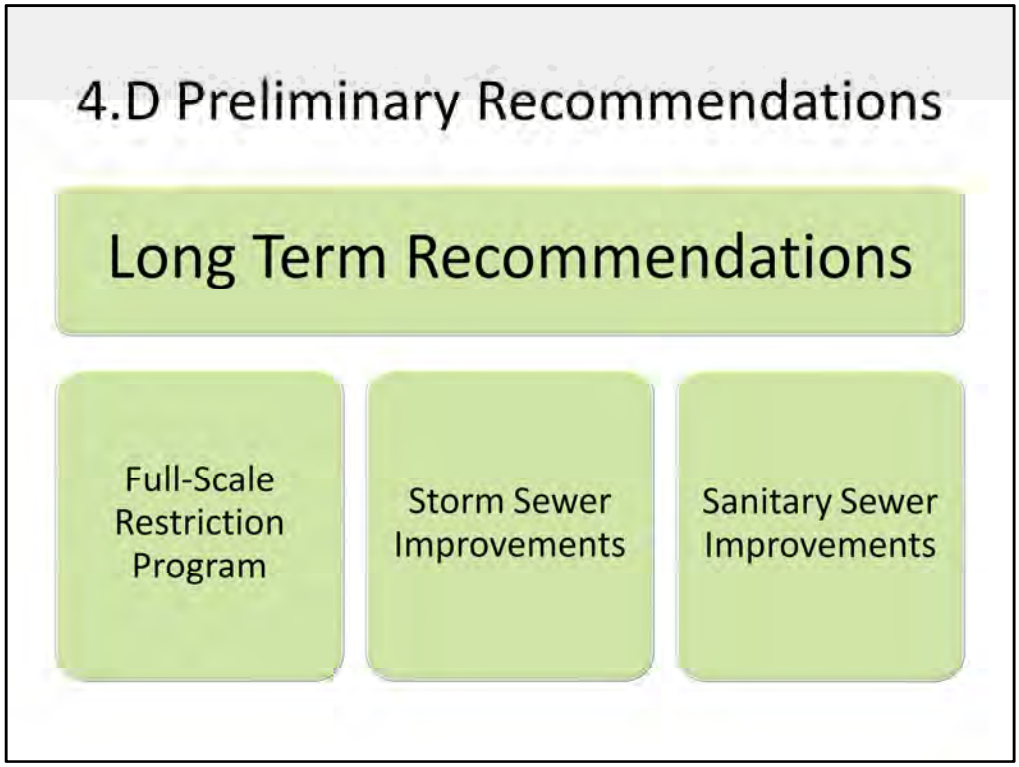


In addition to the pump station the Village should increase their flow monitoring capabilities by installing permanent flow meters that will more precisely document the extent and location of sewer inadequacies. Additional flow monitoring data will be valuable for permitting and coordination procedures where documentation will be required. Permanent meters are recommended over temporary monitoring to collect data over a wide range of rain events.

The initial evaluation indicates that a restriction program is an attractive option. It is recommended that the Village undertake a pilot area test. Benefits of this are:

1) Provide reliable data on the effectiveness of the solution, and understand the limitations for Wilmette; and
2) Learn best practices for procurement, installation and resident coordination for future, larger deployments.

After the pilot test (on the order of several blocks), larger areas can be implemented.



Based on the results of the restriction pilot test, the program would be rolled out through the rest of the separate sewer system area. Complimentary storm sewer improvements would be designed and constructed. Once I&I has been reduced to manageable levels, the sanitary sewer system would be studied for design of system improvements to support remaining flows.

Village feedback on the proposed programs and the criteria weighting factors is integral to finalizing the evaluation and recommendations. MWH welcomes the insight of the Village staff and trustees in helping to reflect the concerns, values and opinions of the residents in the evaluation process.

Following this meeting, MWH will refine the capital cost estimates of each program* so the Village will better understand the fiscal impact each of these implementation plans. The cost estimating is expected to be completed in time to present to the Village's Mid-Year Financial Review in August. After completing the cost estimating and gaining Village feedback, MWH will finalize the evaluations and recommend an Implementation Plan.

It is anticipated that the recommended plan would be presented to the Village Board and the public in September 2009.

* Construction cost estimates will be prepared to Class 5 level, as defined by Association for the Advancement of Cost Estimating (AACE)

Section 3:
Separate Sewer Projects Construction Cost Estimates

Original Submittal Date : September 4, 2009

Location: Chicago September 4, 2009

To: Brigitte Mayerhofer

From: Mark Wagstaff, Paul Moyano, Brenna Mannion

Subject: **Summary of Village of Wilmette Separate Sewer Cost Evaluation**

Throughout the process of studying the Wilmette separate sewer system and its unique issues, MWH has been considering potential projects, and then comprehensive programs, to address and alleviate basement backups. A deliverable of the study is Association for Advancement of Cost Estimating (AACE) Class 5 construction cost estimates for four programs combined with a quantitative and qualitative evaluation of the feasibility, effectiveness and possible implementation of the programs. The purpose of these estimates and the overall program evaluation is to help the Village choose an appropriate approach to address the issues facing the collection system.

Cost Estimates

After narrowing the selection of potential projects down to eight, those projects were grouped into four programs of complimentary projects, each with a distinct approach to managing inflow and infiltration. These four programs will all address the sewer backup and flooding issues the Village experiences with their separate sewer system to various degrees of effectiveness and capital expense. MWH developed AACE Class 5 cost estimates for each individual project, then combined them to get overall program costs which can be used for capital planning purposes.

AACE International CLASS 5 - Class 5 estimates are, as in this case, prepared based on limited information and subsequently have wide accuracy ranges. These separate sewer project estimates have a low and high price range of -30% and +65% respectively. It is important to keep in mind that the costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, are and will unavoidably remain in a state of change, especially in light of the high volatility of the market.

Program Evaluation

The most recent cost estimates have been used to update the broad, multi-criteria evaluation of each program that was presented to the Village's Municipal Services Committee on June 26, 2009. The revised evaluation and the cost estimates are attached.

Evaluation Matrices

Table 1: MWH Program Evaluation Scores

Categories		Evaluation Criteria	Weight	Evaluation Score: Program 1 : Restriction	Program 2 : Detention	Program 3 : Private Lateral Repair	Program 4 : Complete Storm System Repair
Environmental	1	Construction Impacts	3	3	2	4	1
	2	Enhancement Opportunities	5	4	3	3	2
Social	3	Schedule	8	3	4	2	1
	4	Conflicts and Disruption during Construction	6	3	2	3	1
Financial	5	Capital Construction Cost	10	3	5	3	1
	6	O&M Cost	7	2	1	3	5
Other	7	Legal and Third Party Challenges	6	3	1	2	5
	8	Reliability	9	4	2	5	3
	9	Associated Surface Flooding Reduction	4	2	4	2	5

Table 2: Program Overall Weighted Scores

Categories		Evaluation Criteria	Current Weight	Evaluation Score: Program 1 : Restriction	Program 2 : Detention	Program 3 : Private Lateral Repair	Program 4 : Complete Storm System Repair
Environmental	1	Construction Impacts	3	9	6	12	3
	2	Enhancement Opportunities	5	20	15	15	10
Social	3	Schedule	8	24	32	16	8
	4	Conflicts and Disruption during Construction	6	18	12	18	6
Financial	5	Capital Construction Cost	10	30	50	30	10
	6	O&M Cost	7	14	7	21	35
Other	7	Legal and Third Party Challenges	6	18	6	12	30
	8	Reliability	9	36	18	45	27
	9	Associated Surface Flooding Reduction	4	8	16	8	20
				177	**162**	**177**	**149**

Comparison of Separately Sewered Area Capital Programs: Overall Summary

PROJECT : Village of Wilmette Separate Sewer
LOCATION: Wilmette, Illinois
CLIENT : Village of Wilmette

	Program		Component Projects	Probable Construction Cost* ($ Millions)	Price Range Per AACE Class 5 Cost Estimate Low ($ Millions)	High ($ Millions)
1	Storm Sewer Inlet Restriction	A1	Inlet Restriction Pilot	89	62	146
		A2	Inlet Restriction Full Scale			
		B	Sanitary Pump Station and In-line Storage			
		C	Storm Sewer Capacity Improvements			
		D	Installation of Conflict Manholes			
		F	Additional Lining and Point Repairs			
2	Centralized Detention	G	Centralized Stormwater Detention with Pumping Facility	39	27	64
		B	Sanitary Pump Station and In-line Storage			
		H	Storm Sewer Improvements for Detention Conveyance			
		D	Installation of Conflict Manholes			
		E	Sanitary Sewer Restriction Improvements			
		F	Additional Lining and Point Repairs			
3	Private Lateral and Sanitary Sewer Repair	I	Private Lateral Repair	92	64	151
		B	Sanitary Pump Station and In-line Storage			
		D	Installation of Conflict Manholes			
		E	Sanitary Sewer Restriction Improvements			
		F	Additional Lining and Point Repairs			
4	Storm Sewer Replacement	J	Complete Storm Sewer System Replacement	185	129	305
		B	Sanitary Pump Station and In-line Storage			
		D	Installation of Conflict Manholes			
		E	Additional Lining and Point Repairs			

General Notes (Applicable to all Programs)

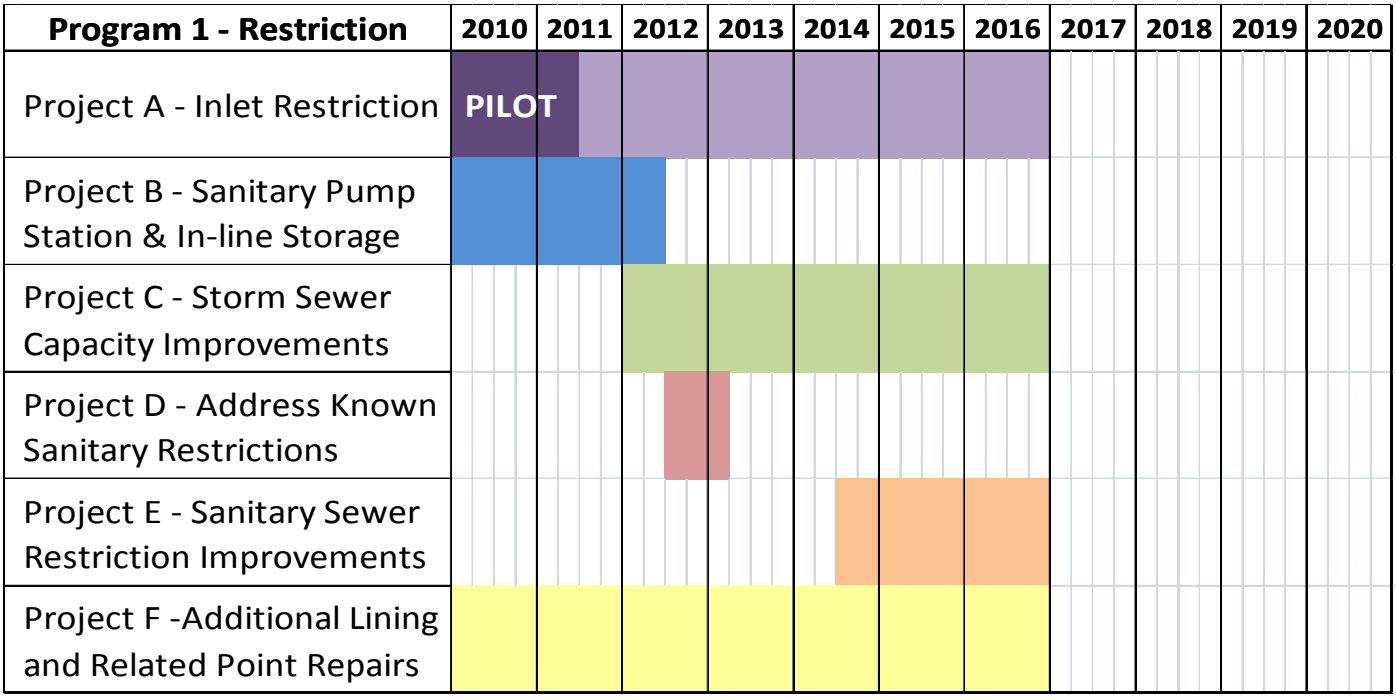
1. Land Acquisition and Right-of-Way or easement costs are excluded.
2. Engineering, Construction Management and Program Administration costs are excluded.
3. Continuation of the Village's sewer lining program is excluded from the Program costs. At the January 2009 project workshop, a lining target of 50% of the sanitary mains in the study area within 5 years was suggested. Approximately 3% - 5% of the 264,000-foot total has been completed to date.

Separate Sewer Program 1
Storm Sewer Inlet Restriction (Pilot and Full Scale)

PROJECT : Village of Wilmette Separate Sewer Study
LOCATION: Wilmette, Illinois
CLIENT : Village of Wilmette

Description : Program 1 is intended to address excess inflow and infiltration from the storm system into the sanitary system using restrictors. Restrictors act to limit the amount of stormwater flowing into a storm sewer through a catch basin during rain events. This in turn prevents the storm sewers from surcharging and operating under pressure, reducing the amount of stormwater being forced from the storm sewers into the sanitary system and up into basements via the sanitary house laterals. Since not all Village streets are suitable for temporary inundation, this program also includes storm sewer capacity improvements for arterial and collector streets. The Pilot phase would allow for optimization between restriction and storm sewer capacity improvements.

Restriction plans would be implemented in conjunction with a sanitary pump station; isolated storm sewer capacity improvements to improve conveyance; and lining and point repairs to reduce points of high I&I into the sanitary lines.



				Price Range Per AACE Class 5 Cost Estimate	
Program		**Component Projects**	**Probable Construction Cost***	**Low**	**High**
Storm Sewer Inlet Restriction	A1	Inlet Restriction Pilot	$ 1,268,000	$ 888,000	$ 2,092,000
	A2	Inlet Restriction Full Scale	$ 43,283,000	$ 30,298,000	$ 71,417,000
	B	Sanitary Pump Station and In-line Storage	$ 7,642,000	$ 5,349,000	$ 12,609,000
	C	Storm Sewer Capacity Improvements	$ 35,935,000	$ 25,155,000	$ 59,293,000
	D	Installation of Conflict Manholes	$ 326,000	$ 228,000	$ 538,000
	F	Additional Lining and Point Repairs	--	--	--
		Total Program Cost:	**$ 88,454,000**	**$ 61,918,000**	**$ 145,949,000**

Notes:

1. Costs do not include additional lining and point repairs
2. Project Durations include Planning & Design, Procurement, and Construction
3. At the January workshop, a lining target of 50% of the sanitary mains within the study area was suggested. Approx. 3-5% of the total 264,000 feet of sanitary main have been lined to date.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT A1**	ESTIMATOR/QC :	Elmer/JLL
	PILOT AREA INSTALLATION OF STORM SEWER RESTRICTOR AND CATCH BASINS		

Item	Description	Qty	UOM	Unit Price	Total Price ($)	Comments/Assumptions
Direct & Indirect Costs						
1.00	Demolish Existing Catch Basin	40.00	EA	2,400.00	96,000	
2.00	Install Concrete Catch Basin	40.00	EA	10,000.00	400,000	6' CB based on Evanston program
3.00	Install Inlet Restrictors	40.00	EA	1,400.00	56,000	4mhr ea + $1,000ea
4.00	Install Road Berm	8.00	EA	4,200.00	33,600	20'L x full street width x 8" H Asphalt
5.00	INDIRECT COST	20.00	%		117,120	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 702,800**	
	Contractor's OH & P	20.00	%		$ 140,600	
	Contractor's Insurance Program	2.50	%		$ 21,100	
	Escalation to Mid Point of Const, NTP (1st Q '10)	3.00	%		$ 29,300	
	Total Estd Const Costs w/o Contingency				**$ 893,800**	
Project Administration & Management						
6.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
7.00	Engineering	-	%		$ -	Excluded from CE
8.00	Subcontractor Markup	-	%		$ -	Excluded from CE
9.00	Scope Contingency / Market Conditions	35.00	%		$ 313,000	Design definition / estimate / market conditions allowance
10.00	Construction Contingency	5.00	%		$ 61,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 1,267,800***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 887,460**	
	High	65	%		**2,091,870**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.

2) Assume 16 month duration

3) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT A2**	ESTIMATOR/QC :	Elmer/JLL
	FULL SCALE INSTALLATION OF STORM SEWER RESTRICTOR AND CATCH BASINS		

Item	Description	Qty	UOM	Unit Price	Total Price ($)	Comments/Assumptions
Direct & Indirect Costs						
1.00	Demolish Existing Catch Basin	1,232.00	EA	2,400.00	2,956,800	
2.00	Install Concrete Catch Basin	1,232.00	EA	10,000.00	12,320,000	6' CB based on Evanston program
3.00	Install Inlet Restrictors	1,232.00	EA	1,400.00	1,724,800	4mhr ea + $1,000ea
4.00	Install Road Berm	248.00	EA	4,200.00	1,041,600	20'L x full street width x 8" H Asphalt
5.00	INDIRECT COST	20.00	%		3,608,640	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 21,651,900**	
	Contractor's OH & P	20.00	%		$ 4,330,400	
	Contractor's Insurance Program	2.50	%		$ 649,600	
	Escalation to Mid Point of Const, NTP (3rd Q '11)	3.00	%		$ 3,901,900	
	Total Estd Const Costs w/o Contingency				**$ 30,533,800**	
Project Administration & Management						
6.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
7.00	Engineering	-	%		$ -	Excluded from CE
8.00	Subcontractor Markup	-	%		$ -	Excluded from CE
9.00	Scope Contingency / Market Conditions	35.00	%		$ 10,687,000	Design definition / estimate / market conditions allowance
10.00	Construction Contingency	5.00	%		$ 2,062,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 43,282,800***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 30,297,960**	
	High	65	%		**$ 71,416,620**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.

2) Assume 66 month duration

3) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT B**	ESTIMATOR/QC :	Elmer/JLL
	CONSTRUCTION OF PUMP STATION & UG STORAGE		

Item	Description	Qty	UOM	Unit Price	Total Price	Comments/Assumptions
Direct & Indirect Costs						
1.00	Construct Pump Station - 532-1330gpm	1.00	LS	991,000.00	991,000	Incl 340cy earthwork, 150cy concrete,1-20hp pump, minor piping, 1-36" check valve & E & I works
2.00	Underground Storage Tank - 1.5MG	1.00	LS	2,199,000.00	2,199,000	Incl 12K cy earthwork, 2100cy concrete, valves & piping
3.00	36" Local Sanitary Sewer	500.00	LF	213.00	106,500	Includes piping, open cut excavation, bedding & shoring
4.00	Harns Road Interceptor Connection Structure	1.00	EA	120,000.00	120,000	6' dia x 30' deep
5.00	Bypass Pumping During Construction	3.00	Month	17,000.00	51,000	
6.00	INDIRECT COST	20.00	%		693,500	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 4,161,000**	
	Contractor's OH & P	20.00	%		$ 832,200	
	Contractor's Insurance Program	2.50	%		$ 124,900	
	Escalation to Mid Point of Const, NTP (1st Q '10)	3.00	%		$ 272,300	
	Total Estd Const Costs w/o Contingency				**$ 5,390,400**	
Project Administration & Management						
7.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
8.00	Engineering	-	%		$ -	Excluded from CE
9.00	Subcontractor Markup	-	%		$ -	Excluded from CE
10.00	Scope Contingency / Market Conditions	35.00	%		$ 1,887,000	Design definition / estimate / market conditions allowance
11.00	Construction Contingency	5.00	%		$ 364,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 7,641,400***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 5,348,980**	
	High	65	%		**12,608,310**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.
2) 10' of cover over pipe section assumed for all areas.
3) Assume 31 month duration
4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT C**	ESTIMATOR/QC :	Elmer/JLL
	STORM SEWER CAPACITY IMPROVEMENTS		

Item	Description	Qty	UOM	Unit Price	Total Price	Comments
Direct & Indirect Costs						
1.00	Replace Portion of Trunk Mains with 48" Storm Sewer Pipe	9,400	LF	408.00	3,835,200	Includes piping,open cut excavation, bedding, shoring, pavement demo + restoration
2.00	Replace Portion of Trunk Mains with 54" Storm Sewer Pipe	1,900	LF	459.00	872,100	ditto
3.00	Replace Portion of Trunk Mains with 60" Storm Sewer Pipe	300	LF	510.00	153,000	ditto
4.00	Replace Portion of Trunk Mains with 66" Storm Sewer Pipe	200	LF	570.00	114,000	ditto
5.00	Replace Portion of Trunk Mains with 72" Storm Sewer Pipe	900	LF	620.00	558,000	ditto
6.00	Replace Portion of Trunk Mains with 78" Storm Sewer Pipe	100	LF	670.00	67,000	ditto
7.00	Replace Portion of Trunk Mains with 84" Storm Sewer Pipe	1,900	LF	720.00	1,368,000	ditto
8.00	Replace Portion of Trunk Mains with 96" Storm Sewer Pipe	1,900	LF	820.00	1,558,000	ditto
9.00	Replace Portion of Trunk Mains with 102" Storm Sewer Pipe	5,700	LF	1,100.00	6,270,000	ditto
10.00	INDIRECT COST	20.00	%		2,959,060	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 17,754,400**	
	Contractor's OH & P	20.00	%		$ 3,550,900	
	Contractor's Insurance Program	2.50	%		$ 532,700	
	Escalation to Mid Point of Const, NTP (1rd Q '12)	3.00	%		$ 3,512,000	
	Total Estd Const Costs w/o Contingency				**$ 25,350,000**	
Project Administration & Management						
11.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
12.00	Engineering	-	%		$ -	Excluded from CE
13.00	Subcontractor Markup	-	%		$ -	Excluded from CE
14.00	Scope Contingency / Market Conditions	35.00	%		$ 8,873,000	Design definition / estimate / market conditions allowance
15.00	Construction Contingency	5.00	%		$ 1,712,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 35,935,000***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 25,154,500**	
	High	65	%		**59,292,750**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.
2) Assume 50% of total length of >30" pipes upsized by 50% (dia). 10' of cover over pipe section assumed for all areas.
3) Assume 62 month duration
4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT D**	ESTIMATOR/QC :	Elmer/JLL
	INSTALLATION OF CONFLICT MANHOLES		

Item	Description	Qty	UOM	Unit Price	Total Price ($)	Comments/Assumptions
Direct & Indirect Costs						
1.00	Install Conflict Concrete Manholes	2.00	EA	37,000.00	74,000	Precast 6'dia x 15'deep. Restoration incl below
2.00	Install 12" Sanitary Sewer	200.00	LF	147.00	29,400	Includes piping, open cut excavation, bedding, shoring, pavement demo + restoration
3.00	Install 24" Storm Sewer	200.00	LF	206.00	41,200	ditto
4.00	INDIRECT COST	20.00	%		28,920	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 173,600**	
	Contractor's OH & P	20.00	%		$ 34,800	
	Contractor's Insurance Program	2.50	%		$ 5,300	
	Escalation to Mid Point of Const, NTP (3rd Q '12)	3.00	%		$ 15,000	
	Total Estd Const Costs w/o Contingency				**$ 228,700**	
Project Administration & Management						
5.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
6.00	Engineering	-	%		$ -	Excluded from CE
7.00	Subcontractor Markup	-	%		$ -	Excluded from CE
8.00	Scope Contingency / Market Conditions	35.00	%		$ 81,000	Design definition / estimate / market conditions allowance
9.00	Construction Contingency	5.00	%		$ 16,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 325,700***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 227,990**	
	High	65	%		**537,405**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.
2) 10' of cover over pipe section assumed for all areas.
3) Assume 10 month duration
4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT E**	ESTIMATOR/QC :	Elmer/JLL
	SANITARY TRUNK MAIN IMPROVEMENTS		

Item	Description	Qty	UOM	Unit Price	Total Price	Comments/Assumptions
Direct & Indirect Costs						
1.00	12" Sanitary Sewer Installation	13,200.00	LF	108.00	1,425,600	Includes piping,open cut excavation, bedding, shoring, pavement demo + restoration
2.00	24" Sanitary Sewer Installation	13,200.00	LF	159.00	2,098,800	ditto
3.00	Service Connections	792.00	EA	1,000.00	792,000	
4.00	INDIRECT COST	20.00	%		863,280	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 5,179,700**	
	Contractor's OH & P	20.00	%		$ 1,036,000	
	Contractor's Insurance Program	2.50	%		$ 155,400	
	Escalation to Mid Point of Const, NTP (3rd Q '14)	3.00	%		$ 1,274,600	
	Total Estd Const Costs w/o Contingency				**$ 7,645,700**	
Project Administration & Management						
5.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
6.00	Engineering	-	%		$ -	Excluded from CE
7.00	Subcontractor Markup	-	%		$ -	Excluded from CE
8.00	Scope Contingency / Market Conditions	35.00	%		$ 2,676,000	Design definition / estimate / market conditions allowance
9.00	Construction Contingency	5.00	%		$ 517,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 10,838,700***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 7,587,090**	
	High	65	%		**17,883,855**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.

2) Assume 10% of sanitary mains to be upsized. (8" and 10" increased to 12", and 12" - 18" increased to 24"). 10' of cover over pipe section assumed for all areas.

3) Assume 31 month duration

4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

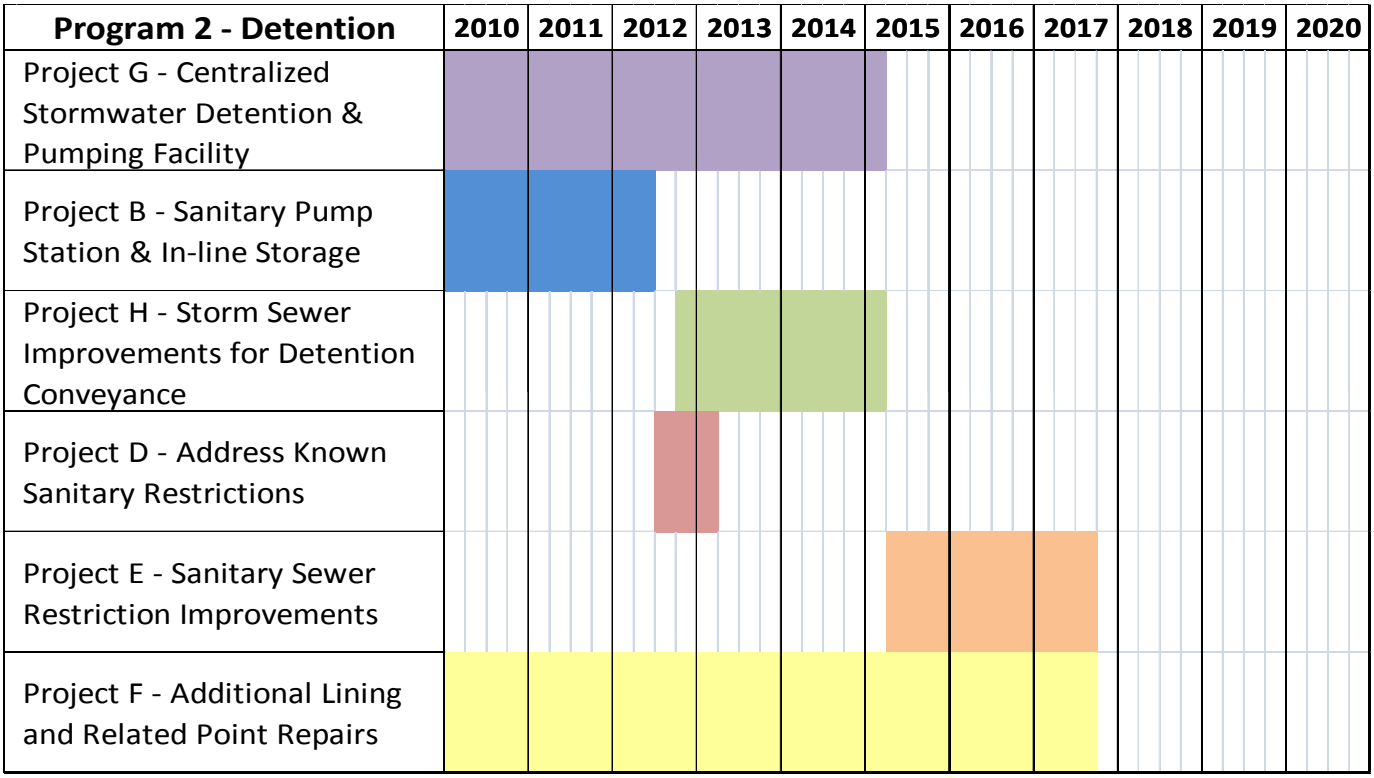
MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

Separate Sewer Program 2
Centralized Detention

PROJECT : Village of Wilmette Separate Sewer Study
LOCATION: Wilmette, Illinois
CLIENT : Village of Wilmette

Description : Program 2 provides storage for excess storm flow during wet weather events to reduce surcharging in the storm sewers. A large centralized detention basin (approximately 40 - 60 acre-feet) would be used to temporarily store stormwater during rain events until it can be pumped to the North Branch of the Chicago River (NBCR) at a later time. Pumping facilities and stormwater sewer conveyance improvements/construction would be necessary due to a lack of available large open sites. Storing stormwater will reduce the amount of flow the Village's stormwater system needs to convey during peak rain events. Preventing the sewers from surcharging and operating under pressure will reduce I&I into the sanitary system.

In addition to the conveyance and pumping improvements associated with detention, this program would be implemented in conjunction with a sanitary pump station; isolated storm sewer capacity improvements to improve conveyance to/from the detention facility; and lining and point repairs to reduce points of high I&I into the sanitary lines.



				Price Range Per AACE Class 5 Cost Estimate	
Program		**Component Projects**	**Probable Construction Cost***	**Low**	**High**
Centralized Detention	G	Centralized Stormwater Detention with Pumping Facility	$ 19,188,000	$ 13,431,000	$ 31,659,000
	B	Sanitary Pump Station and In-line Storage	$ 7,642,000	$ 5,349,000	$ 12,609,000
	H	Storm Sewer Improvements for Detention Conveyance	--	--	--
	D	Installation of Conflict Manholes	$ 326,000	$ 228,000	$ 538,000
	E	Sanitary Sewer Restriction Improvements	$ 11,081,000	$ 7,588,000	$ 17,884,000
	F	Additional Lining and Point Repairs	--	--	--
		Total Program Cost:	**$ 38,237,000**	**$ 26,596,000**	**$ 62,690,000**

Notes:

1. Costs do not include additional lining and point repairs
2. Project Durations include Planning & Design, Procurement, and Construction
3. Storm Sewer Conveyance Improvements costs included in Detention Basin with Pumping Station
4. At the January workshop, a lining target of 50% of the sanitary mains within the study area was suggested. Approx. 3-5% of the total 264,000 feet of sanitary main have been lined to date.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT G**	ESTIMATOR/QC :	Elmer/JLL
	CONSTRUCTION OF DETENTION BASIN		

Item	Description	Qty	UOM	Unit Price	Total Price ($)	Comments/Assumptions
Direct & Indirect Costs						
1.00	Construct Detension Basin	1.00	EA	4,043,000	4,043,000	5ac x 13' deep, excavation, filter fabric
2.00	Associated 48" Influent/Effluent Piping	4,270.00	LF	670	2,860,900	Carbon steel, cement lined
3.00	Construct Pump Station	4.19	MGD	350,000	1,466,500	
4.00	INDIRECT COST	20.00	%		1,674,080	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 10,044,500**	
	Contractor's OH & P	20.00	%		$ 2,008,900	
	Contractor's Insurance Program	2.50	%		$ 301,400	
	Escalation to Mid Point of Const, NTP (1st Q '10)	3.00	%		$ 1,180,300	
	Total Estd Const Costs w/o Contingency				**$ 13,535,100**	
Project Administration & Management						
5.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
6.00	Engineering	-	%		$ -	Excluded from CE
7.00	Subcontractor Markup	-	%		$ -	Excluded from CE
8.00	Scope Contingency / Market Conditions	35.00	%		$ 4,738,000	Design definition / estimate / market conditions allowance
9.00	Construction Contingency	5.00	%		$ 914,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 19,187,100***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 13,430,970**	
	High	65	%		**31,658,715**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.
2) Assume 63 month duration
3) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT B**	ESTIMATOR/QC :	Elmer/JLL
	CONSTRUCTION OF PUMP STATION & UG STORAGE		

Item	Description	Qty	UOM	Unit Price	Total Price	Comments/Assumptions
Direct & Indirect Costs						
1.00	Construct Pump Station - 532-1330gpm	1.00	LS	991,000.00	991,000	Incl 340cy earthwork, 150cy concrete,1-20hp pump, minor piping, 1-36" check valve & E & I works
2.00	Underground Storage Tank - 1.5MG	1.00	LS	2,199,000.00	2,199,000	Incl 12K cy earthwork, 2100cy concrete, valves & piping
3.00	36" Local Sanitary Sewer	500.00	LF	213.00	106,500	Includes piping, open cut excavation, bedding & shoring
4.00	Harns Road Interceptor Connection Structure	1.00	EA	120,000.00	120,000	6' dia x 30' deep
5.00	Bypass Pumping During Construction	3.00	Month	17,000.00	51,000	
6.00	INDIRECT COST	20.00	%		693,500	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 4,161,000**	
	Contractor's OH & P	20.00	%		$ 832,200	
	Contractor's Insurance Program	2.50	%		$ 124,900	
	Escalation to Mid Point of Const, NTP (1st Q '10)	3.00	%		$ 272,300	
	Total Estd Const Costs w/o Contingency				**$ 5,390,400**	
Project Administration & Management						
7.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
8.00	Engineering	-	%		$ -	Excluded from CE
9.00	Subcontractor Markup	-	%		$ -	Excluded from CE
10.00	Scope Contingency / Market Conditions	35.00	%		$ 1,887,000	Design definition / estimate / market conditions allowance
11.00	Construction Contingency	5.00	%		$ 364,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 7,641,400***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 5,348,980**	
	High	65	%		**12,608,310**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.
2) 10' of cover over pipe section assumed for all areas.
3) Assume 31 month duration
4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT D**	ESTIMATOR/QC :	Elmer/JLL
	INSTALLATION OF CONFLICT MANHOLES		

Item	Description	Qty	UOM	Unit Price	Total Price ($)	Comments/Assumptions
Direct & Indirect Costs						
1.00	Install Conflict Concrete Manholes	2.00	EA	37,000.00	74,000	Precast 6'dia x 15'deep. Restoration incl below
2.00	Install 12" Sanitary Sewer	200.00	LF	147.00	29,400	Includes piping, open cut excavation, bedding, shoring, pavement demo + restoration
3.00	Install 24" Storm Sewer	200.00	LF	206.00	41,200	ditto
4.00	INDIRECT COST	20.00	%		28,920	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 173,600**	
	Contractor's OH & P	20.00	%		$ 34,800	
	Contractor's Insurance Program	2.50	%		$ 5,300	
	Escalation to Mid Point of Const, NTP (3rd Q '12)	3.00	%		$ 15,000	
	Total Estd Const Costs w/o Contingency				**$ 228,700**	
Project Administration & Management						
5.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
6.00	Engineering	-	%		$ -	Excluded from CE
7.00	Subcontractor Markup	-	%		$ -	Excluded from CE
8.00	Scope Contingency / Market Conditions	35.00	%		$ 81,000	Design definition / estimate / market conditions allowance
9.00	Construction Contingency	5.00	%		$ 16,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 325,700***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 227,990**	
	High	65	%		**537,405**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.
2) 10' of cover over pipe section assumed for all areas.
3) Assume 10 month duration
4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT E**	ESTIMATOR/QC :	Elmer/JLL
	SANITARY TRUNK MAIN IMPROVEMENTS		

Item	Description	Qty	UOM	Unit Price	Total Price	Comments/Assumptions
Direct & Indirect Costs						
1.00	12" Sanitary Sewer Installation	13,200.00	LF	108.00	1,425,600	Includes piping,open cut excavation, bedding, shoring, pavement demo + restoration
2.00	24" Sanitary Sewer Installation	13,200.00	LF	159.00	2,098,800	ditto
3.00	Service Connections	792.00	EA	1,000.00	792,000	
4.00	INDIRECT COST	20.00	%		863,280	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 5,179,700**	
	Contractor's OH & P	20.00	%		$ 1,036,000	
	Contractor's Insurance Program	2.50	%		$ 155,400	
	Escalation to Mid Point of Const, NTP (2nd Q '15)	3.00	%		$ 1,445,500	
	Total Estd Const Costs w/o Contingency				**$ 7,816,600**	
Project Administration & Management						
5.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
6.00	Engineering	-	%		$ -	Excluded from CE
7.00	Subcontractor Markup	-	%		$ -	Excluded from CE
8.00	Scope Contingency / Market Conditions	35.00	%		$ 2,736,000	Design definition / estimate / market conditions allowance
9.00	Construction Contingency	5.00	%		$ 528,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 11,080,600***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 7,756,420**	
	High	65	%		**18,282,990**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.

2) Assume 10% of sanitary mains to be upsized. (8" and 10" increased to 12", and 12" - 18" increased to 24"). 10' of cover over pipe section assumed for all areas.

3) Assume 31 month duration

4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

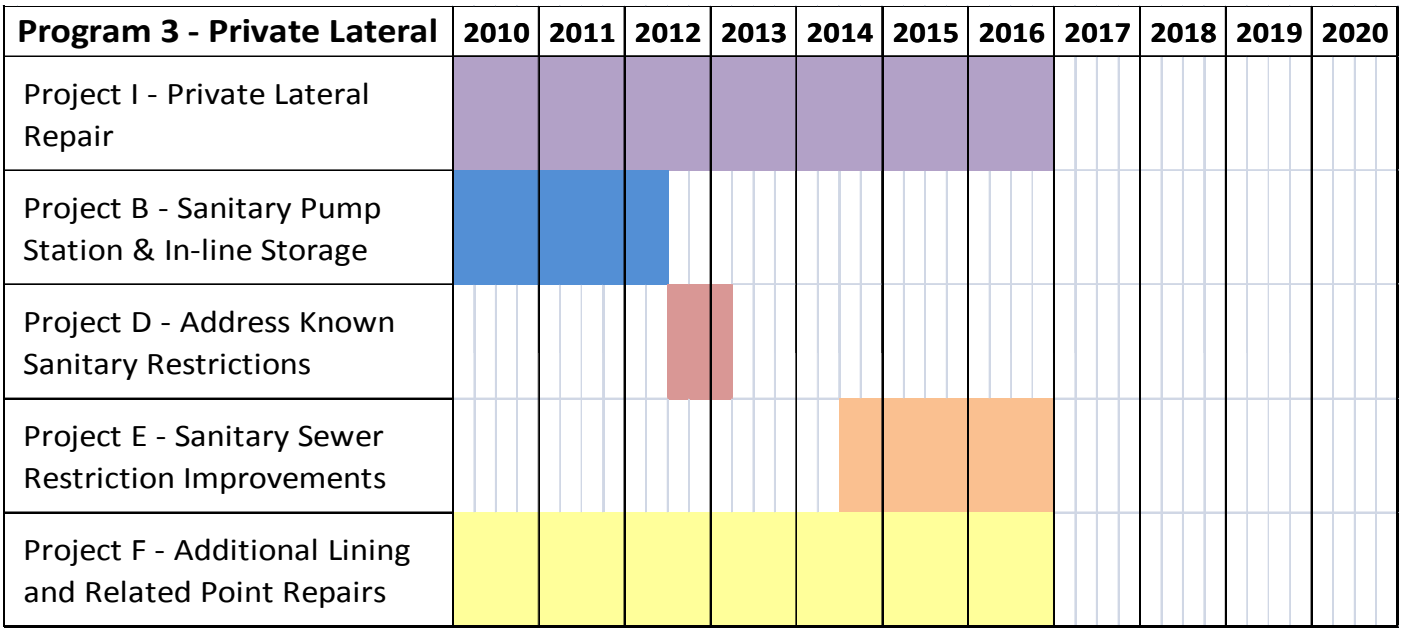
MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

Separate Sewer Program 3
Private Sanitary Lateral Repair

PROJECT : Village of Wilmette Separate Sewer Study
LOCATION: Wilmette, Illinois
CLIENT : Village of Wilmette

Description : Program 3 aims to rehabilitate all the sanitary house laterals in the study area; it will address Inflow and Infiltration into the sanitary system by sealing the sanitary system off from storm sewer I&I at the laterals. Although the Village is not responsible for the private laterals leading from a family's home to the connection with the sanitary main in the street, taking Village-wide steps to repair laterals as part of a comprehensive I&I reduction plan would allow the sanitary system to operate effectively and reduce basement backups. Taking each set of laterals individually will also allow the Village to eliminate cross connections (where a storm lateral is connecting to a sanitary trunk main, instead of the storm sewer).

In addition to the lateral improvements, the program would be implemented in conjunction with a sanitary pump station; isolated sanitary capacity improvements to improve conveyance; and lining and point repairs to reduce points of high I&I into the sanitary lines.



				Price Range Per AACE Class 5 Cost Estimate	
Program		**Component Projects**	**Probable Construction Cost***	**Low**	**High**
Private Lateral and Sanitary Sewer Repair	I	Private Lateral Repair	$ 72,380,000	$ 50,666,000	$ 119,427,000
	B	Sanitary Pump Station and In-line Storage	$ 7,642,000	$ 5,349,000	$ 12,609,000
	D	Installation of Conflict Manholes	$ 326,000	$ 228,000	$ 538,000
	E	Sanitary Sewer Restriction Improvements	$ 10,839,000	$ 7,588,000	$ 17,884,000
	F	Additional Lining and Point Repairs	--	--	--
		Total Program Cost:	**$ 91,187,000**	**$ 63,831,000**	**$ 150,458,000**

Notes:

1. Costs do not include additional lining and point repairs
2. Project Durations include Planning & Design, Procurement, and Construction
3. At the January workshop, a lining target of 50% of the sanitary mains within the study area was suggested. Approx. 3-5% of the total 264,000 feet of sanitary main have been lined to date.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT I**	ESTIMATOR/QC :	Elmer/JLL
	REPAIR PRIVATE LATERALS		

Item	Description	Qty	UOM	Unit Price	Total Price ($)	Comments/Assumptions
Direct & Indirect Costs						
1.00	Televise Existing Sanitary / Storm Laterals	264,000	LF	1.20	316,800	
2.00	Line Private Laterals	198,000	LF	130.00	25,740,000	Complete work, 8" pipe, Nuflow budget quote pcoles@nuflowtech.com
3.00	Open Trench Private Lateral Replacement	66,000	LF	72.00	4,752,000	Includes 8" piping, open cut excavation, bedding, shoring, pavement demo + restoration
4.00	INDIRECT COST	20.00	%		6,161,760	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 36,970,600**	
	Contractor's OH & P	20.00	%		$ 7,394,200	
	Contractor's Insurance Program	2.50	%		$ 1,109,200	
	Escalation to Mid Point of Const, NTP (1st Q '10)	3.00	%		$ 5,586,700	
	Total Estd Const Costs w/o Contingency				**$ 51,060,700**	
Project Administration & Management						
5.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
6.00	Engineering	-	%		$ -	Excluded from CE
7.00	Subcontractor Markup	-	%		$ -	Excluded from CE
8.00	Scope Contingency / Market Conditions	35.00	%		$ 17,872,000	Design definition / estimate / market conditions allowance
9.00	Construction Contingency	5.00	%		$ 3,447,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 72,379,700***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 50,665,790**	
	High	65	%		**119,426,505**	
Notes:						
1)	This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.					
2)	Includes connection at mainline sewer. 10' of cover over pipe section assumed for all areas.					
3)	Assume 83 month duration					
4)	Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.					

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT B**	ESTIMATOR/QC :	Elmer/JLL
	CONSTRUCTION OF PUMP STATION & UG STORAGE		

Item	Description	Qty	UOM	Unit Price	Total Price	Comments/Assumptions
Direct & Indirect Costs						
1.00	Construct Pump Station - 532-1330gpm	1.00	LS	991,000.00	991,000	Incl 340cy earthwork, 150cy concrete,1-20hp pump, minor piping, 1-36" check valve & E & I works
2.00	Underground Storage Tank - 1.5MG	1.00	LS	2,199,000.00	2,199,000	Incl 12K cy earthwork, 2100cy concrete, valves & piping
3.00	36" Local Sanitary Sewer	500.00	LF	213.00	106,500	Includes piping, open cut excavation, bedding & shoring
4.00	Harns Road Interceptor Connection Structure	1.00	EA	120,000.00	120,000	6' dia x 30' deep
5.00	Bypass Pumping During Construction	3.00	Month	17,000.00	51,000	
6.00	INDIRECT COST	20.00	%		693,500	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 4,161,000**	
	Contractor's OH & P	20.00	%		$ 832,200	
	Contractor's Insurance Program	2.50	%		$ 124,900	
	Escalation to Mid Point of Const, NTP (1st Q '10)	3.00	%		$ 272,300	
	Total Estd Const Costs w/o Contingency				**$ 5,390,400**	
Project Administration & Management						
7.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
8.00	Engineering	-	%		$ -	Excluded from CE
9.00	Subcontractor Markup	-	%		$ -	Excluded from CE
10.00	Scope Contingency / Market Conditions	35.00	%		$ 1,887,000	Design definition / estimate / market conditions allowance
11.00	Construction Contingency	5.00	%		$ 364,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 7,641,400***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 5,348,980**	
	High	65	%		**12,608,310**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.
2) 10' of cover over pipe section assumed for all areas.
3) Assume 31 month duration
4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT D**	ESTIMATOR/QC :	Elmer/JLL
	INSTALLATION OF CONFLICT MANHOLES		

Item	Description	Qty	UOM	Unit Price	Total Price ($)	Comments/Assumptions
Direct & Indirect Costs						
1.00	Install Conflict Concrete Manholes	2.00	EA	37,000.00	74,000	Precast 6'dia x 15'deep. Restoration incl below
2.00	Install 12" Sanitary Sewer	200.00	LF	147.00	29,400	Includes piping, open cut excavation, bedding, shoring, pavement demo + restoration
3.00	Install 24" Storm Sewer	200.00	LF	206.00	41,200	ditto
4.00	INDIRECT COST	20.00	%		28,920	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 173,600**	
	Contractor's OH & P	20.00	%		$ 34,800	
	Contractor's Insurance Program	2.50	%		$ 5,300	
	Escalation to Mid Point of Const, NTP (3rd Q '12)	3.00	%		$ 15,000	
	Total Estd Const Costs w/o Contingency				**$ 228,700**	
Project Administration & Management						
5.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
6.00	Engineering	-	%		$ -	Excluded from CE
7.00	Subcontractor Markup	-	%		$ -	Excluded from CE
8.00	Scope Contingency / Market Conditions	35.00	%		$ 81,000	Design definition / estimate / market conditions allowance
9.00	Construction Contingency	5.00	%		$ 16,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 325,700***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 227,990**	
	High	65	%		**537,405**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.
2) 10' of cover over pipe section assumed for all areas.
3) Assume 10 month duration
4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT E**	ESTIMATOR/QC :	Elmer/JLL
	SANITARY TRUNK MAIN IMPROVEMENTS		

Item	Description	Qty	UOM	Unit Price	Total Price	Comments/Assumptions
Direct & Indirect Costs						
1.00	12" Sanitary Sewer Installation	13,200.00	LF	108.00	1,425,600	Includes piping,open cut excavation, bedding, shoring, pavement demo + restoration
2.00	24" Sanitary Sewer Installation	13,200.00	LF	159.00	2,098,800	ditto
3.00	Service Connections	792.00	EA	1,000.00	792,000	
4.00	INDIRECT COST	20.00	%		863,280	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 5,179,700**	
	Contractor's OH & P	20.00	%		$ 1,036,000	
	Contractor's Insurance Program	2.50	%		$ 155,400	
	Escalation to Mid Point of Const, NTP (3rd Q '14)	3.00	%		$ 1,274,600	
	Total Estd Const Costs w/o Contingency				**$ 7,645,700**	
Project Administration & Management						
5.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
6.00	Engineering	-	%		$ -	Excluded from CE
7.00	Subcontractor Markup	-	%		$ -	Excluded from CE
8.00	Scope Contingency / Market Conditions	35.00	%		$ 2,676,000	Design definition / estimate / market conditions allowance
9.00	Construction Contingency	5.00	%		$ 517,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 10,838,700***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 7,587,090**	
	High	65	%		**17,883,855**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.

2) Assume 10% of sanitary mains to be upsized. (8" and 10" increased to 12", and 12" - 18" increased to 24"). 10' of cover over pipe section assumed for all areas.

3) Assume 31 month duration

4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

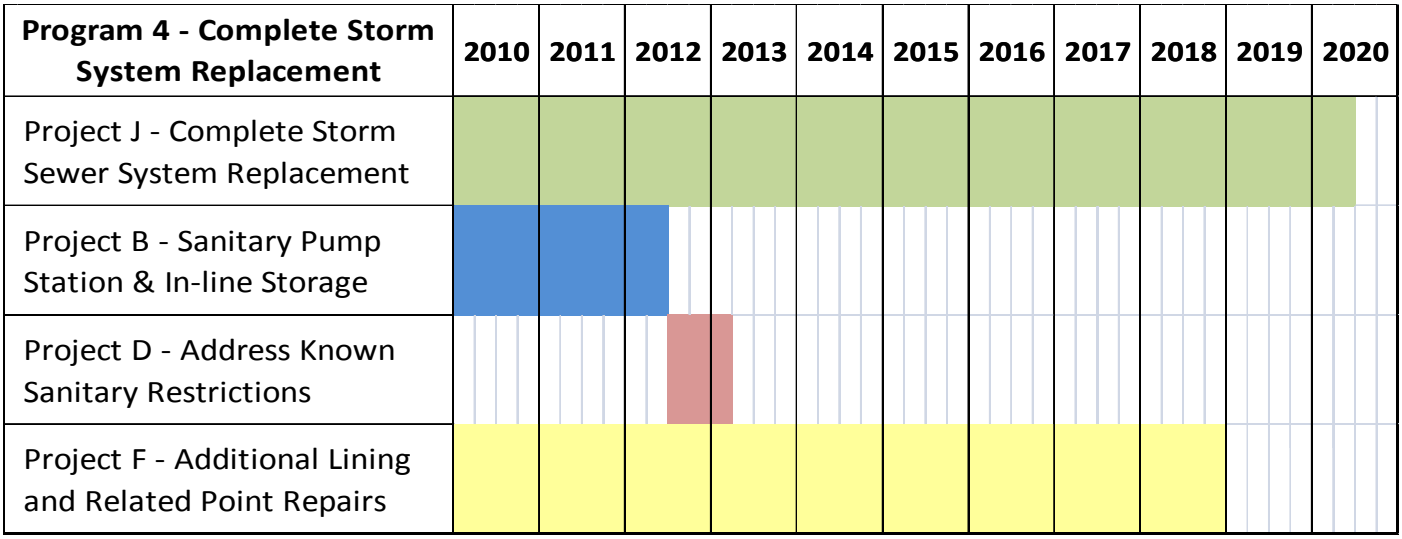
MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

Separate Sewer Program 4
Complete Storm Sewer Replacement

PROJECT : Village of Wilmette Separate Sewer Study
LOCATION: Wilmette, Illinois
CLIENT : Village of Wilmette

Description : Program 4 is the complete replacement/repair of the storm sewer system in the study area. By increasing capacity and eliminating surcharge for all but the most extreme events, the sanitary system will be able to operate as designed and surcharging will be reduced.

In addition to the storm sewer system replacement, the program would be implemented in conjunction with a sanitary pump station; isolated sanitary restriction improvements; and lining and point repairs to reduce points of high I&I into the sanitary lines.



				Price Range Per AACE Class 5 Cost Estimate	
Program		**Component Projects**	**Probable Construction Cost***	**Low**	**High**
Storm Sewer Replacement	J	Complete Storm Sewer System Replacement	$ 176,284,000	$ 123,399,000	$ 290,869,000
	B	Sanitary Pump Station and In-line Storage	$ 7,642,000	$ 5,349,000	$ 12,609,000
	D	Installation of Conflict Manholes	$ 326,000	$ 228,000	$ 538,000
	E	Additional Lining and Point Repairs	--	--	--
		Total Program Cost:	**$ 184,252,000**	**$ 128,976,000**	**$ 304,016,000**

Notes:

1. Costs do not include additional lining and point repairs
2. Project Durations include Planning & Design, Procurement, and Construction
3. At the January workshop, a lining target of 50% of the sanitary mains within the study area was suggested. Approx. 3-5% of the total 264,000 feet of sanitary main have been lined to date.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT J**	ESTIMATOR/QC :	Elmer/JLL
	REPLACE ALL STORM TRUNK AND COLLECTION MAINS		

Item	Description	Qty	UOM	Unit Price	Total Price	Comments
Direct & Indirect Costs						
2.00	Install 15" Storm Sewer Pipe	33,300	LF	125.00	4,162,500	same as above
3.00	Install 18" Storm Sewer Pipe	88,500	LF	153.00	13,540,500	same as above
4.00	Install 24 Storm Sewer Pipe	31,800	LF	204.00	6,487,200	same as above
5.00	Install 27" Storm Sewer Pipe	19,700	LF	230.00	4,531,000	same as above
6.00	Install 30" Storm Sewer Pipe	12,500	LF	255.00	3,187,500	same as above
7.00	Install 36" Storm Sewer Pipe	14,000	LF	306.00	4,284,000	same as above
8.00	Install 42" Storm Sewer Pipe	7,200	LF	357.00	2,570,400	same as above
9.00	Install 48" Storm Sewer Pipe	11,700	LF	408.00	4,773,600	same as above
10.00	Install 54" Storm Sewer Pipe	3,800	LF	459.00	1,744,200	same as above
11.00	Install 60" Storm Sewer Pipe	600	LF	510.00	306,000	same as above
12.00	Install 66" Storm Sewer Pipe	400	LF	570.00	228,000	same as above
13.00	Install 72" Storm Sewer Pipe	1,800	LF	620.00	1,116,000	same as above
14.00	Install 78" Storm Sewer Pipe	200	LF	670.00	134,000	same as above
15.00	Install 84" Storm Sewer Pipe	3,700	LF	720.00	2,664,000	same as above
16.00	Install 96" Storm Sewer Pipe	3,800	LF	820.00	3,116,000	same as above
17.00	Install 108" Storm Sewer Pipe	5,400	LF	920.00	4,968,000	same as above
18.00	Install 120" Storm Sewer Pipe	6,100	LF	1,300.00	7,930,000	same as above
19.00	Install 144" Storm Sewer Pipe	3,100	LF	1,500.00	4,650,000	same as above
20.00	INDIRECT COST	20.00	%		14,250,860	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 85,505,200**	
	Contractor's OH & P	20.00	%		$ 17,101,100	
	Contractor's Insurance Program	2.50	%		$ 2,565,200	
Escalation to Mid Point of Const, NTP (1st Q '10)		3.00	%		$ 19,190,200	
	Total Estd Const Costs w/o Contingency				**$ 124,361,700**	
Project Administration & Management						
21.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
22.00	Engineering	-	%		$ -	Excluded from CE
23.00	Subcontractor Markup	-	%		$ -	Excluded from CE
24.00	Scope Contingency / Market Conditio	35.00	%		$ 43,527,000	Design definition / estimate / market conditions allowance
25.00	Construction Contingency	5.00	%		$ 8,395,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 176,283,700***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 123,398,590**	
	High	65	%		**290,868,105**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.
2) 10' of cover over pipe section assumed for all areas.
3) Assume 125 month duration
4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.						

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT B**	ESTIMATOR/QC :	Elmer/JLL
	CONSTRUCTION OF PUMP STATION & UG STORAGE		

Item	Description	Qty	UOM	Unit Price	Total Price	Comments/Assumptions
Direct & Indirect Costs						
1.00	Construct Pump Station - 532-1330gpm	1.00	LS	991,000.00	991,000	Incl 340cy earthwork, 150cy concrete,1-20hp pump, minor piping, 1-36" check valve & E & I works
2.00	Underground Storage Tank - 1.5MG	1.00	LS	2,199,000.00	2,199,000	Incl 12K cy earthwork, 2100cy concrete, valves & piping
3.00	36" Local Sanitary Sewer	500.00	LF	213.00	106,500	Includes piping, open cut excavation, bedding & shoring
4.00	Harns Road Interceptor Connection Structure	1.00	EA	120,000.00	120,000	6' dia x 30' deep
5.00	Bypass Pumping During Construction	3.00	Month	17,000.00	51,000	
6.00	INDIRECT COST	20.00	%		693,500	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 4,161,000**	
	Contractor's OH & P	20.00	%		$ 832,200	
	Contractor's Insurance Program	2.50	%		$ 124,900	
	Escalation to Mid Point of Const, NTP (1st Q '10)	3.00	%		$ 272,300	
	Total Estd Const Costs w/o Contingency				**$ 5,390,400**	
Project Administration & Management						
7.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
8.00	Engineering	-	%		$ -	Excluded from CE
9.00	Subcontractor Markup	-	%		$ -	Excluded from CE
10.00	Scope Contingency / Market Conditions	35.00	%		$ 1,887,000	Design definition / estimate / market conditions allowance
11.00	Construction Contingency	5.00	%		$ 364,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 7,641,400***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 5,348,980**	
	High	65	%		**12,608,310**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.
2) 10' of cover over pipe section assumed for all areas.
3) Assume 31 month duration
4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

MWH

Walnut Creek, CA 8/5/2009

OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

PROJECT :	Village of Wilmette Separate Sewer	PM :	MARK WAGSTAFF
LOCATION:	Wilmette, Illinois	TEL NO. :	312-831-3102
CLIENT :	Village of Wilmette	AACE CLASS EST	5
DESC :	**PROJECT D**	ESTIMATOR/QC :	Elmer/JLL
	INSTALLATION OF CONFLICT MANHOLES		

Item	Description	Qty	UOM	Unit Price	Total Price ($)	Comments/Assumptions
Direct & Indirect Costs						
1.00	Install Conflict Concrete Manholes	2.00	EA	37,000.00	74,000	Precast 6'dia x 15'deep. Restoration incl below
2.00	Install 12" Sanitary Sewer	200.00	LF	147.00	29,400	Includes piping, open cut excavation, bedding, shoring, pavement demo + restoration
3.00	Install 24" Storm Sewer	200.00	LF	206.00	41,200	ditto
4.00	INDIRECT COST	20.00	%		28,920	Incl Supervision, temp facilities etc
	Sub Total Direct +Indirect Costs (Rounded)				**$ 173,600**	
	Contractor's OH & P	20.00	%		$ 34,800	
	Contractor's Insurance Program	2.50	%		$ 5,300	
	Escalation to Mid Point of Const, NTP (3rd Q '12)	3.00	%		$ 15,000	
	Total Estd Const Costs w/o Contingency				**$ 228,700**	
Project Administration & Management						
5.00	Construction Oversight & Mgt	-	%		$ -	Excluded from CE
6.00	Engineering	-	%		$ -	Excluded from CE
7.00	Subcontractor Markup	-	%		$ -	Excluded from CE
8.00	Scope Contingency / Market Conditions	35.00	%		$ 81,000	Design definition / estimate / market conditions allowance
9.00	Construction Contingency	5.00	%		$ 16,000	Changed field conditions allowance, scope growth
	TOTAL PROBABLE CONSTRUCTION COST				***$ 325,700***	
	Price Range Per AACE Class 5 Cost Estimate Guidelines					
	Low	-30	%		**$ 227,990**	
	High	65	%		**537,405**	

Notes:

1) This OPCC is classified as a Class 5 cost estimate per AACE guidelines. Stated accuracy range = -30% to + 65%.
2) 10' of cover over pipe section assumed for all areas.
3) Assume 10 month duration
4) Hauling of excess excavated rubble/demolished concrete, asphalt is included. Haul distance assumed up to 20 miles.

AACE International CLASS 5 Cost Estimate - Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation. (AACE International Recommended Practices and Standards).

MWH OPCC Disclaimer - The client acknowledges that MWH has no control over costs of labor, materials, competitive bidding environments and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility if the market attributable to Act of Gods and other market event beyond the control of the parties. Client further acknowledges that this OPCC is a "snapshot in time" and that the reliability of this OPCC will degrade over time. Client agrees that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied. that proposals, bids, project construction costs, or cost of O&M functions will not vary significantly from MWH's good faith **Class 5 OPCC.** This OPCC document contains confidential information and is intended only for the use of parties to whom it is addressed. It should not be modified, altered and published without the express written permission from an MWH Cost Engineering Dept Representative.

Section 4:
Pilot Area Engineering Estimate

Original Submittal Date : March 1, 2010

MWH

BUILDING A BETTER WORLD

MEMORANDUM

TO: File DATE: 3/01/10

FROM: Mark Wagstaff CC: Brenna Mannion

SUBJECT: Wilmette Inlet Restriction Pilot – Engineering Budget

In response to the Village of Wilmette's request for an estimate of design services for a sewer inlet restriction pilot program, MWH has outlined the following draft work breakdown structure, with associated professional hours and outside services. The engineering for the proposed pilot program would include the following tasks:

1. **Project Management and Meetings**
   Assume 100 hours throughout the duration of the project (estimated duration 12 months).

2. **Data Collection**

   a. Flow Monitoring Procurement, Installation Oversight, and Data Collection
   Assist the Village in determining the type, brand and size of temporary flow meter best suited for this monitoring. This would include obtaining manufacturer's quotes. Select meter locations (assume 1 each in storm and sanitary sewers per pilot area, for a total of 8) and oversee the flow monitoring contractor in the placement of the meters for each monitoring area. Record flows for at least 60 – 90 days. Assume 80 hours and $30,000 for outside services.

   b. Topographic Survey
   Develop scope and associated documents for the surveying subcontractor, to prepare necessary topographic information, including structure elevations, curb heights, and sufficient points to prepare 0.5-foot interval contours. Area to be surveyed will include full width of street from house-to-house. Detailed survey data are required to establish boundaries of street inundation and to locate berms, as well as for design of restrictors. Assume 40 hours and $20,000 for outside services.

   c. Geotechnical Data Collection
   Prepare scope of work for drilling subcontractor for one bore hole per pilot area (approx. 15 feet deep), and review logs. Primary purpose is to reduce risk of change orders during construction when Contractor is installing new structures and restrictors. Also obtain at least one pavement core per pilot location for restoration purposes. Assume 40 hours and $15,000 for outside services.

   d. Sewer Televising
   Televise sanitary and storm sewers within pilot areas to assess condition, and to identify any cross connections. Assume 60 hours and $10,000 for outside services.

175 W. Jackson
Suite 1900
Chicago, IL 60604-2814

TEL 312-831-3000
FAX 312-831-3976

3. **Restriction Program Engineering & Design**
   Analysis of the data obtained during task two will be used to guide the restrictor design (including selection of inlet flow rate, and estimation of inundation levels). Assume preparation of summary technical memo, and development of approximately 8 drawings (4 plan sheets, and 4 detail/general sheets) as well as associated specification documents for restrictor installation. Assume 480 hours.

4. **Restrictor Procurement**
   If the Village decides to procure the restrictors independently and provide them to the Contractor as an owner-furnished item, there may be an opportunity to work with the manufacturer to develop custom designs tailored specifically for the Village, rather than relying on stock designs. Assume no additional cost, as restrictors are in Construction Cost Estimate.

5. **Permitting**
   No special permitting requirements are anticipated, but due to innovative nature of the I&I reduction program coordination with MWRDGC may be useful. Assume 40 hours.

6. **Construction Oversight during Restrictor Installation**
   Assume full-time "resident" inspection services not required, but intermittent on-site oversight during the construction period. Assume 160 hours.

7. **Post-Restriction Flow Monitoring**
   Procure and oversee post-restriction flow monitoring. Record flows for at least 60 – 90 days. Assume 40 hours and $30,000 for outside services.

8. **Data Analysis, Reporting and Recommendations**
   Analysis of the pre- versus post-restrictor flow monitoring data will inform the determination of the success of the restriction pilot on reducing the surcharged sewer condition during wet weather events. Prepare a technical memo and recommendations for the Village regarding next steps for the restriction program if the results are favorable. Assume 200 hours.

Communications and public outreach with residents is not included in these estimates.

175 W. Jackson
Suite 1900
Chicago, IL 60604-2814
TEL 312-831-3000
FAX 312-831-3976

MWH

BUILDING A BETTER WORLD

MEMORANDUM

Summary of Level of Effort

Task No.	*Task Name*	*MWH Hours*	*Outside Services*
1	Project Management and Meetings	100	--
2	Data Collection		
2a	Flow Monitoring	80	$30,000
2b	Topographic Survey	40	$20,000
2c	Geotechnical	40	$15,000
2d	Sewer Televising.	60	$10,000
3	Detailed Engineering/Design	480	--
4	Restrictor Procurement	--	--
5	Permitting/Agency Coordination	40	--
6	Construction Oversight	160	--
7	Post- Restriction Flow Monitoring	40	$30,000
8	Data Analysis, Reporting and Recommendations	200	--
TOTAL		**1,240**	**$105,000**

Assuming average billing rate of $125/hour, labor cost is approx. $155,000 and total including outside services is $260,000.

175 W. Jackson
Suite 1900
Chicago, IL 60604-2814

TEL 312-831-3000
FAX 312-831-3976