July 18, 2011

City of Elmhurst
Comprehensive Flooding Plan
Task Force Meeting

Prepared by
CBBEL
RJN Group

Meeting Overview

- Progress Report on Comprehensive Plan to City Council
  - Sanitary Sewer System
  - Storm Sewer System

- Task Force Meeting in Individual Groups
  - Public Sanitary Sewer Infrastructure
  - Stormwater System Public Infrastructure
  - Individual Home Flood Proofing
  - Public Education
  - Commonwealth Edison and Electric Power

April 26 Task Force- Sanitary Sewer Work Plan

TASK 1
I/I Reduction

TASK 2
Overhead Sewers

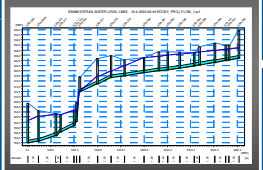
TASK 3
SCADA System

TASK 4
Lift Station Operations

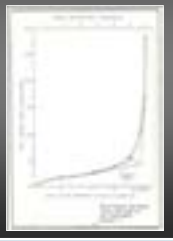
TASK 5
Lift Station Recommendations

TASK 6
Sanitary Sewer Assessment

TASK 7
Wet-Weather Plan



TASK 8
Risk Assessment of Alternatives

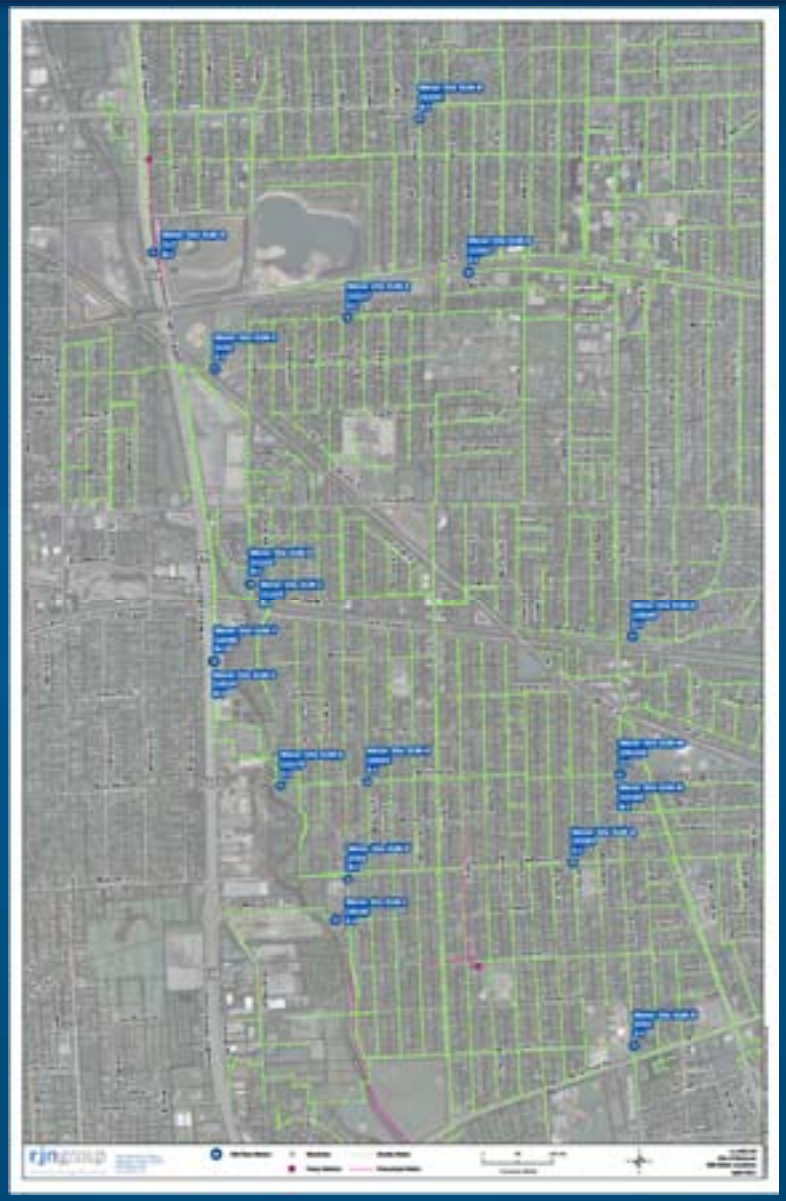


TASK 9
Presentation for City Council

July 18- Task Force Meeting

- What do we know that we didn't know on April 26?
  - Flow metering results
    - What areas contribute the most clear water into the sanitary sewers
  - Manhole inspection results
    - What condition are the sanitary manholes in
  - Data analysis
    - What % of clearwater is from public/private sources
    - How does this impact potential basement backup solutions/costs

Flow Meter Locations



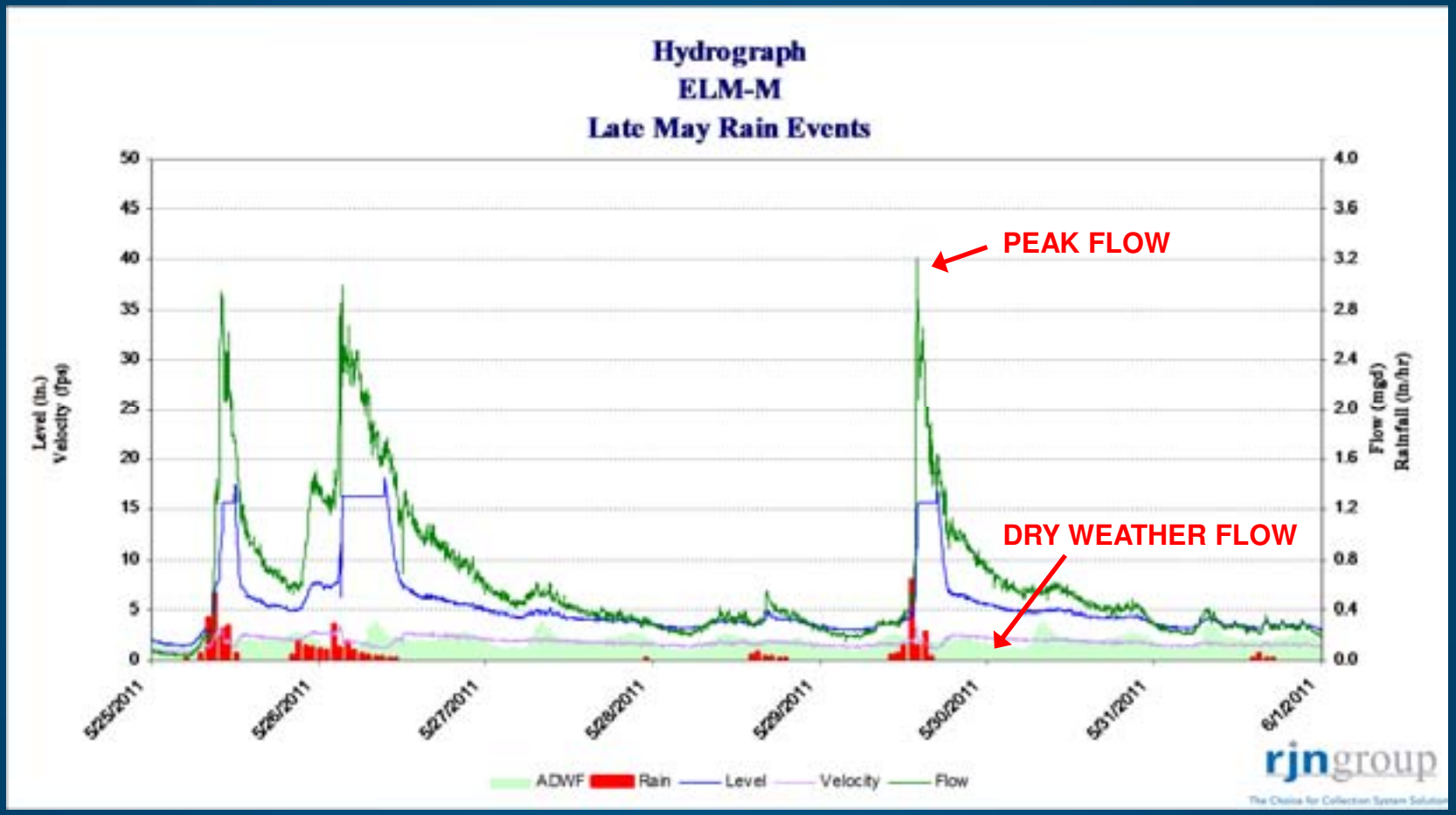
Flow Monitoring

Spring 2011 Rainfall Summary

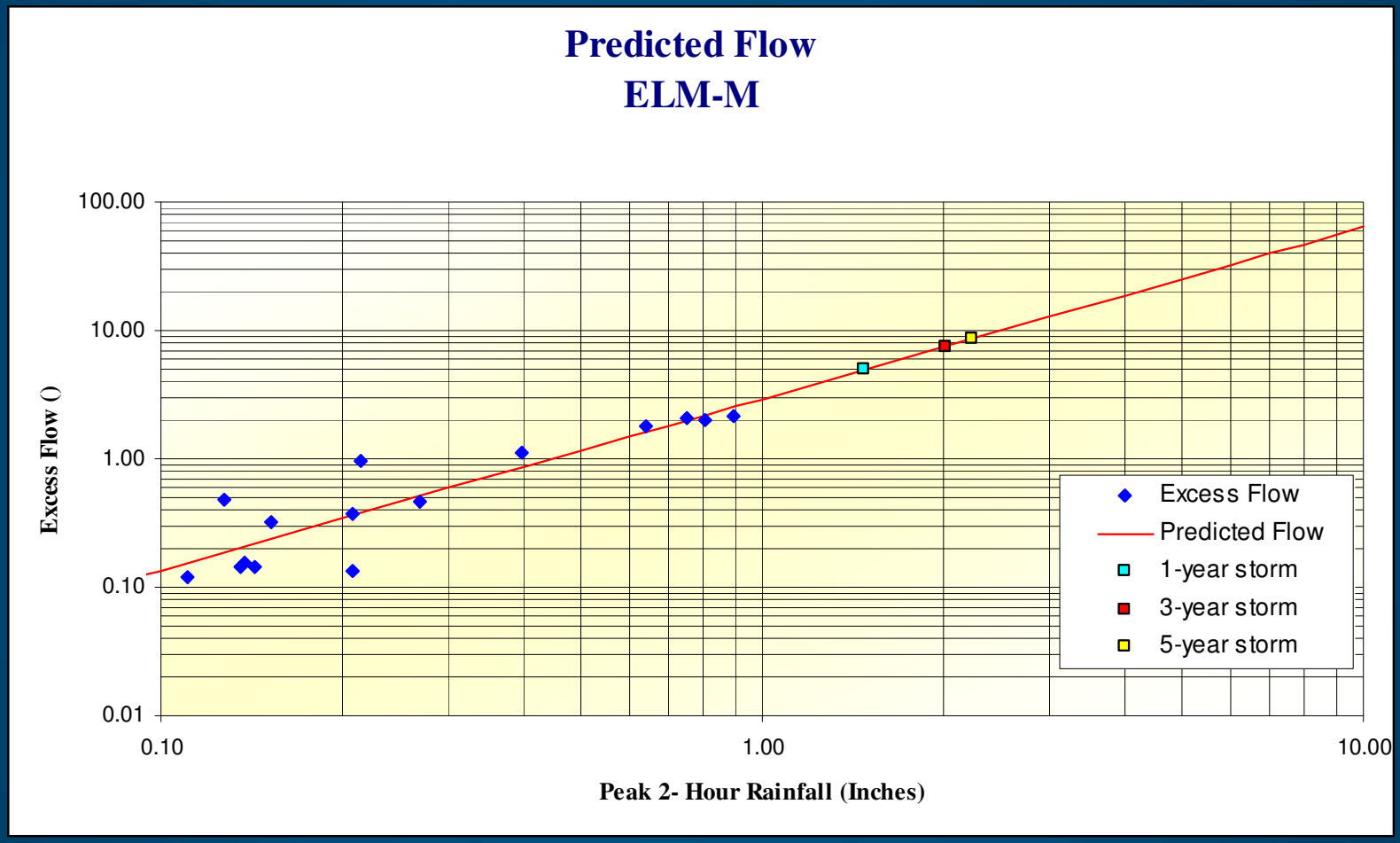
Significant Spring Rainstorms

Date	2 Hour Rainfall	Recurrence Interval
April 8	0.34	< 2 Month
April 19	0.73	< 2 Month
May 25	1.24	6 Month
May 29	1.02	3 Month
June 9	1.13	4 Month
June 15	0.39	< 2 Month

Typical Flow Response to Rainfall



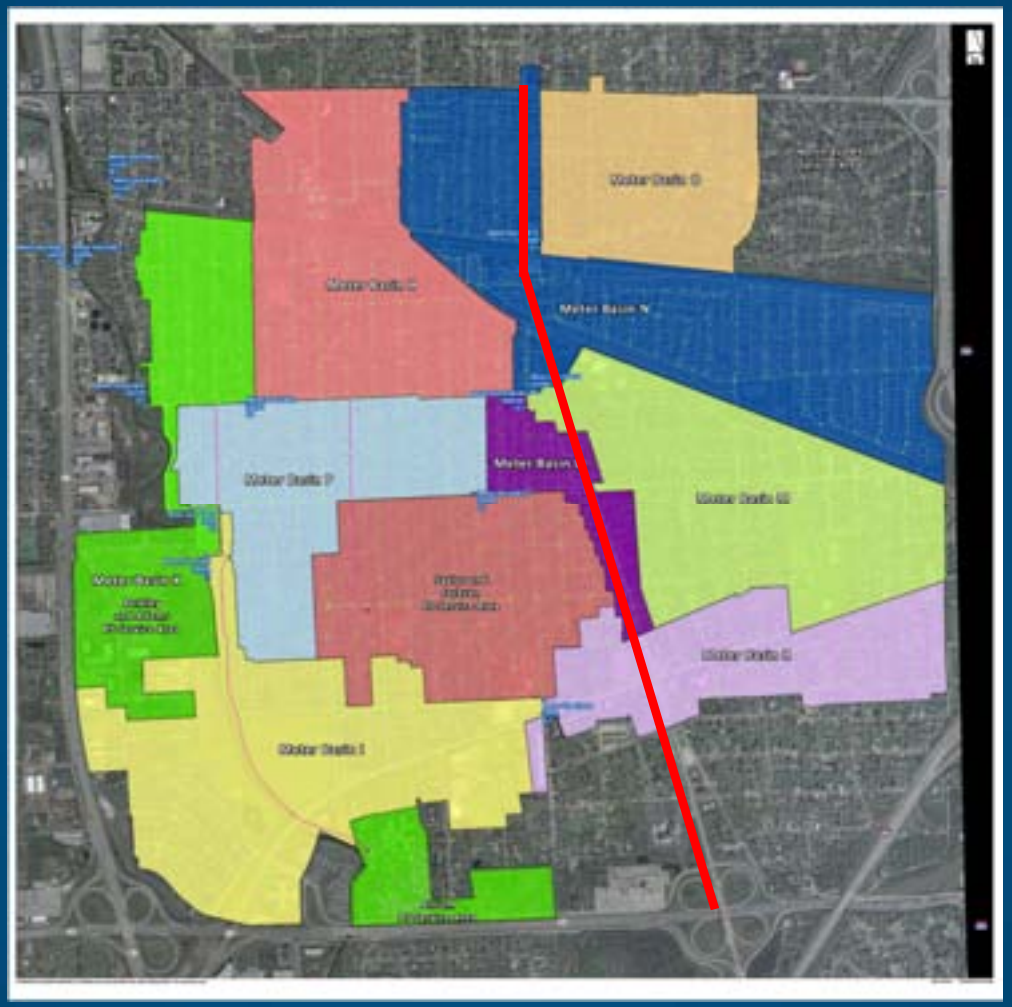
Typical Rainfall/Inflow Correlation



Elmhurst- Wet Weather Peaking Factors

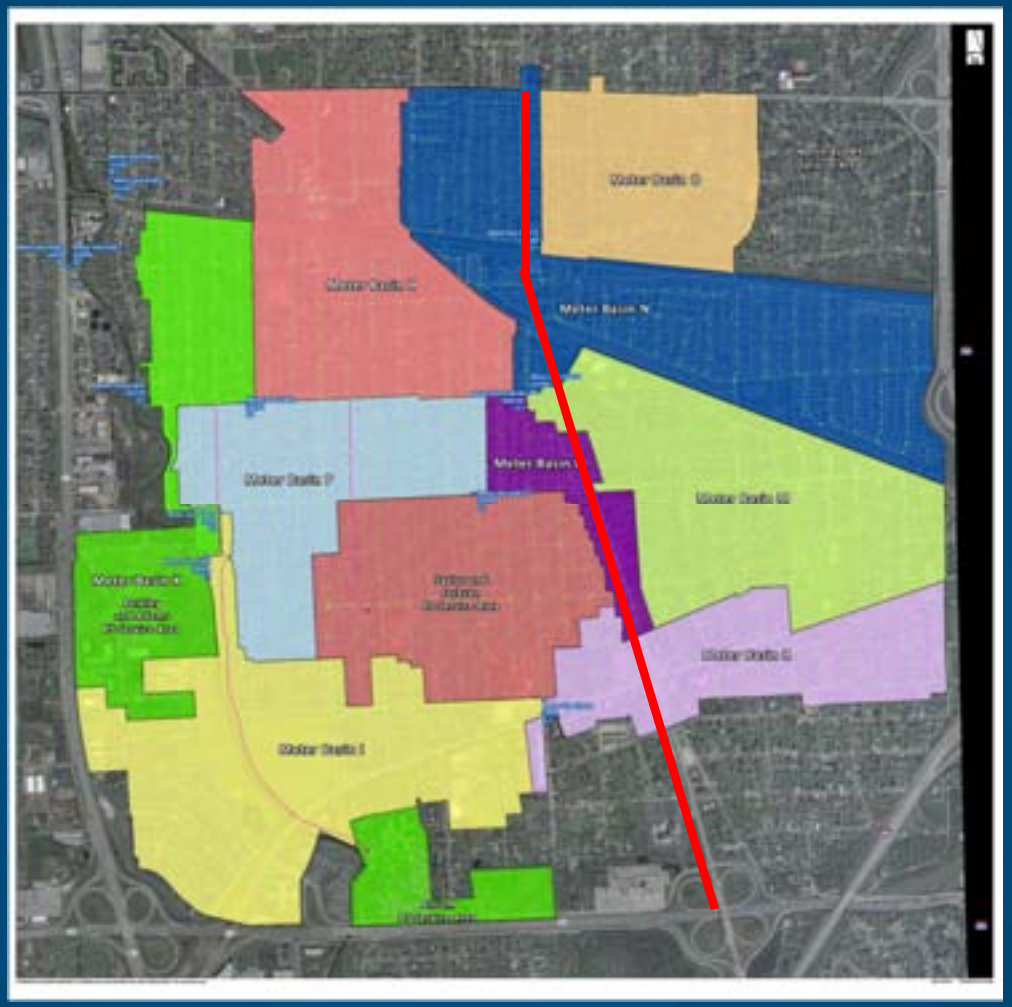
Area	Average Peaking Factor	Basement Backups
North Elmhurst	15	Low
Southwest Elmhurst	18	High
Southeast Elmhurst	25	Low

South Elmhurst Meter Basins



Reported Sanitary Sewer Backup Locations

South Elmhurst Meter Basins

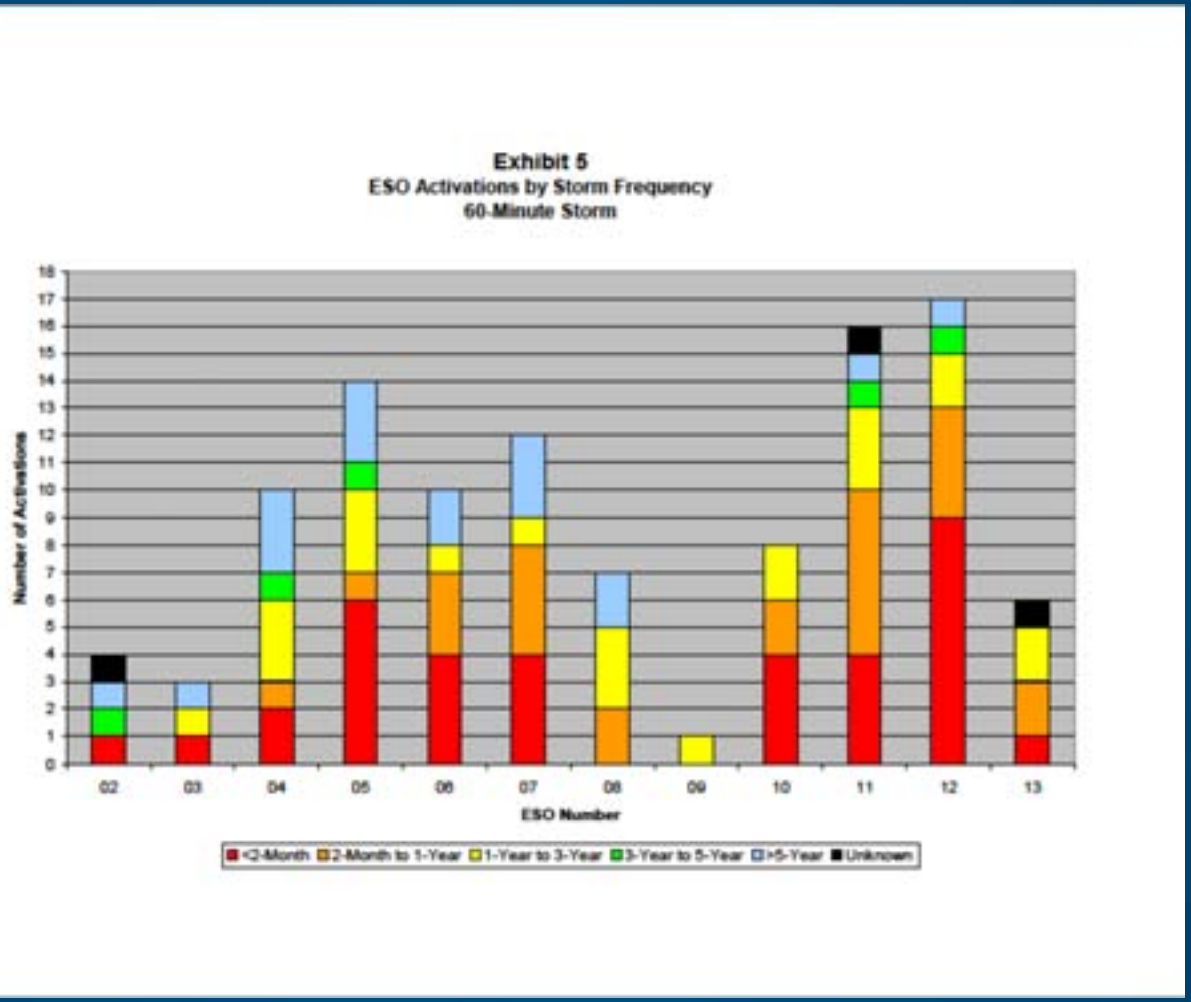


Sewer Diameters – Bypass/Receiving

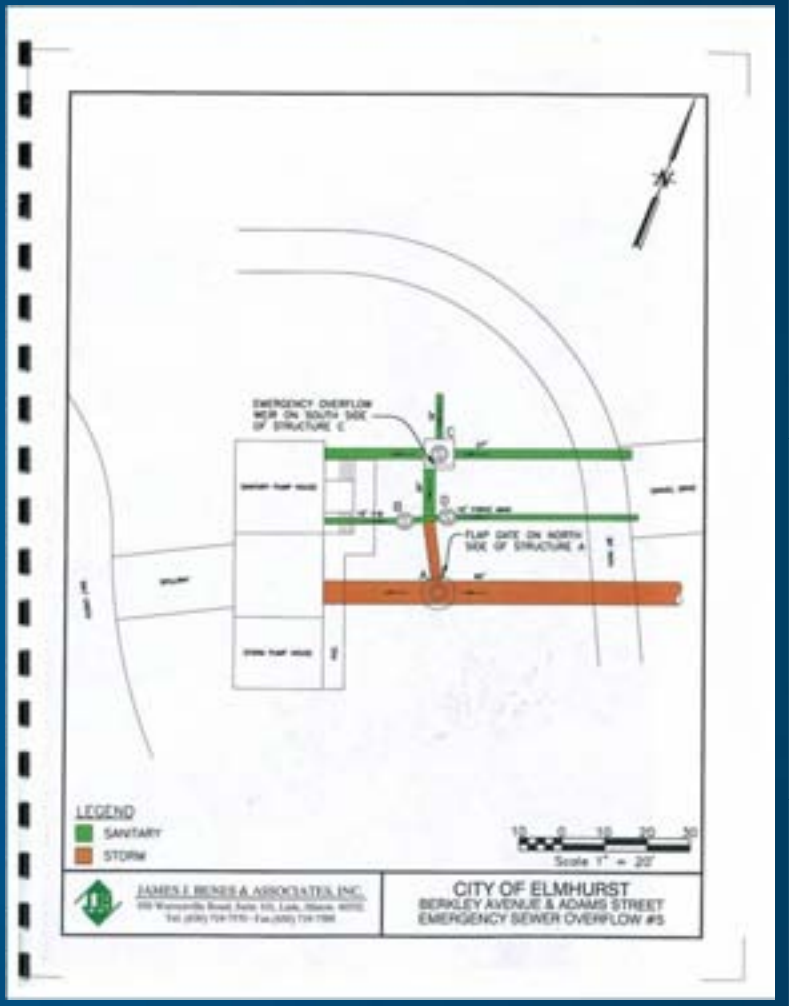
Bypass Location	Bypass Diameter (inches)	Receiving Storm Sewer Diameter (inches)
Harrison/Euclid	24	43
Saylor/Jackson	24	66
Berkeley/Adams	18	66
Madison/Euclid	30	40
McKinley	42	Pumping Station
Randolph/West	18	30
Utley/West	42	60
Third/Maple	30	66
Geneva/Third	24	48
Geneva Court	18	12
Addison/Diversey	10	Ditch

Activation History of ESOs

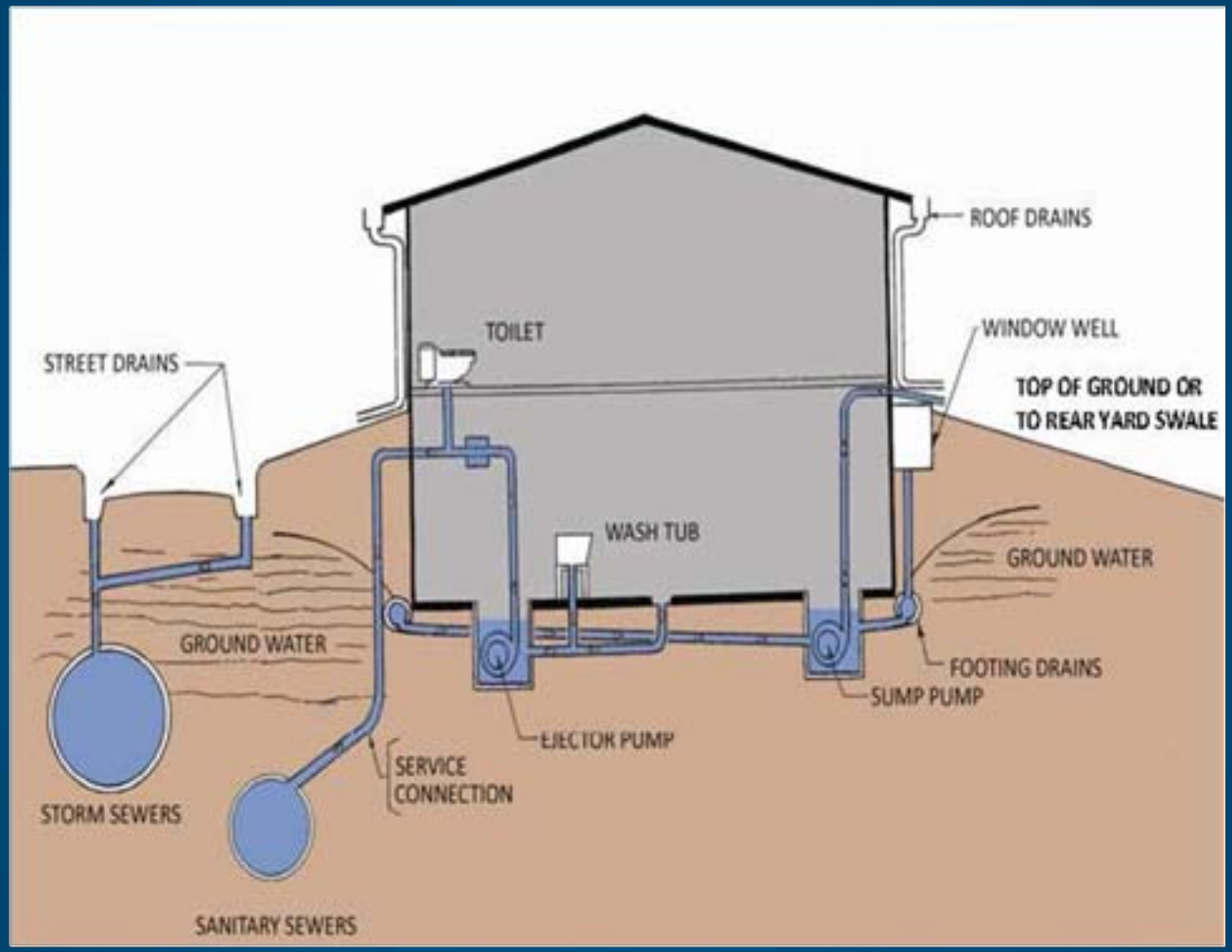
1991- 2011



Typical ESO Structure



Overhead Sewer Program



Overhead Sewer Program

Item	Date/Quantity
Program started	1997
Initial Reimbursement	$3,000
Current Reimbursement	$5,000
Total Homes Completed	128
Total City Funding Provided	$480,781
Homes Approved for funding/Waiting List	0

Policy Decisions - Overhead Sewer Program

- Should City continue with program
- Should cost sharing be modified
- Should all requests by homeowners be funded or only those that cannot be resolved with overall system improvements

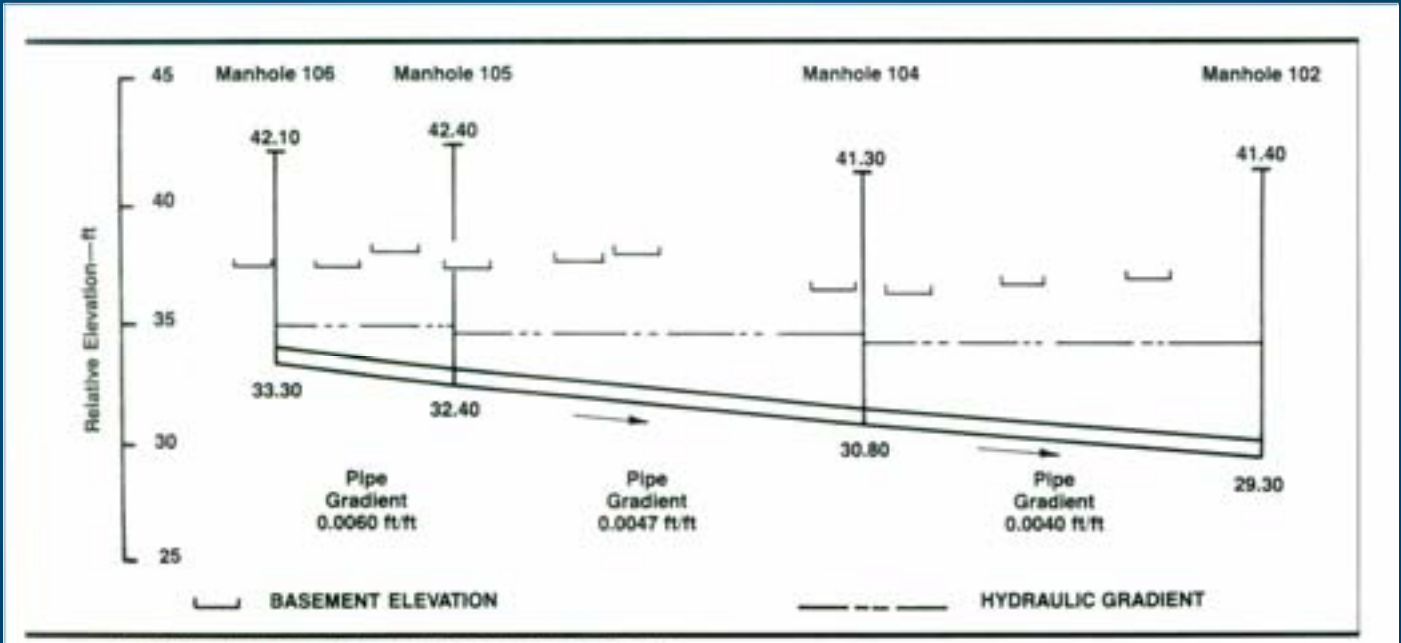
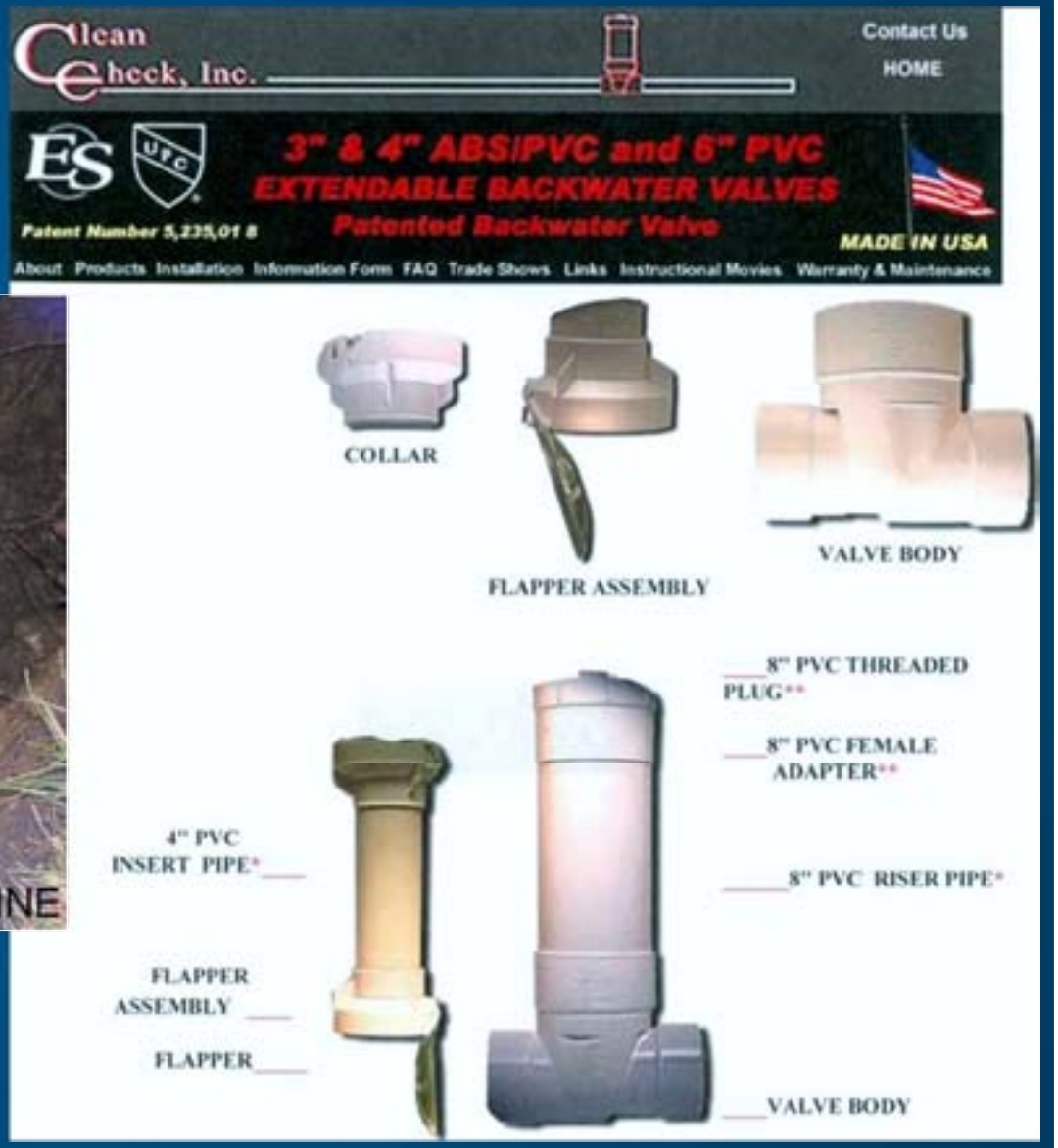
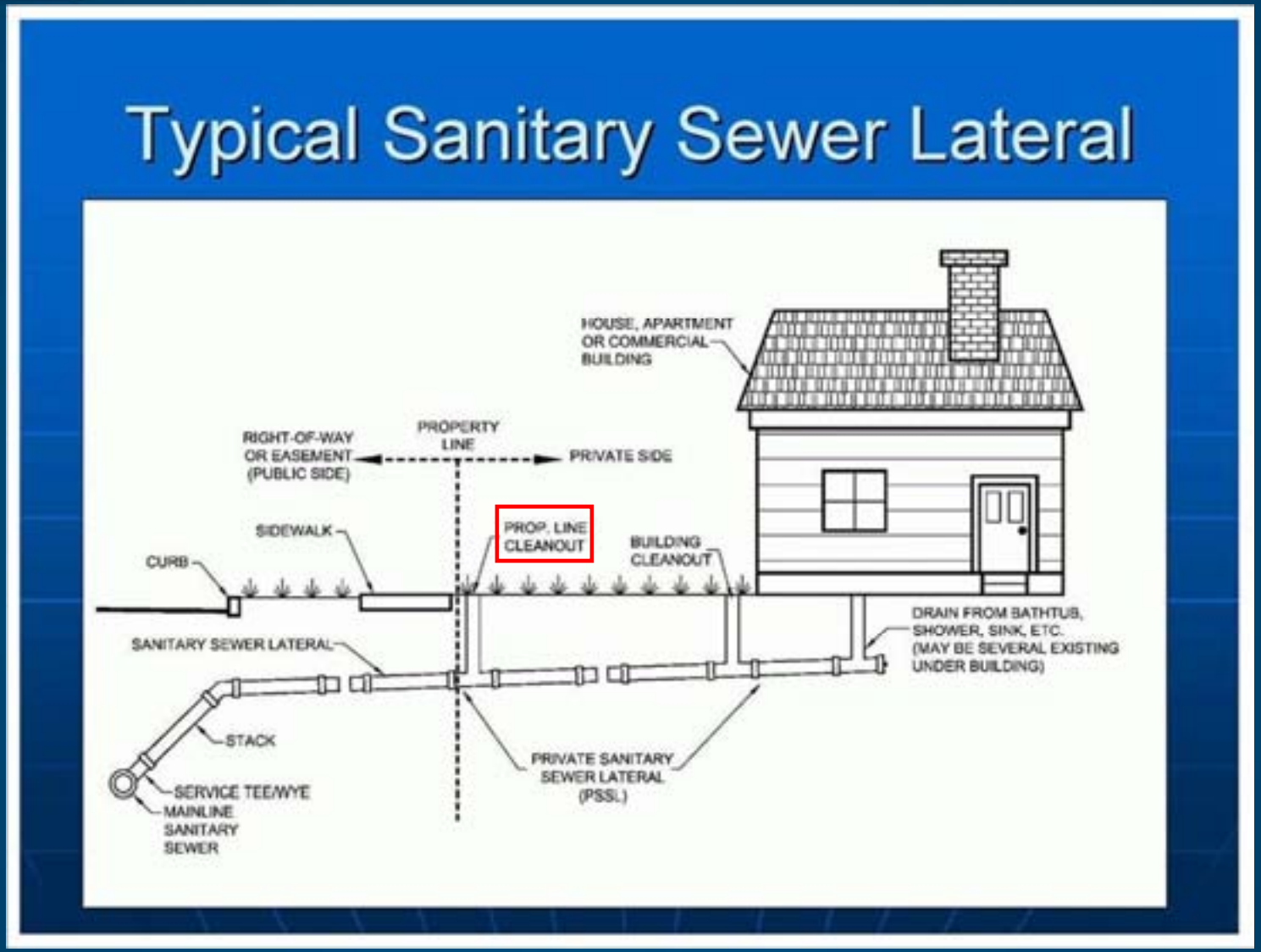


Fig. 1: Surcharge capacity analysis of sewer using 8-in. pipe

Backup Protection - Clean Check Valve



Clean Check Replaces Existing Cleanout



Backup Protection- Clean Check Valve

- Alternative to overhead sewer
  - No power required
- Requires the following criteria:
  - No directly connected foundation drain
  - No directly connected storm sumps or other storm water connections to sanitary sewer

Clean Check Backflow Prevention

Item	Quantity
Homes Reporting Sanitary Backups or Unknown Flooding Source	365
Estimated Homes Reporting Sanitary Backups- No Clearwater Sources	75

Policy decisions Clean Check Valves

- Should City add Clean Check Valves to reimbursement program
- What level of cost sharing should be provided
- Should all requests by homeowners be funded or only those that cannot be resolved with overall system improvements

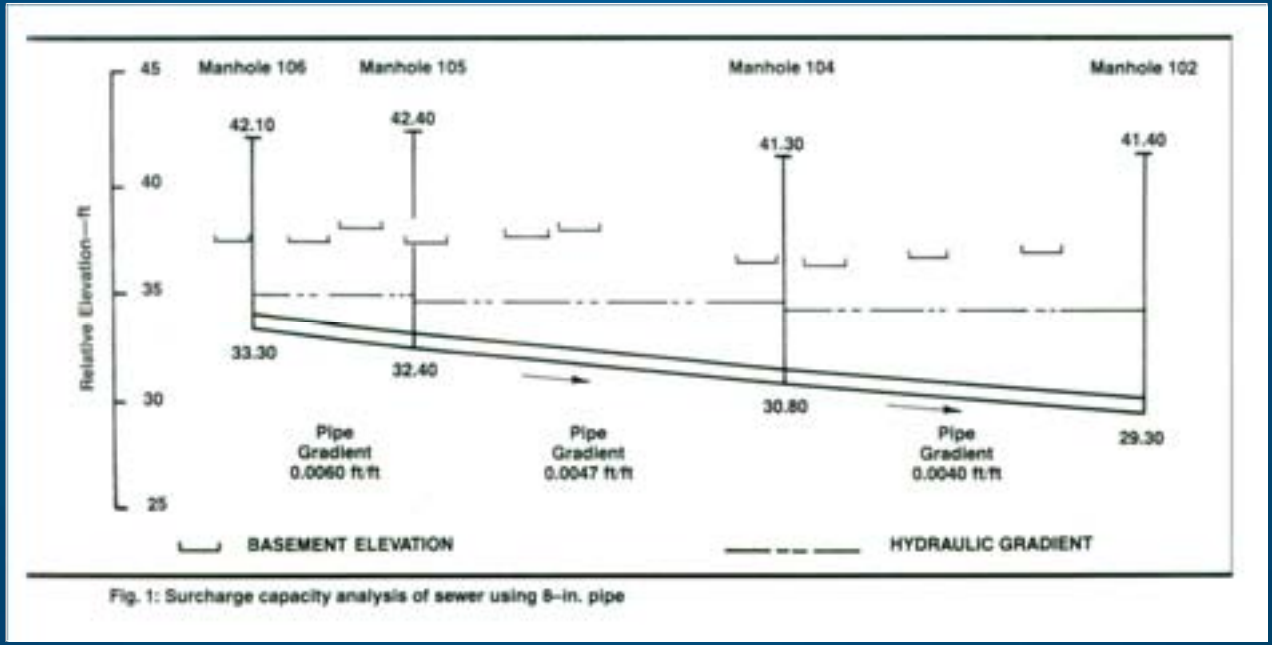


Fig. 1: Surcharge capacity analysis of sewer using 8–in. pipe

Sample Manhole Inspection- Spring 2011

- Inspected 120 Manholes
- Locations near creek, with main sewer lining, various ages
- Result- Manholes generally not leaking

  1987 Rehabilitation work still holding up

Clearwater Sources Into Sanitary sewer

- Public Sector
  - Manholes
  - Main Sewers

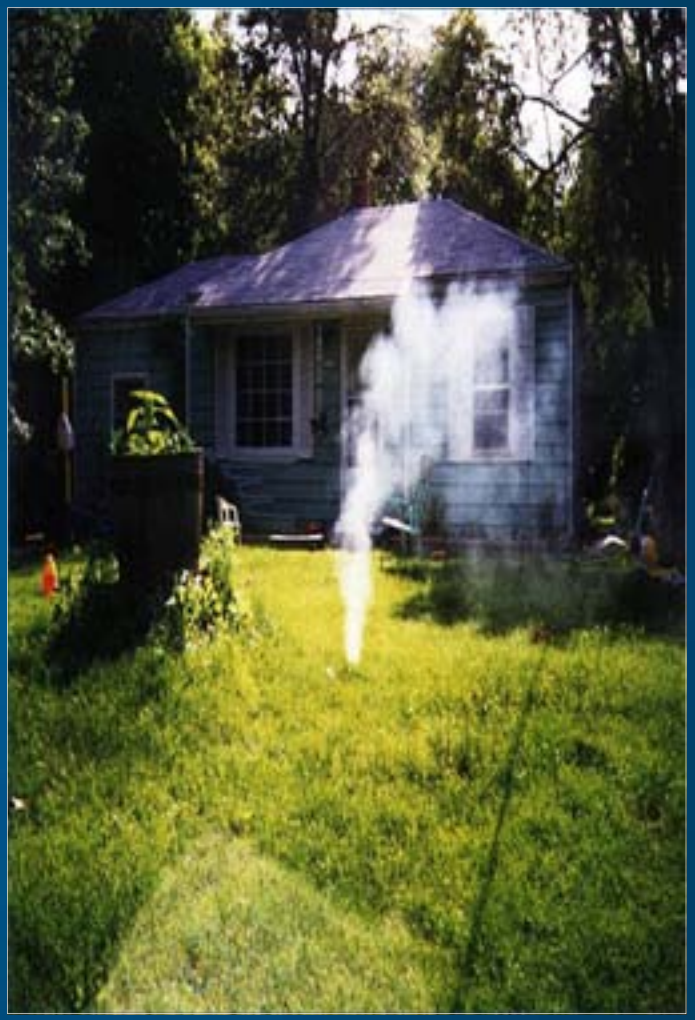
- Private Sector
  - Interior sources- sump pumps and foundation drains
  - Exterior sources- Driveway, stairwell, patio, area drains
  - Service laterals

Smoke Testing

- Where- South Elmhurst
- How much- 30,000 feet- 3.8% of sewer system
- When- Dry weather, low groundwater- August
- Why- Identify cross connections – sanitary/storm sewers
  Identify private property – driveway, area drains
  Project results to balance of system
  Determine if additional smoke testing is warranted

Typical I/I Sources Smoke Testing

Typical I/I Sources- Smoke Testing

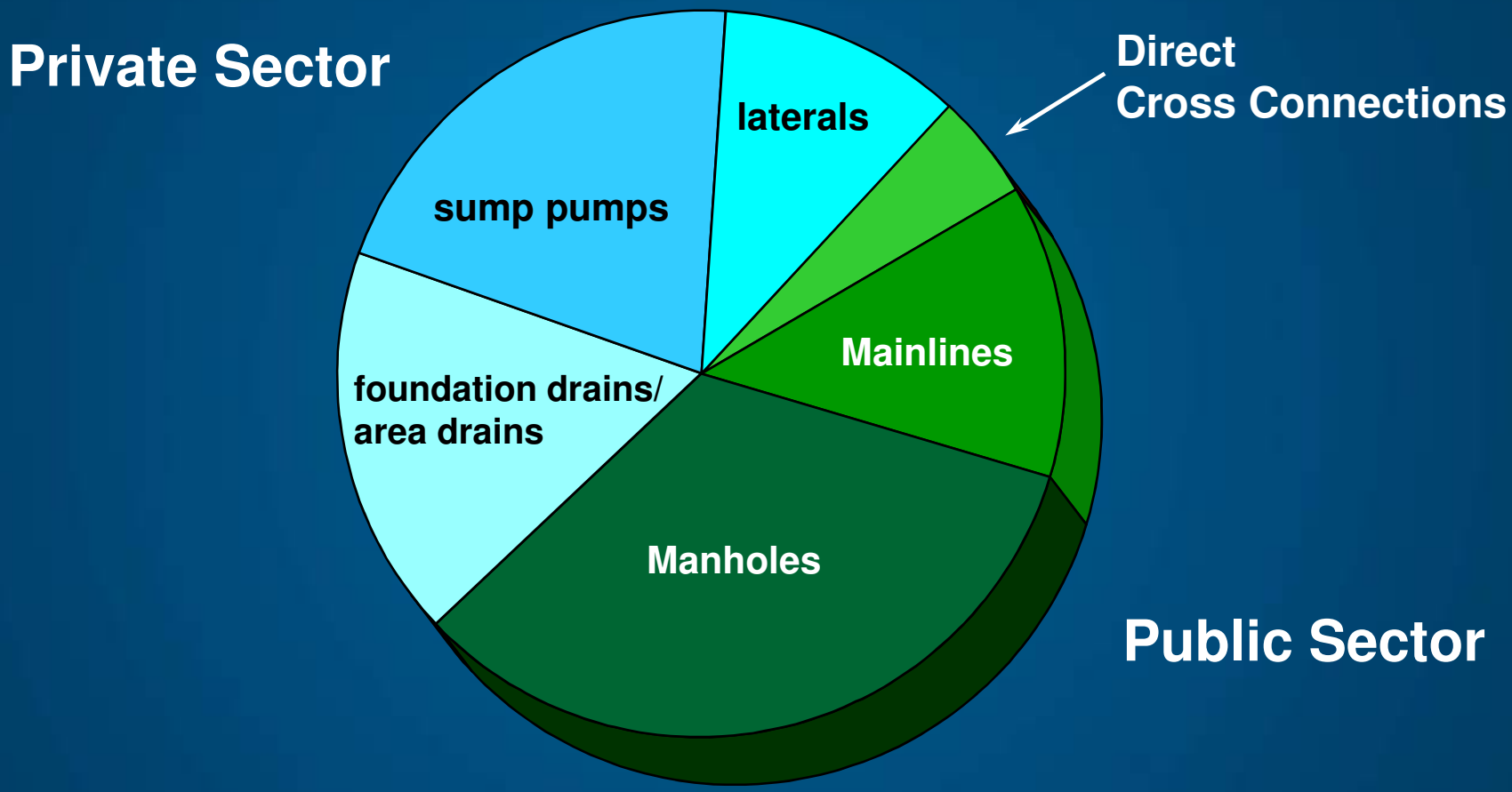


Clearwater Sources Into Sanitary sewer

- Public Sector
  - Manholes
  - Main Sewers

- Private Sector
  - Interior sources- sump pumps and foundation drains
  - Exterior sources- Driveway, stairwell, patio, area drains
  - Service laterals

Typical Inflow Source Distribution in Illinois

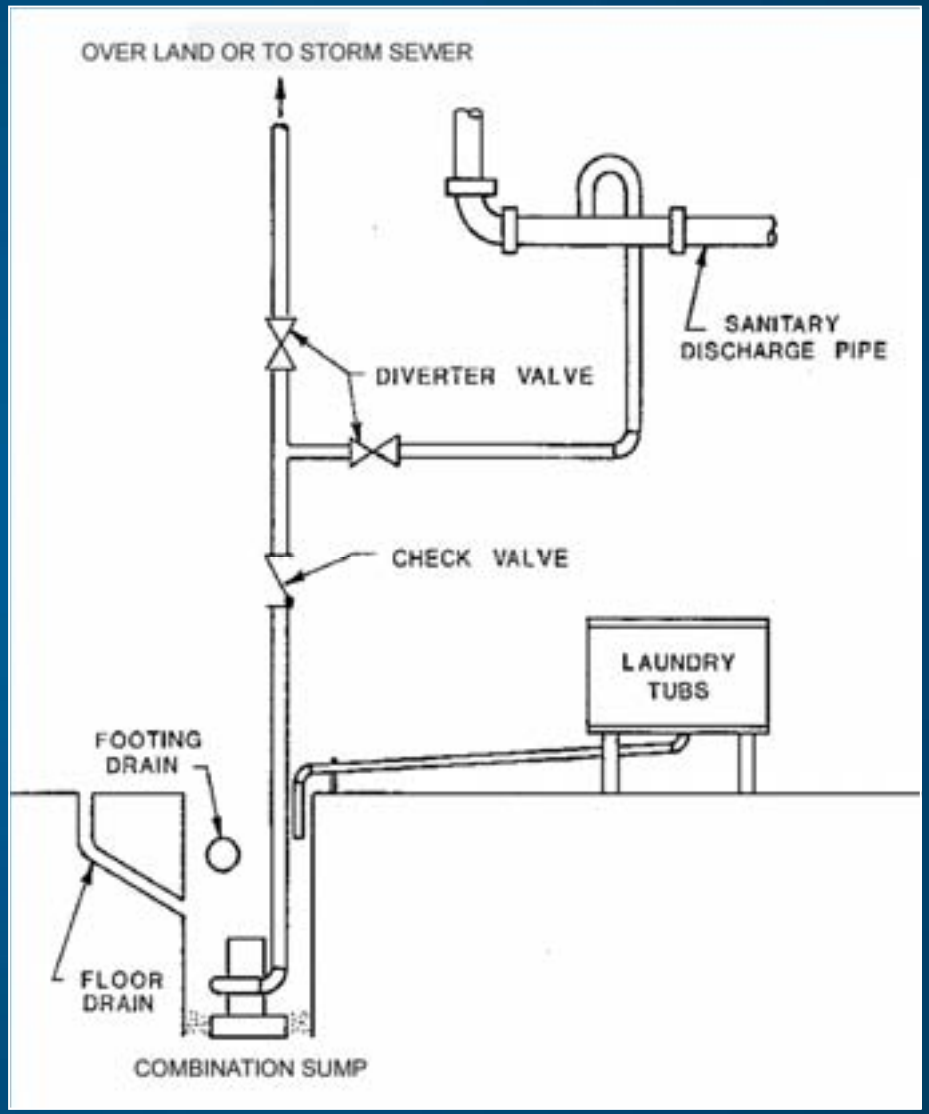


Elmhurst Private Property Sources

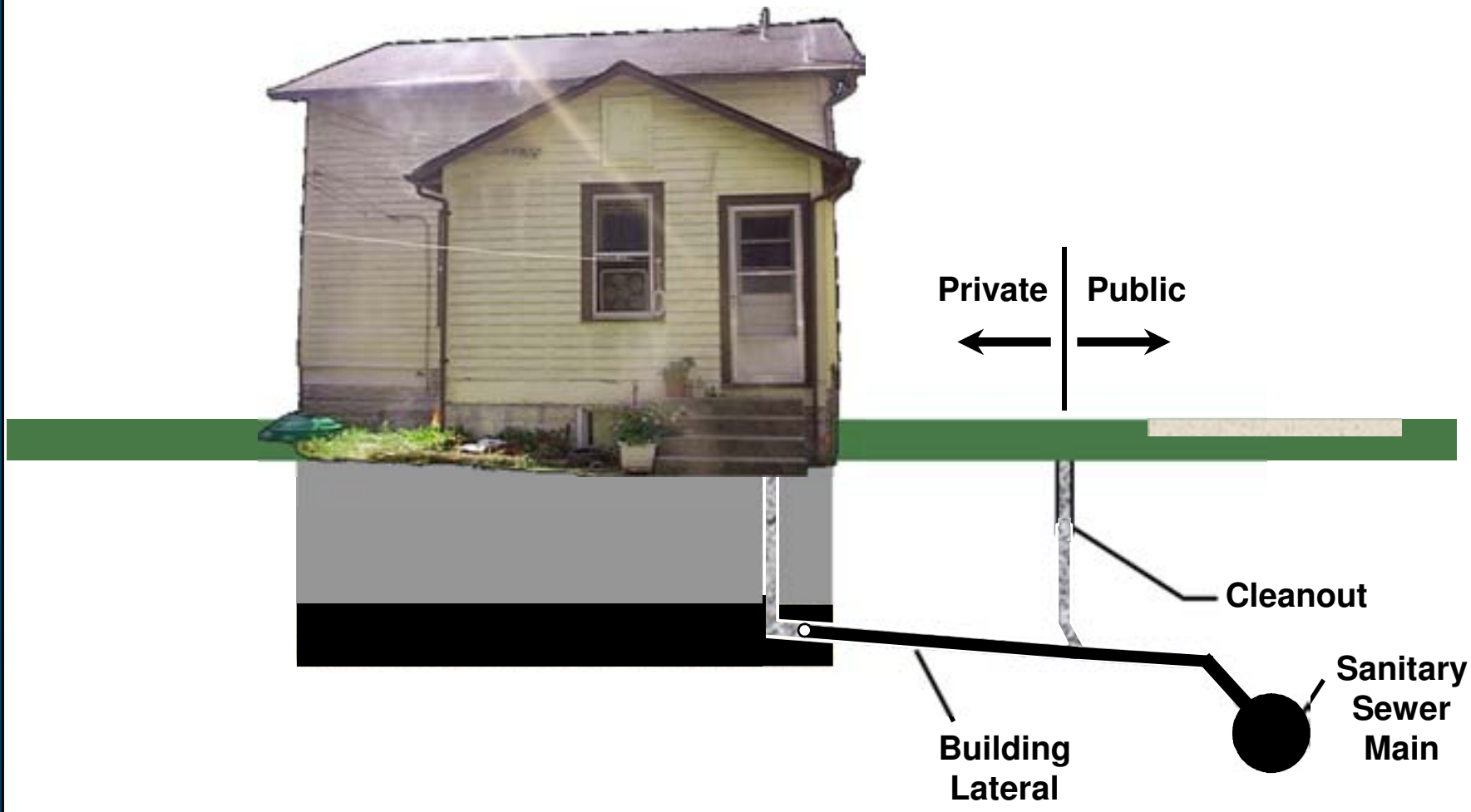
- Not typically removed in 1980's program
  - Combination Sump Pumps
  - Stairwell drains/Window well drains/Driveway drains
  - Directly Connected Foundation drains

Typical Sump Pump Configuration

Combination Sump With Diverter Valve



Directly Connected Foundation Drain



Basin 24 Private Sector Sources

Reverse Slope Driveway Drains

- Recommended For Removal in 1988
- Currently – Legal Non-Conforming Status
- High Flow Rate / High Cost and Impact to Homeowner of Rerouting
- Localized Impact on Sewer Backups - Including Southwest Elmhurst

Reverse-Slope Driveways – Southwest Elmhurst

There are 64 homes with reverse-slope driveways in Southwest Elmhurst.

Policy Decisions Private Sector Sources

- Should City add Private Sector Sources to reimbursement program
- What level of cost sharing should be provided
- How much time should be allowed for removal of sources

Remaining Tasks

- Smoke Testing
- Complete Hydraulic modeling of sewers and ESO's
- Alternative analysis with costs and level of protection
- Investigation of grant funding opportunities
- Investigation of Green Infrastructure solutions – rain gardens

Sanitary Sewer System Work Plan

TASK 1
I/I Reduction

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Overhead Sewers

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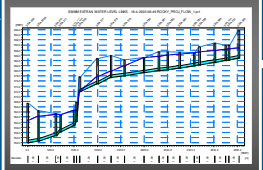
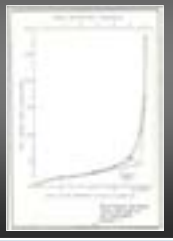


TASK 8
Risk Assessment of Alternatives



TASK 9
Presentation for City Council

Task 7 - Wet-Weather Flow Plan / Costs

Wet Weather Flow Reduction

- Public Sector I/I reduction
- Private Sector I/I reduction
- Private Property Backflow Prevention

Conveyance/Treatment Improvements

- Lift Station Improvements
- Lift Station Force main modifications
- In-system storage
- Additional relief sewers/WWTP Expansion

Task 7 - Wet-Weather Flow Plan - Challenges

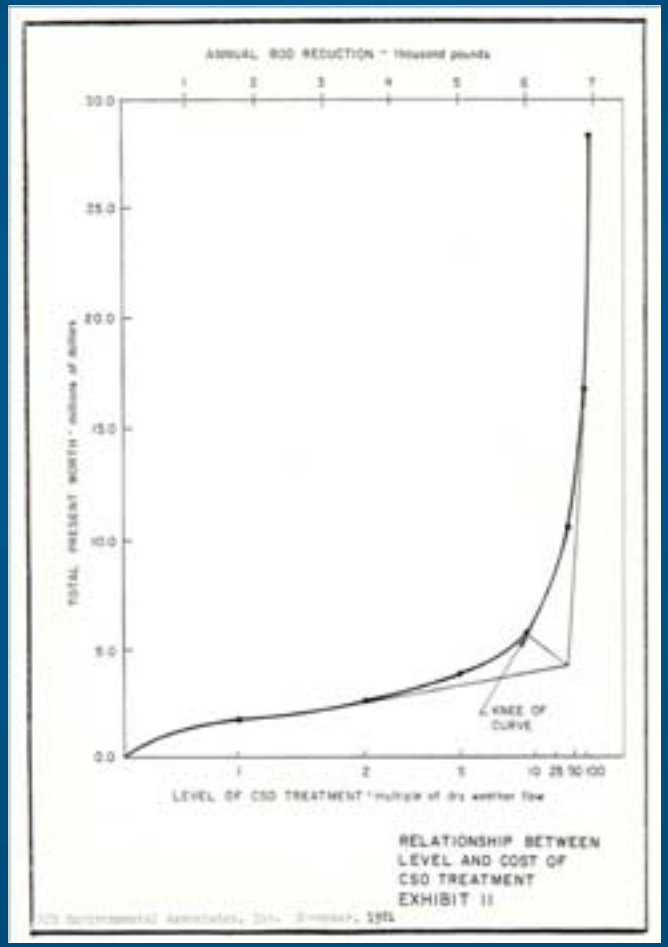
- Long Term Improvements
  - In-system storage

    High cost and availability of property
  - Additional relief sewers/WWTP Expansion

    Elmhurst WWTP Permit has maximum flow limit

Task 8 - Risk Assessment for Alternatives

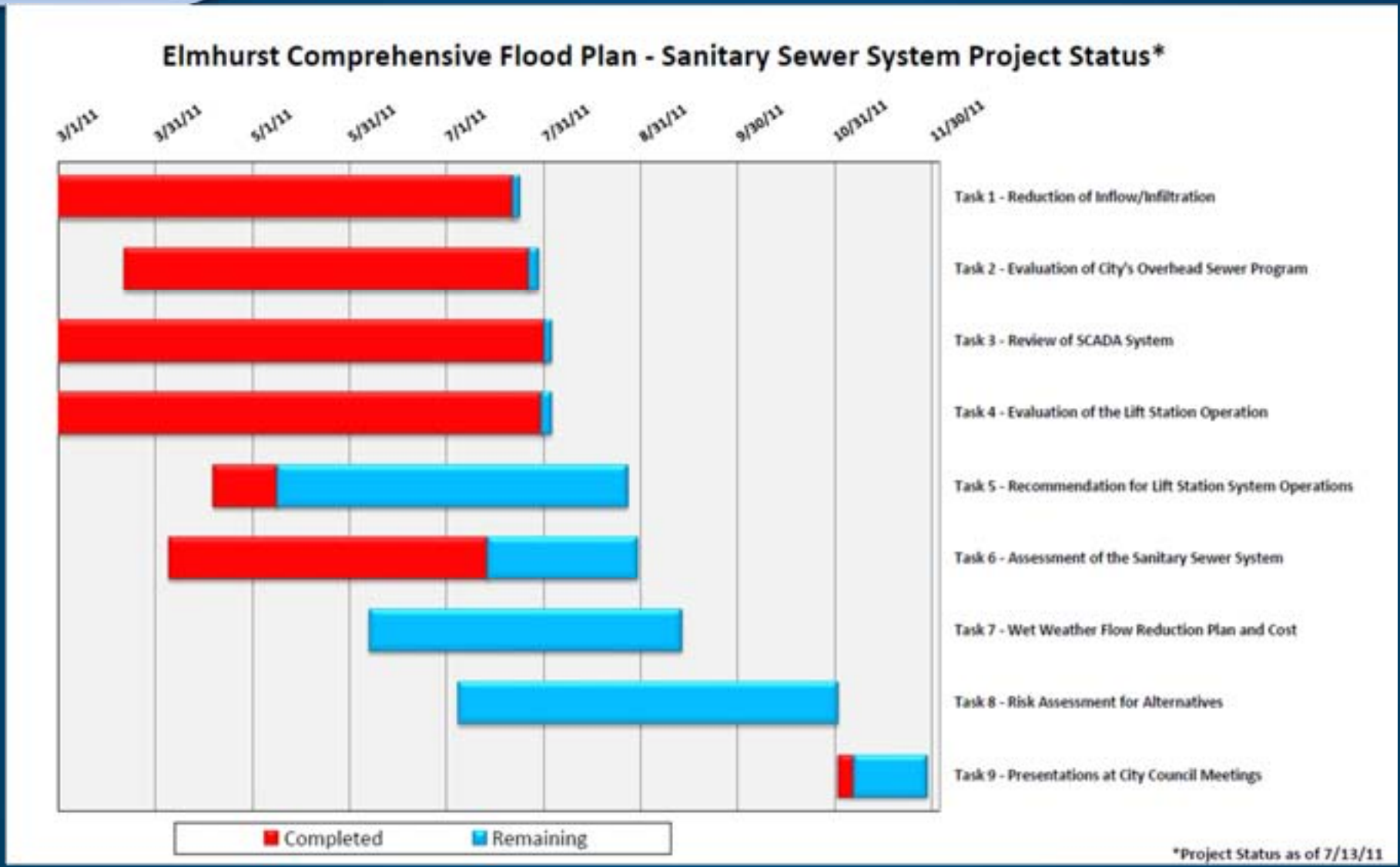
- **Efficiently Maximize Number of Homes Protected.**



Task 8 - Risk Assessment for Alternatives

- Efficiently Maximize Number of Homes Protected.
- Define Level of Protection
  - Storm recurrence interval (i.e., 10-year))
  - Storm of record (i.e., July, 2010)
- Incorporate Available Grant / Loan Programs
  - IEPA Revolving Fund Loans
  - Illinois Green Infrastructure Grant Program

Project Status



Computer Modeling of Ten Storm Sewer Study Areas

- Developed hydrologic and hydraulic modeling for storm sewer study areas.

Storm Sewer Study Area ID	Area Description
1	Pine Street
2	Geneva Avenue
3	York St to Salt Creek between McKinley Ave and Butterfield Rd
4	York St to Salt Creek between McKinley Ave and Il Prairie Path
5	Larch Avenue
6	Seminole Avenue
7	York Street at I-290
8	Brynhaven Subdivision
9	Pick Subdivision
10	Butterfield Road Area (Yorkfield)

Computer Modeling of Ten Study Areas

- Computer modeling based on following information:
  - 500 flood questionnaires
  - City's GIS storm sewer database
  - As-built drawings
  - Pump station plans and operation procedure
  - Previous studies
  - Field investigations/survey by CBBEL staff
  - DuPage County aerial topographic mapping

Computer Modeling of Ten Study Areas

- Hydrologic Model:
  - Delineated drainage boundaries and determined existing drainage patterns.
    - DuPage County aerial topography
    - Storm sewer information
  - Determined hydrologic parameters for drainage areas.
    - Runoff curve number (CN)
    - Time of concentration (t_c)
  - Simulated flowrates and runoff volume for rainfall events using the US EPA-based XP-SWMM computer model to determine stormwater runoff response.
    - July 2010 storm event
    - Design storm events

Storm Events Analyzed

- Engineering analyses performed for the peak 1-, 2-, 5- 10-, 25-, 50-, and 100-year storm events.
  - Storm sewers are typically designed to convey the peak 10-year flow to meet ordinances. A storm sewer installed in 1960's typically has +/- 5-year capacity.
- The term "10-year storm" is used to define a rainfall event or recurrence interval that statistically has the same 10% chance of occurring in any given year.

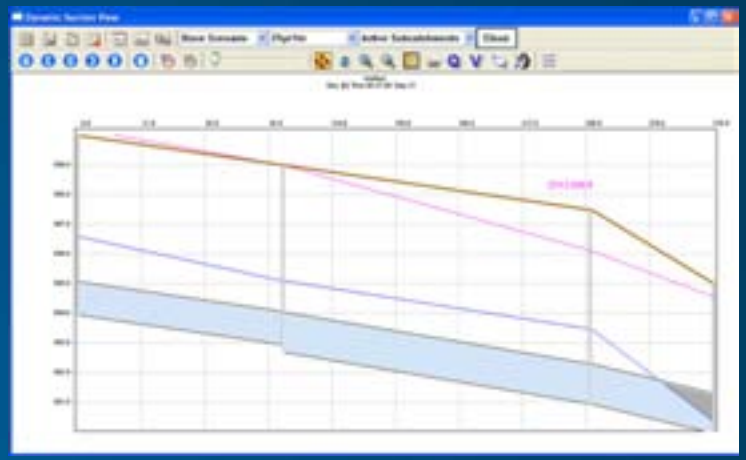
Recurrence interval in years	Probability of occurrence in any given year	Percent chance of occurrence in any given year
100	1 in 100	1
10	1 in 10	10
5	1 in 5	20
2	1 in 2	50

Intensity, Duration and Recent Storms

- Storm intensity and duration are used to determine the recurrence intervals.
  - 2.1 inches in 60 minutes is a 10-year event
  - 2.1 inches in 15 minutes is a 100-year event
- September 12-14, 2008
  - 7.5 Inches in 24 hours → approximately 100-year storm event
- June 23, 2010
  - 4.5 inches in 30 minutes → approximately 500-year storm event
- July 23 – 24, 2010
  - 6.84 inches in 12 hours → approximately 150-year storm event

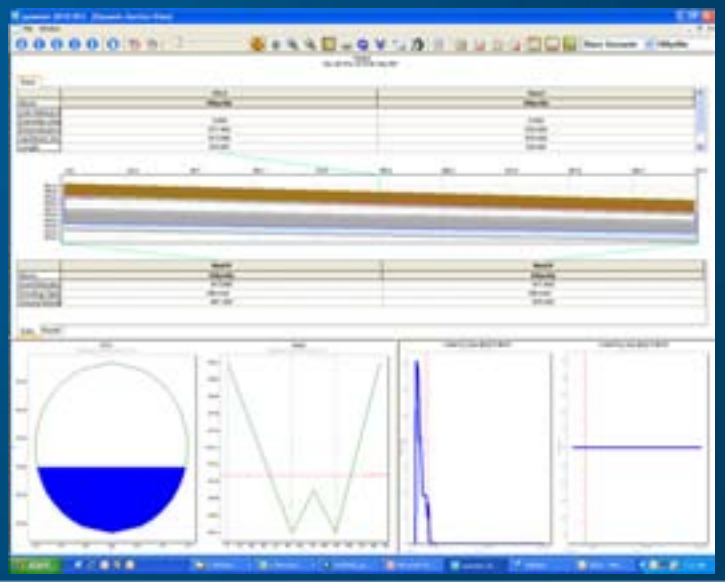
Computer Modeling of Ten Study Areas

- Hydraulic Model
  - Input existing drainage features
    - Storm sewers:
      - Length
      - Invert and rim elevations
      - Diameter
      - Pipe material
    - Overland flow routes
    - Stormwater pumping station information
    - Flood storage (depressional areas)
  - Simulated stormwater runoff from storm events through drainage system using US EPA-based XP-SWMM computer model.
    - Determined flood levels
    - Quantified level of protection for flood problem areas
    - Determined effectiveness of proposed drainage improvements

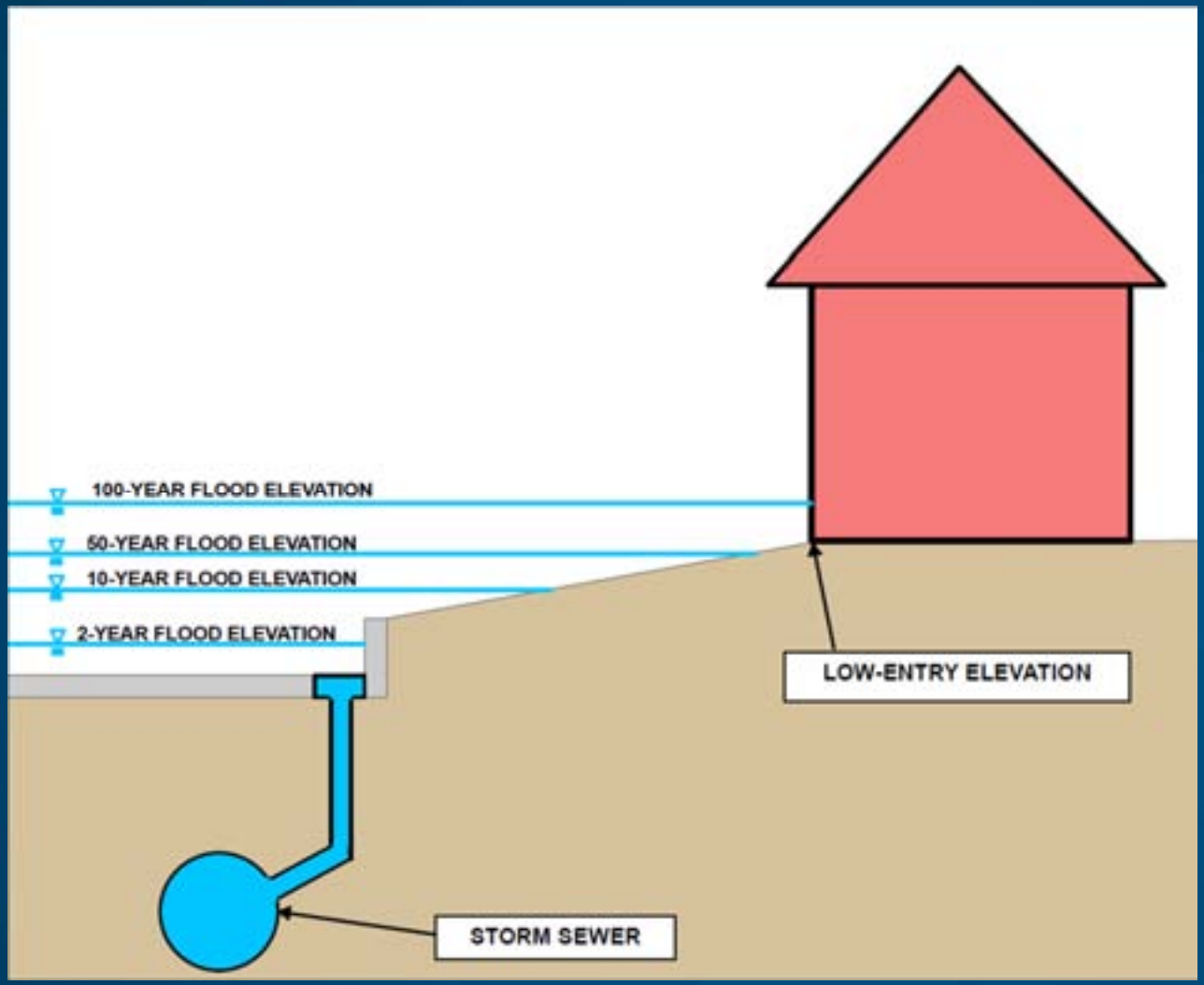


Computer Modeling of Ten Study Areas

- XP-SWMM computer modeling included:
  - Over 100 subbasins
  - Over 700 storm sewers and overland flow routes
  - Over 40 flood/depressional storage areas
  - 6 stormwater pumping stations



Level of Protection



- The low-entry elevation of this house is greater than the 50-year flood elevation but less than the 100-year flood elevation.
- This house has a "50-year level of flood protection."

Flood Storage Volume

- One acre-foot is the equivalent of an acre of land that is one foot deep.

- It is also equivalent to:
  - 325,851 gallons
  - 5,925 rain barrels (55 gallons each)
  - 616,715 2-liter bottles
  - 109 rain gardens
  - Elmhurst Quarry has a capacity of 8,300 acre-feet

Overview of Pine Street Study Area

116 Pipe System

Pine Street is a depressional area (“bowl”) with a storm sewer outlet, there is no designated overland flow route for this area. The Pine Street storm sewer is connected to the 48-inch storm sewer that flows east along 1st Street. The lowest rim elevations of the storm sewer system are located at Pine Street.

Pine Street Study Area
XP-SWMM Simulated July 2010 Inundation Area

Pine Street Study Area
Existing Conditions Summary

- During July 2010 storm event, significant street and home flooding occurred at Pine Street and Avon Road.
  - Approximately 3.1 ft of ponding depth on Pine Street at low point
  - Approximately 52 homes within July 2010 flood inundation area*
- Existing level of flood protection is the 2-year return interval:
  - Street ponding occurs for storm events greater than the 2-year return interval
  - Structural flooding occurs for storm events greater than the 5-year return interval

*Based on Lowest Adjacent Grade (LAG) taken from DuPage County topography

Pine Street Study Area - Alternative #1
25-Year Level of Protection

Provide additional 10 ac-ft of gravity-drained flood storage in Golden Meadows Park.

Construct 3,000 linear feet of relief sewers along Pine, Avon, and 1st Street to Golden Meadows Park storage.

Increases level of flood protection:

Pine: from 2-yr to 25-yr
Avon: from 2-yr to 25-yr

Pine Street Study Area - Alternative #2
100-Year Level of Protection

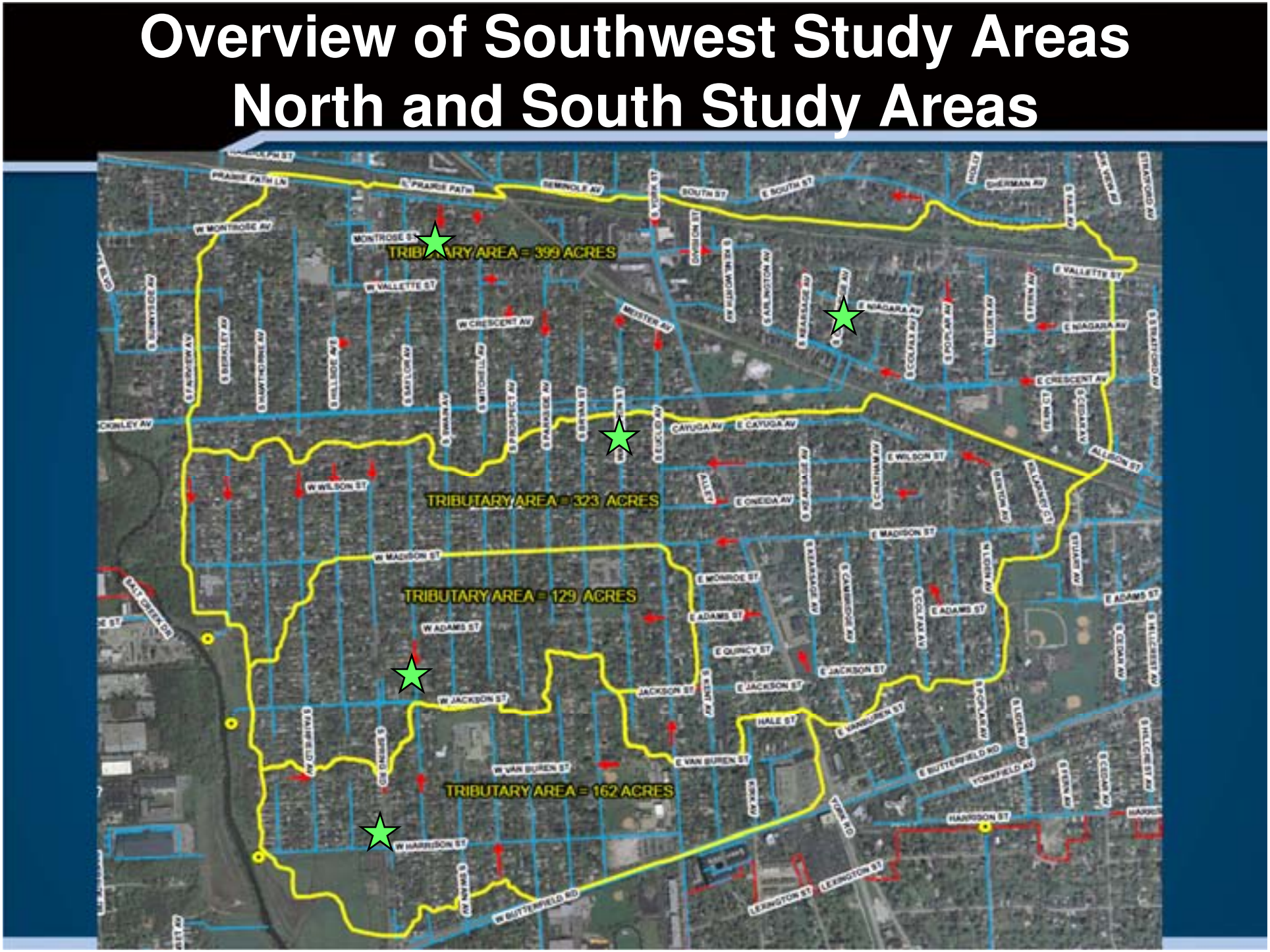
Provide additional 30 ac-ft of gravity-drained flood storage in Golden Meadows Park.

Construct 3,000 linear feet of relief sewers along Pine, Avon, and 1st Street to Golden Meadows Park storage.

Increases level of flood protection:

Pine: from 2-yr to 100-yr
Avon: from 2-yr to 100-yr

Overview of Southwest Study Areas
North and South Study Areas

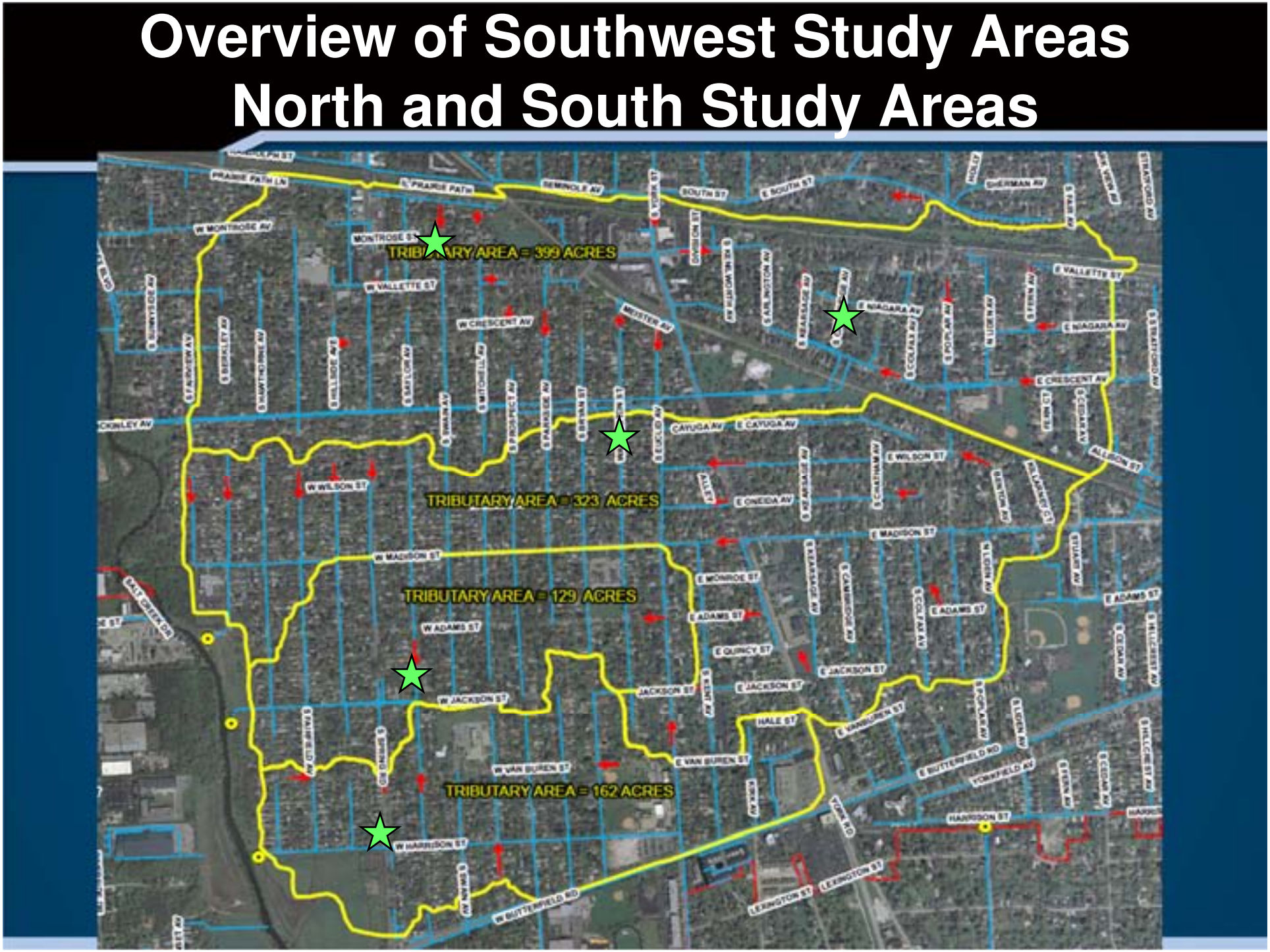


Overview of Southwest Study Areas

- During intense storm events when the capacities of the inlets/storm sewers are exceeded, the flow of stormwater does not follow the storm sewer drainage boundaries (yellow lines) but rather the overland flow routes (red arrows) toward the low-lying areas.

- 367 pipe interconnected model using operating curves at each of the stormwater pumping stations.

Overview of Southwest Study Areas
North and South Study Areas



Overview of Southwest Study Areas

- During intense storm events when the capacities of the inlets/storm sewers are exceeded, the flow of stormwater does not follow the storm sewer drainage boundaries (yellow lines) but rather the overland flow routes (red arrows) toward the low-lying areas.
- The storm sewer inlets in the low areas may see stormwater runoff from areas that are 10-20 times the size of the tributary area that they were designed to handle.
- Following slides illustrate inundation locations for the July 2010 storm event

Southwest Study Area (North Side)
XP-SWMM Simulated July 2010 Inundation Area

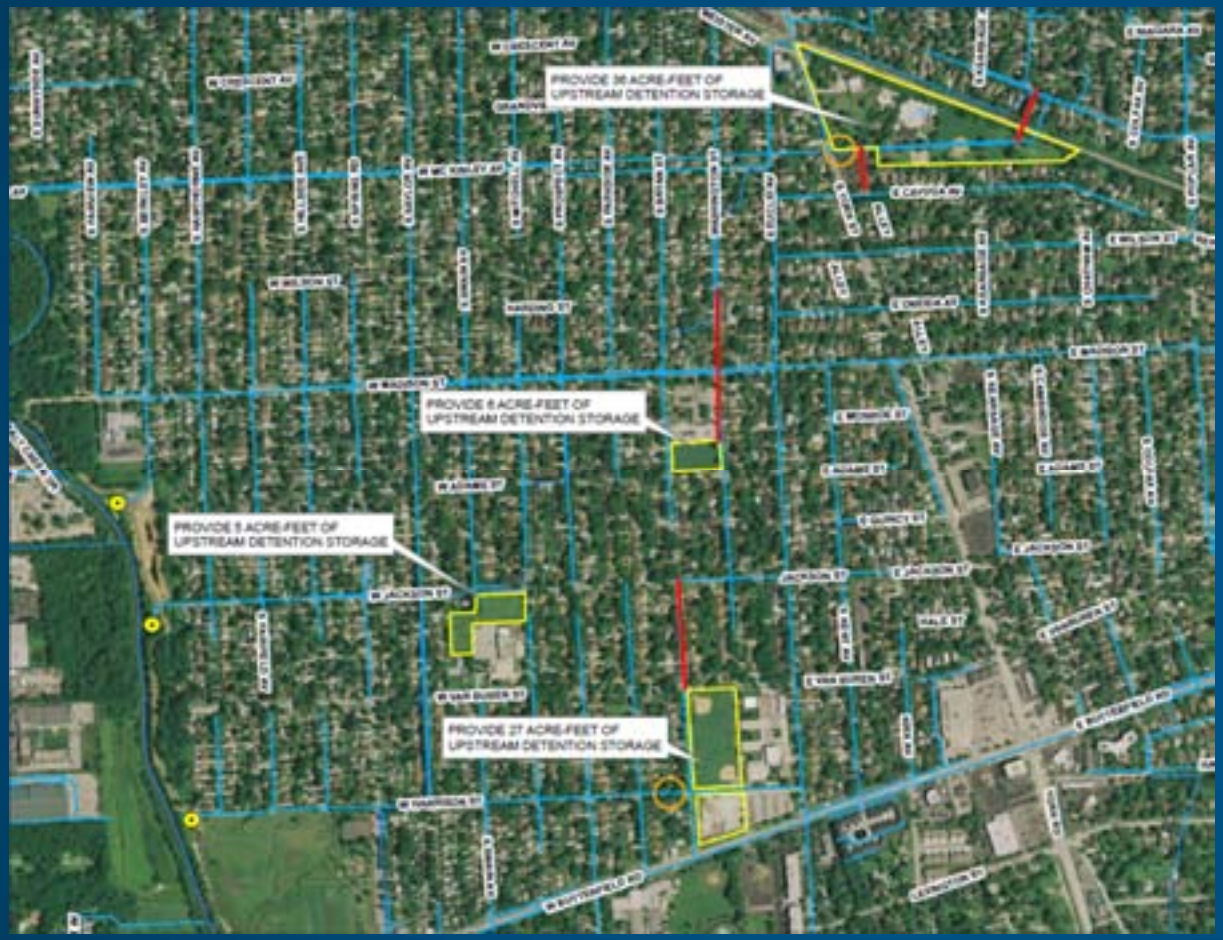
Southwest Study Area (South Side)
XP-SWMM Simulated July 2010 Inundation Area

Southwest Study Areas
Existing Conditions Summary

Problem Area ID	Problem Area Location	Number of Homes Within July 2010 Inundation Area*	Depth of Flooding (ft)**	Existing Level of Flood Protection
A	Spring Rd & Harrison St	19	2.0	2-year
B	Saylor Ave & Jackson Ave	75	2.5	5-year
C	Vallette St & Swain Ave	96	1.7	2-year
D	Washington St	69	2.1	2-year
E	Crescent Ave & Cambridge Ave	32	2.2	2-year
	TOTAL	291		

*Based on Lowest Adjacent Grade (LAG) taken from DuPage County topography
**Measured from low point in street

Southwest Study Area (South) - Alternative #1



Provide 69 acre-feet (AF) of gravity-drained upstream detention storage at:

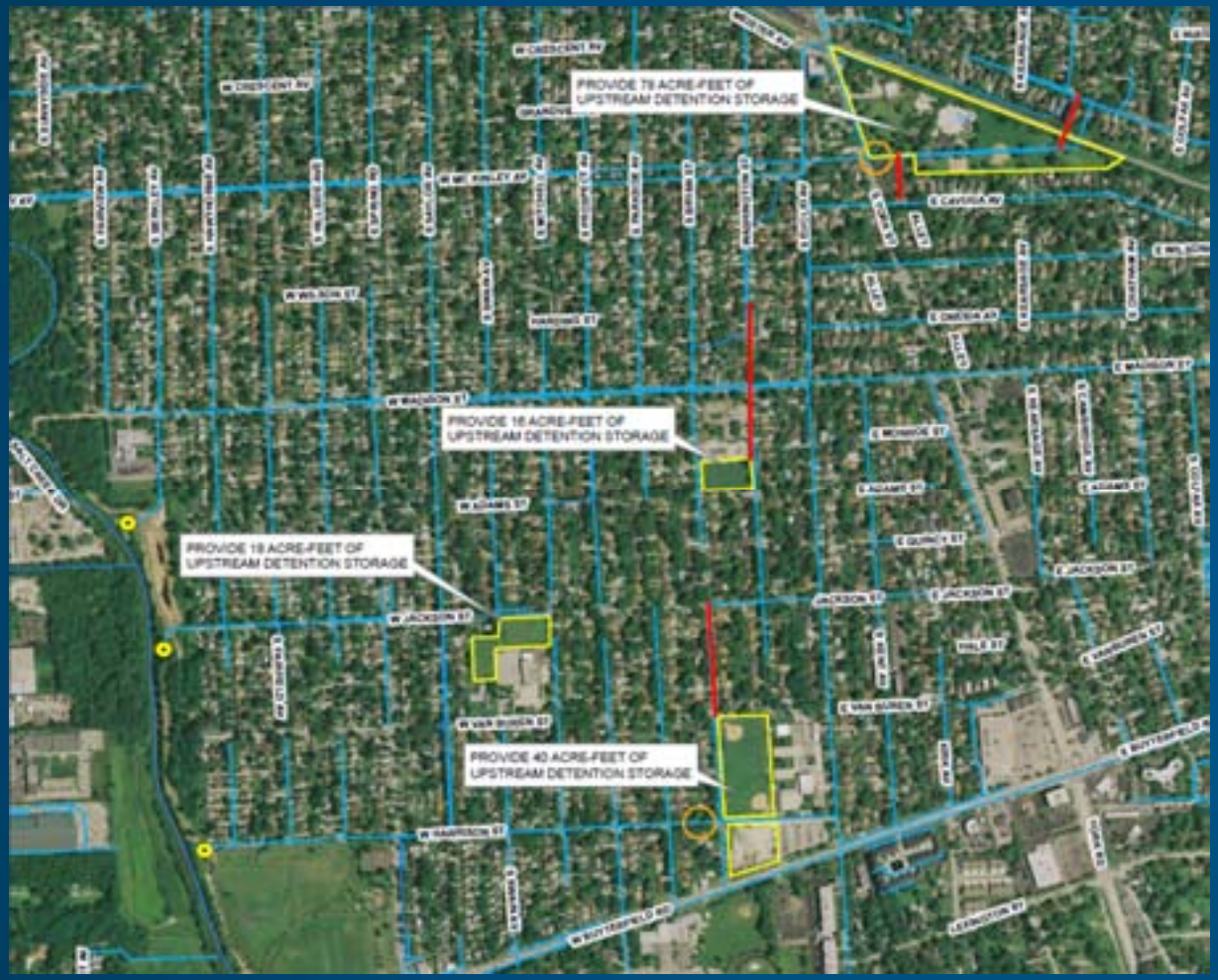
- York Commons Park (36 AF)
- Early Childhood Elementary School (6 AF)
- Bryan Middle School (18 AF)
- Vacant Lot (9 AF)

Construct 5,300 linear feet of relief sewers and restrictors to optimize detention areas.

Additional 5 ac-ft of gravity-drained flood storage at:

- Christ United Methodist Church (2 AF)
- Jackson Elementary School (3 AF)

Southwest Study Area (South) - Alternative # 2



Provide 134 ac-ft of pump-evacuated upstream detention storage at:

- York Commons Park (78 AF)
- Early Childhood Elementary School (16 AF)
- Bryan Middle School (27 AF)
- Vacant Lot (13 AF)

Construct 7,400 linear feet of relief sewers and restrictors to optimize detention areas.

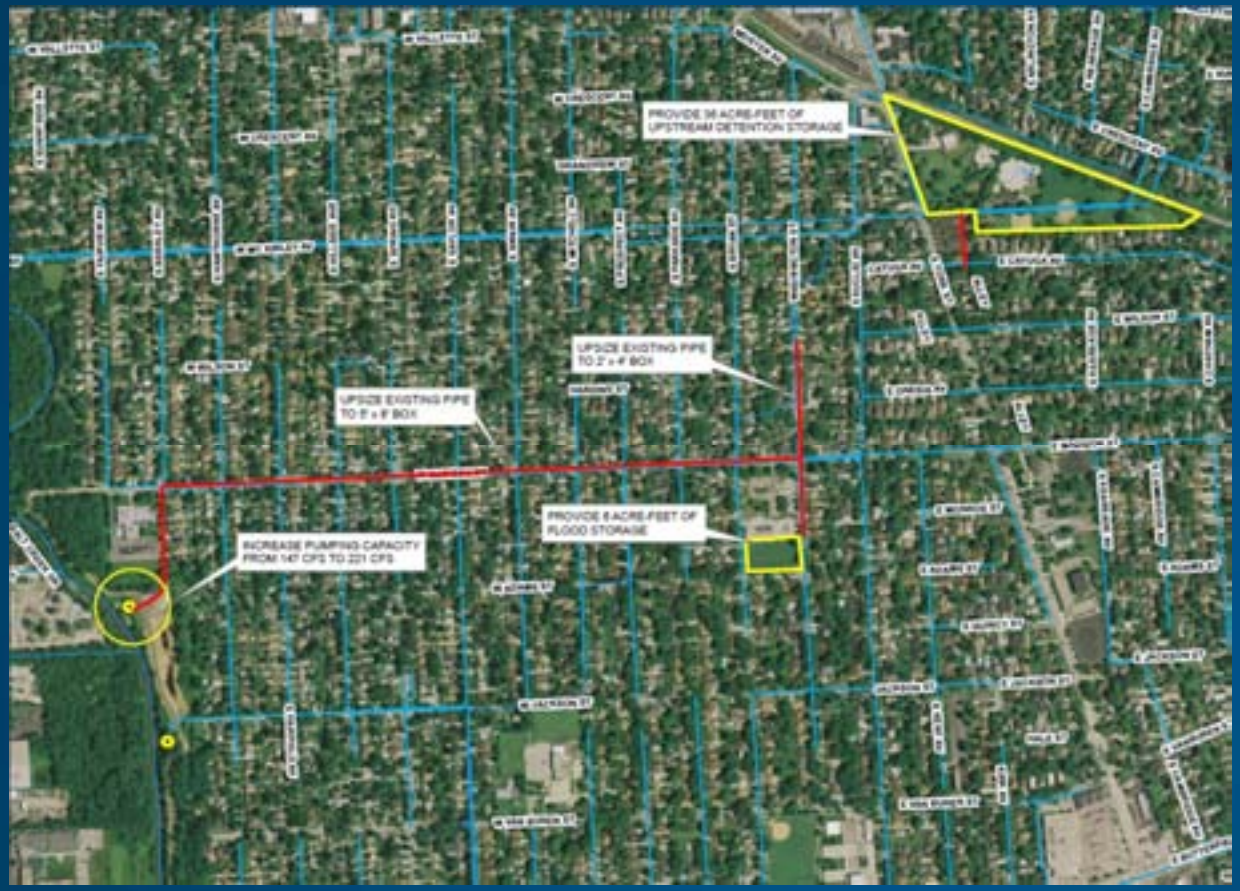
Additional 18 ac-ft of pump-evacuated flood storage at:

- Christ United Methodist Church (4 AF)
- Jackson Elementary School (14 AF)

Alternatives #1 & #2
Level of Protection Summary

Problem Area ID	Problem Area Location	Existing Level of Flood Protection	Proposed Level of Flood Protection	
			Alternative #1	Alternative #2
A	Spring Rd & Harrison St	2-year	10-year	10-year
B	Saylor Ave & Jackson Ave	5-year	25-year	100-year
C	Vallette St & Swain Ave	2-year	5-year	5-year
D	Washington St	2-year	10-year	25-year
E	Crescent Ave & Cambridge Ave	2-year	5-year	100-year

Southwest Study Area (South) - Alternative #3
To Provide 100-Year Level of Protection for Problem Area D



Provide 42 ac-ft of gravity-drained flood storage at York Commons Park and Early Childhood Elementary School.

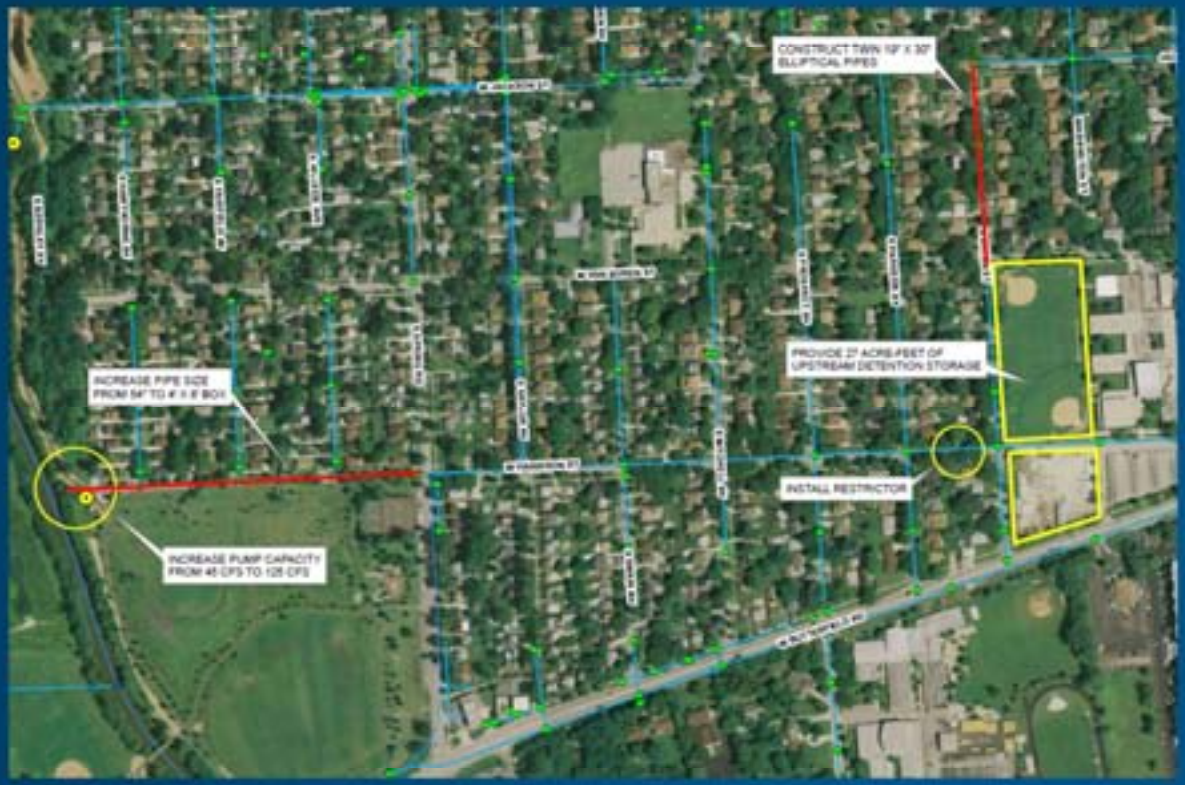
Upsize 6,700 linear feet of existing storm sewers along Washington and Madison Street.

Increase pumping capacity at Berkeley & Adams pump station.

100-year level of flood protection at Washington Street.

Would require off-site compensatory storage to mitigate increased flows to Salt Creek.

Southwest Study Area (South) - Alternative #4
To Provide 100-Year Level of Protection for Problem Area A



Provide 27 ac-ft of upstream detention storage at Bryan Middle School and vacant lot.

Upsize existing storm sewers/install restrictor to optimize flood storage.

Increase pumping capacity at Harrison Street station.

100-year level of flood protection at Spring Road and Harrison Street.

Would require off-site compensatory storage to mitigate increased flows to Salt Creek.

Southwest Study Area (North) - Alternative #1

Provide 14 ac-ft of upstream detention storage on York Commons Park.

Install restrictor on existing storm sewers.

5-year level of flood protection for Swain Ave/Vallette St area.

5-year level of flood protection for Crescent Ave/Cambridge Ave area.

Southwest Study Area (North) - Alternative #2

Provide 15 ac-ft of flood storage on York Commons Park.

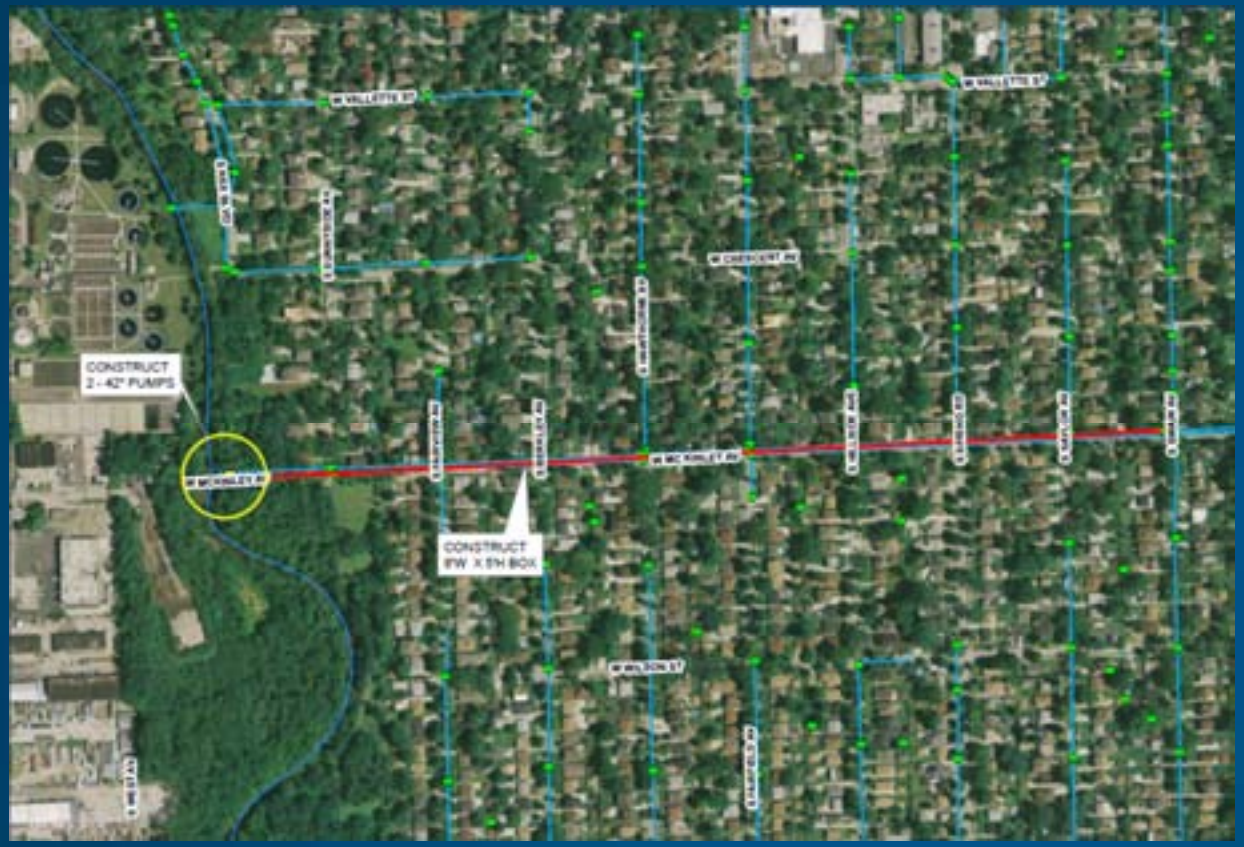
Construct 400 linear feet of relief sewer from Crescent Avenue to the park.

Install restrictor on existing storm sewers.

- 5-year level of flood protection for Swain Ave/Vallette St area.

- 10-year level of flood protection for Crescent Ave/Cambridge Ave area.

Southwest Study Area (North) - Alternative #3



Construct 3,100 linear feet of relief sewer along McKinley Avenue from Swain Avenue to the pump station.

Increase capacity of McKinley Avenue pumping station.

100-year level of flood protection for **Swain Ave/Vallette St** for all but seven homes in area.

Would require off-site compensatory storage to mitigate increased flows to Salt Creek.

Southwest (North) Study Area
Level of Protection Summary

Problem Area ID	Problem Area Location	Existing Level of Flood Protection	Proposed Level of Flood Protection		
			Alternative #1	Alternative #2	Alternative #3
E	Crescent Ave & Cambridge Ave	2-year	5-year	10-year	100-year

Overview of Seminole Avenue Study Area
17 Pipe System

An area of 179 acres drains to the low spot located at Seminole and Cottage Hill via storm sewer and overland flow. A single 48-inch pipe outlets the low spot with no existing overland flow route.

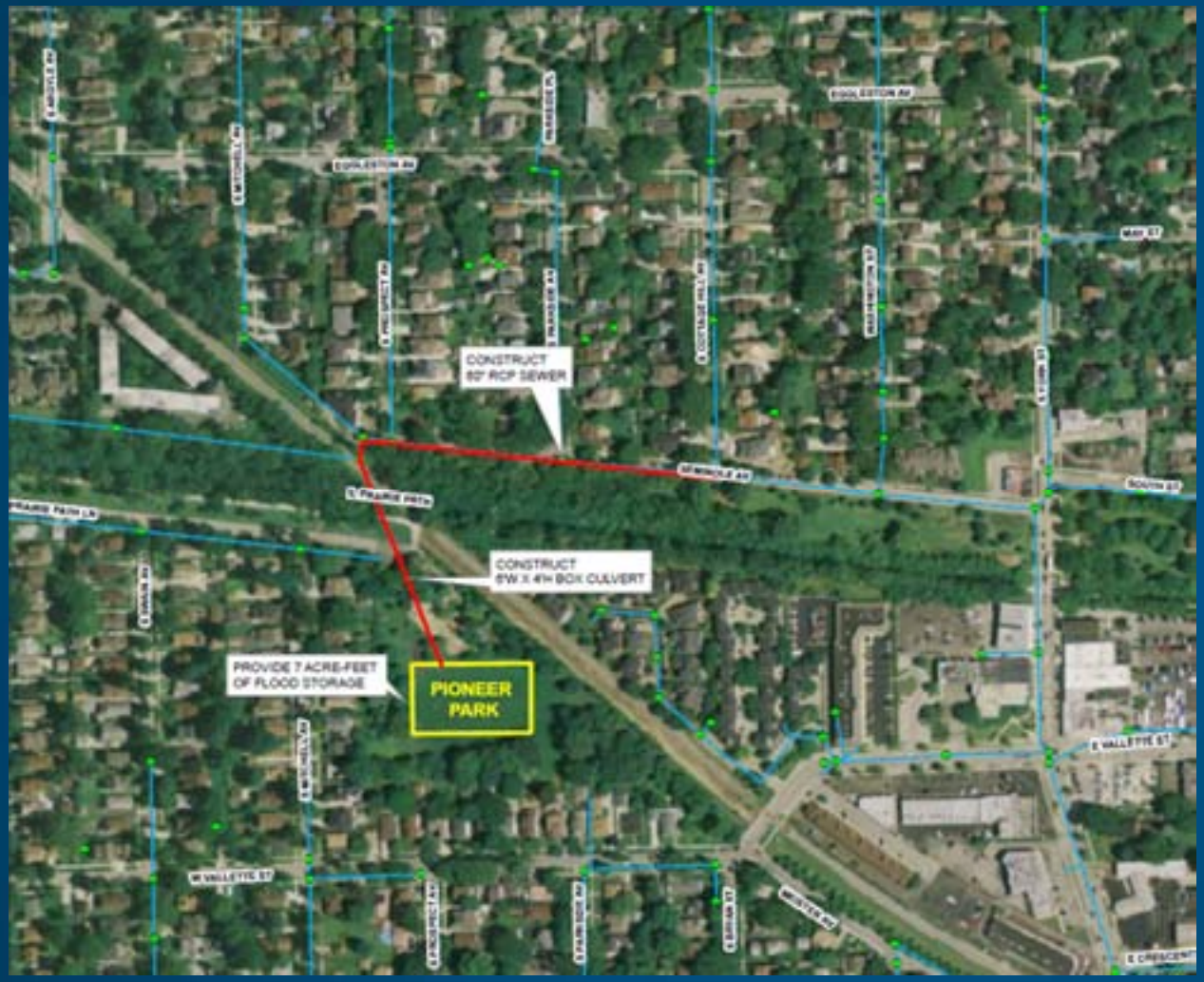
Seminole Avenue Study Area
XP-SWMM Simulated July 2010 Inundation Area

Seminole Avenue Study Area
Existing Conditions Summary

- During July 2010 storm event, significant street ponding (approximately 1.9 ft) occurred at Seminole and Cottage Hill Avenue.
  - Approximately five homes within July 2010 flood inundation area*.
- Existing level of flood protection is the 10-year return interval.
  - Street ponding occurs for storm events greater than the 10-year return interval.
  - Structural flooding occurs for storm events greater than the 10-year return interval.

*Based on Lowest Adjacent Grade (LAG) taken from DuPage County topography

Seminole Study Area - Alternative #1



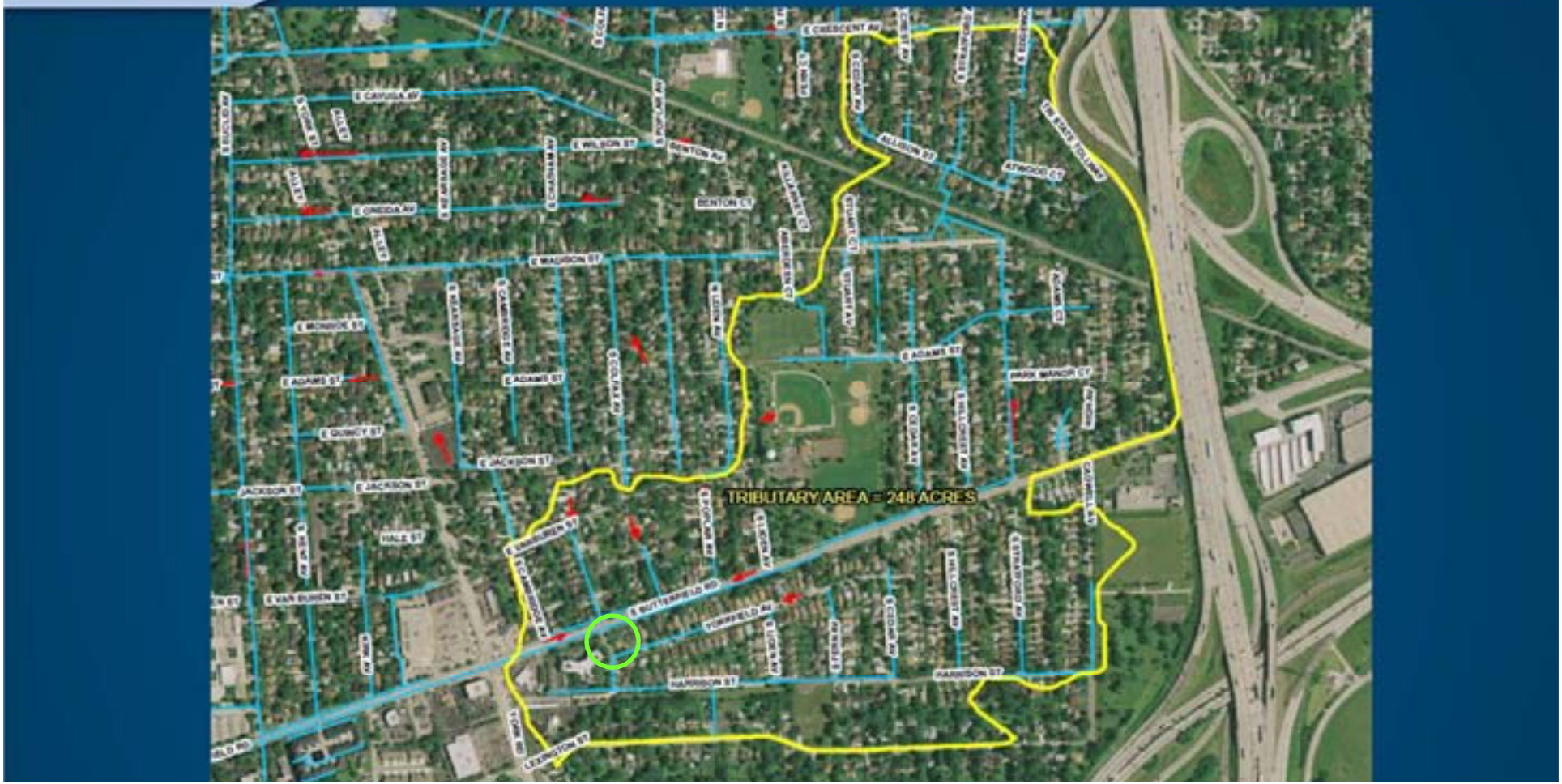
Construct gravity-drained flood storage facility (7 ac-ft) at Pioneer Park.

Construct 1,300 linear feet of relief sewer from intersection at Cottage Hill Ave & Seminole Ave to Pioneer Park.

Increases level of flood protection from 10-year to 100-year return interval.

Overview of Yorkfield Study Area

20 Pipe System



There is a low spot at Butterfield Road and Chatham Avenue, near the entrance to the subdivision. When the 48-inch Butterfield Road storm sewer surcharges, stormwater flows overland down Chatham Avenue into the subdivision. Stormwater runoff from the neighborhood drains to the detention basin located south of Harrison Street, which has a pump/gravity combination outlet.

Yorkfield Study Area
XP-SWMM Simulated July 2010 Inundation Area

Yorkfield Study Area Summary – Existing Conditions

- During July 2010 storm event, significant street ponding (approximately 0.7 ft) at Yorkfield & Chatham Avenue.
  - Approximately 11 homes within July 2010 flood inundation area*.
  - 5 homes with reverse-slope driveways.
- Existing level of flood protection is a 10-year return interval.
  - Street ponding at Yorkfield Avenue for storm events greater than 10-year return interval.

*Based on Lowest Adjacent Grade (LAG) taken from DuPage County topography

Yorkfield Study Area - Alternative #1

Expand Harrison Street detention basin onto adjacent vacant lot (additional 5 acre-feet of flood storage).

Construct 400 linear feet of relief sewer from Yorkfield Avenue to detention basins.

Increases level of flood protection from 10-year to 100-year return interval.

Yorkfield Study Area - Alternative #2

Expand Harrison Street detention basin using retaining walls and excavation.

Construct 400 linear feet of relief sewer from Yorkfield Avenue to detention basin.

Increases level of flood protection from 10-year to 100-year return interval.

Detention Volume Comparison

If the five study areas were developed after 1992, stormwater detention volume would have been required under the development regulations of the DuPage County Ordinance. A comparison of the proposed flood storage volumes to the estimated stormwater detention requirement is provided below.

Study Area Location	Stormwater Detention Volume Required (ac-ft)	Proposed Flood Storage (ac-ft)	Proposed Flood Storage in Relation to Watershed (ac-ft/ac)
Pine Street	33	30	0.34
Southwest (South)	221	152	0.25
Southwest (North)	144	78	0.20
Seminole Avenue	64	7	0.04
Yorkfield Subdivision	87	5	0.02

General Information - Flood Storage Areas

- Gravity flood storage in open spaces was determined by excavating existing site at a 4:1 slope from existing grade.
  - The elevation of the bottom of each gravity-drained flood storage area is set based on the elevation of nearby storm sewers.
  - The bottoms of each flood storage area would be flat dry-bottoms that would require an underdrain system to drain it. In some cases, the underdrain system would require a dewatering pump.

Potential Flood Storage Locations

South Elmhurst

Northeast Elmhurst

Potential Flood Storage Locations

Location ID	Location Name	Maximum Depth of Excavation (ft)	
		Gravity-Drained*	Pump-Evacuated**
1	Early Childhood Elementary School	8	29
2	Bryan Middle School	10	41
3	Vacant Lot	6	33
4	Jackson Elementary School Christ United Methodist Church	3	30
5	Pioneer Park	5	35
6	York Commons Park	6	35
7	Golden Meadows Park	10	44
8	East End Park	8	42
9	Vacant Lot	12	19

*4:1 side slopes
** 3:1 side slopes

Potential Flood Storage Locations

Location ID	Location Name	Potential Flood Storage (Acre-feet)	
		Gravity-Drained	Pump-Evacuated
1	Early Childhood Elementary School	5.8	15.6
2	Bryan Middle School	18.0	64.5
3	Vacant Lot	8.8	31.0
4	Jackson Elementary School Christ United Methodist Church	4.5	18.5
5	Pioneer Park	6.4	14.4
6	York Commons Park	36.3	168.0
7	Golden Meadows Park	53.0	116.0
8	East End Park	31.0	178.0
9	Vacant Lot	5.0	9.2
	Total	168.8	615.2

Direct Connections to Storm Sewer

- Originally, sump pumps from homes were tied into the combined sewer.
- During the sewer separation process, many of these connections were left still connected to the sanitary sewer.
- As part of the sump pump disconnect program, the City inspected every home and all illegal sump pumps were disconnected. The sump pumps discharged overland into side and rear yards.

Direct Connections to Storm Sewer

After many residents complained of flooded yards (and ice rinks in winter), the City implemented a cost-share program in 1991 for the installation of rear yard drains (article below). In addition, the City required new construction to connect downspouts and sump pumps directly to the storm sewer system.

Chicago Tribune | ARTICLE COLLECTIONS

You are here: ChicagoTribune.com > Collections

Elmhurst, Residents Split Sewer Costs

April 04, 1991 | By Annemarie Mannion.

The cost of a sewer extension program will be shared by Elmhurst residents and the city, but the $150,000 that is budgeted for the project will help only about 125 of the more than 700 residents who have complained of water flowing into their yards.

The City Council voted 10-3 this week to approve the cost-share program on a 50-50 basis despite some council members' assertions that it is the city's fault, not the residents' fault, that the program is needed.

"We have caused this program with the sump pump disconnect program,"

Ald. Vicki Southcombe (3rd) said. "We should have enlarged the pipes, and now we're going to pay for it."

The city was directed in 1967 by the Illinois Environmental Protection Agency to remove storm water from the sanitary sewer system. Instead of choosing the more costly option of enlarging the sewer system, the city chose to have residents disconnect their sump pumps from sewer lines.

The pumps have sent ground water flowing into yards, sidewalks and streets. Since early January, the city has received about 725 complaints of flooding.

One resident urged the city to assume the entire cost of the program.

"I'm tired of spitting things 50-50 when you keep making mistakes, and I've got mud in my yard," Richard Payne said.

A proposal by Ald. Edward Moran (7th) that the city fund the program completely was defeated by a 7-6 vote.

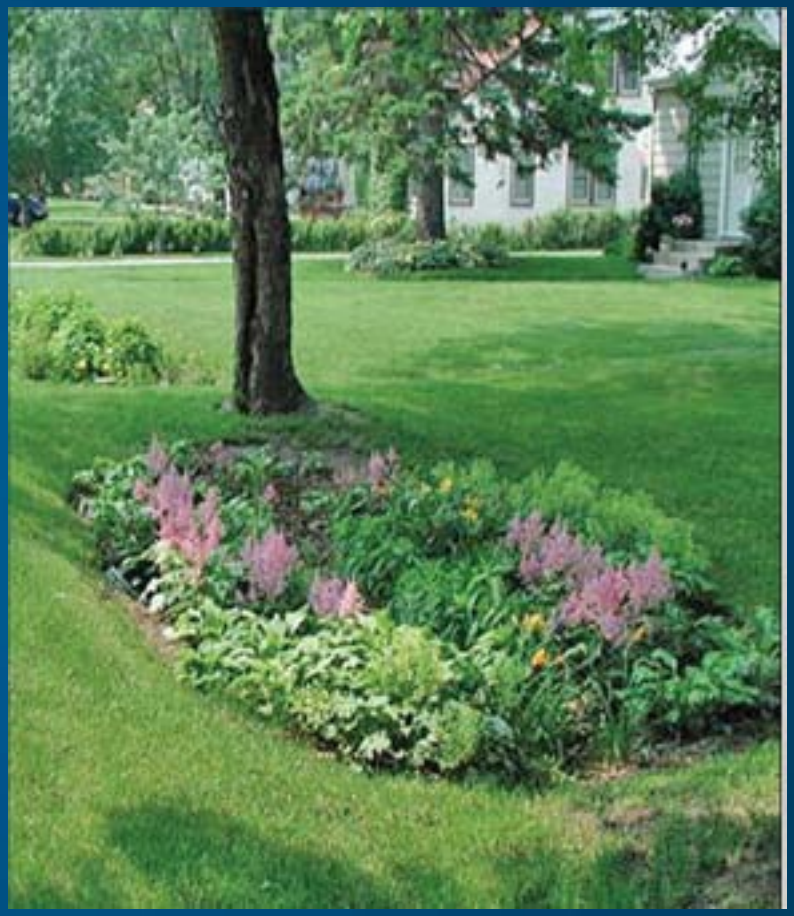
City Manager Thomas Borchert said the city cannot afford to foot the entire bill.

Direct Connections to Storm Sewer

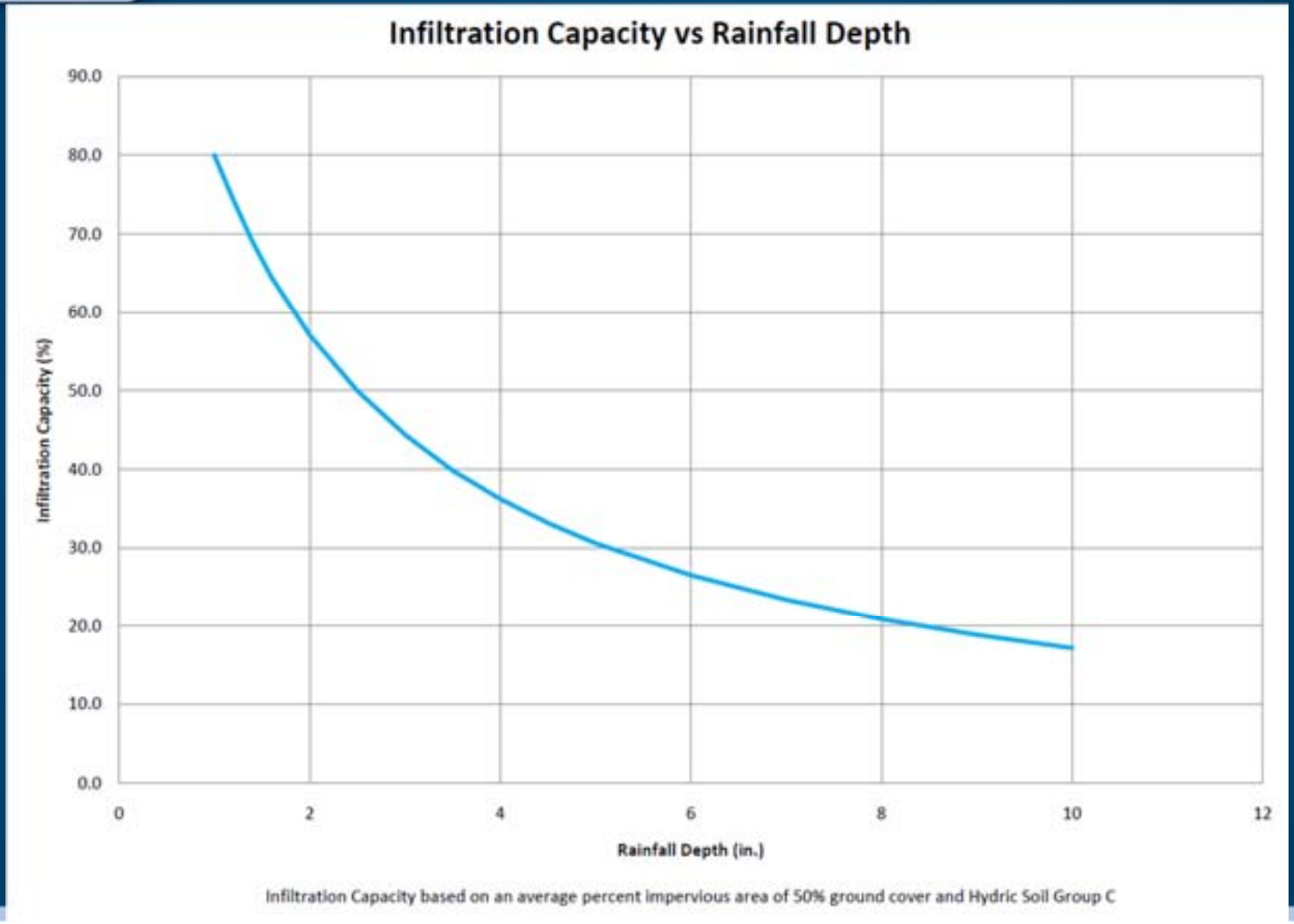
- If the direct connections to the storm sewer were removed, residents would be left with the original problem of flooded yards.

- Rain gardens provide some infiltration and can have a positive impact on water quality.

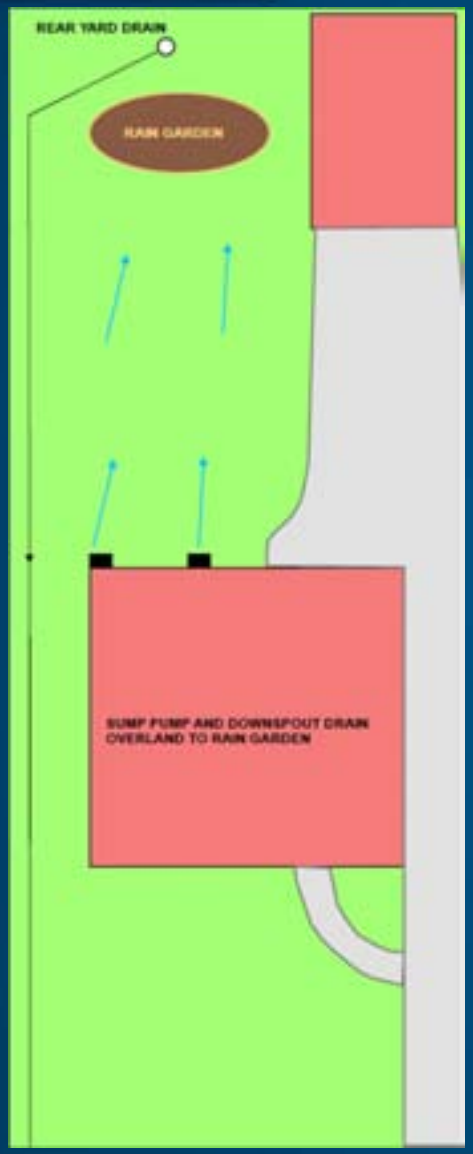
•The following slide considers a back yard lawn with direct connections routed over the yard. It assumes a “C” type soil and various rainfall depths to obtain the corresponding infiltration.



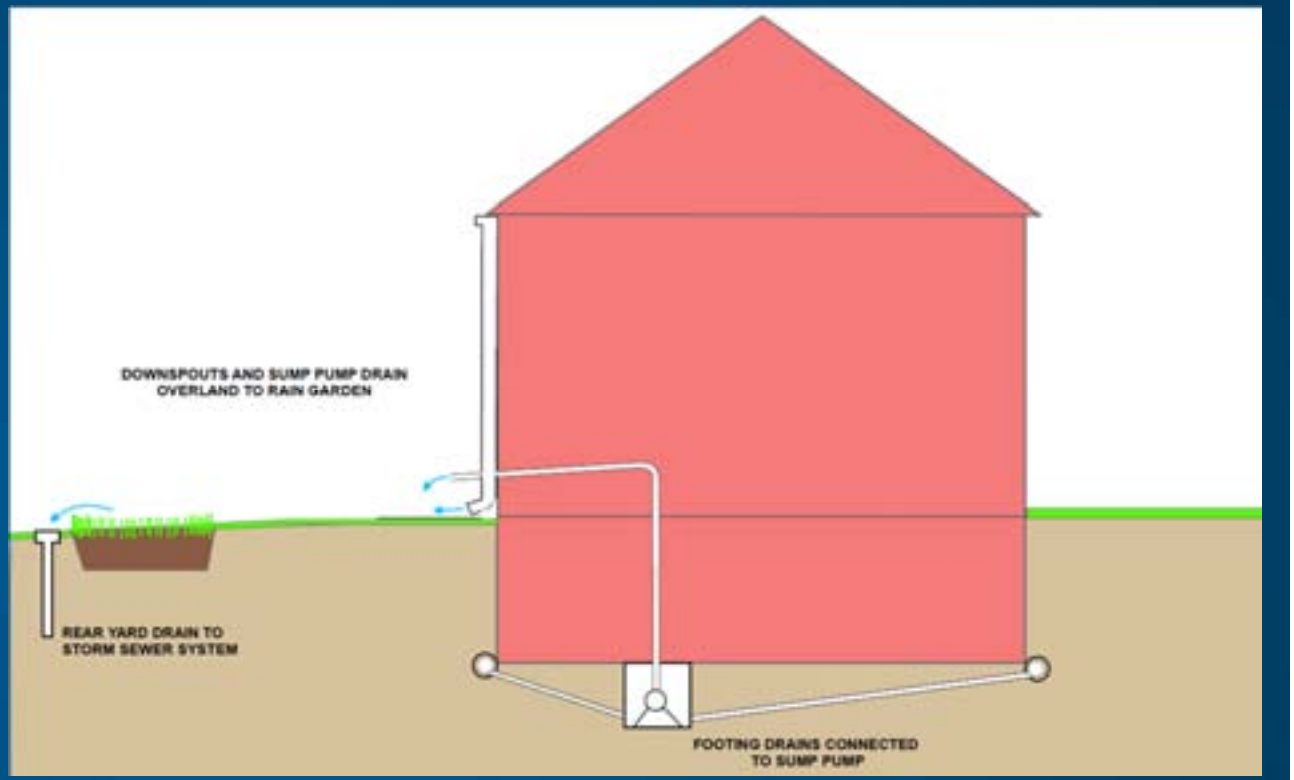
Infiltration Capacity



Rain Garden Schematic



PLAN VIEW

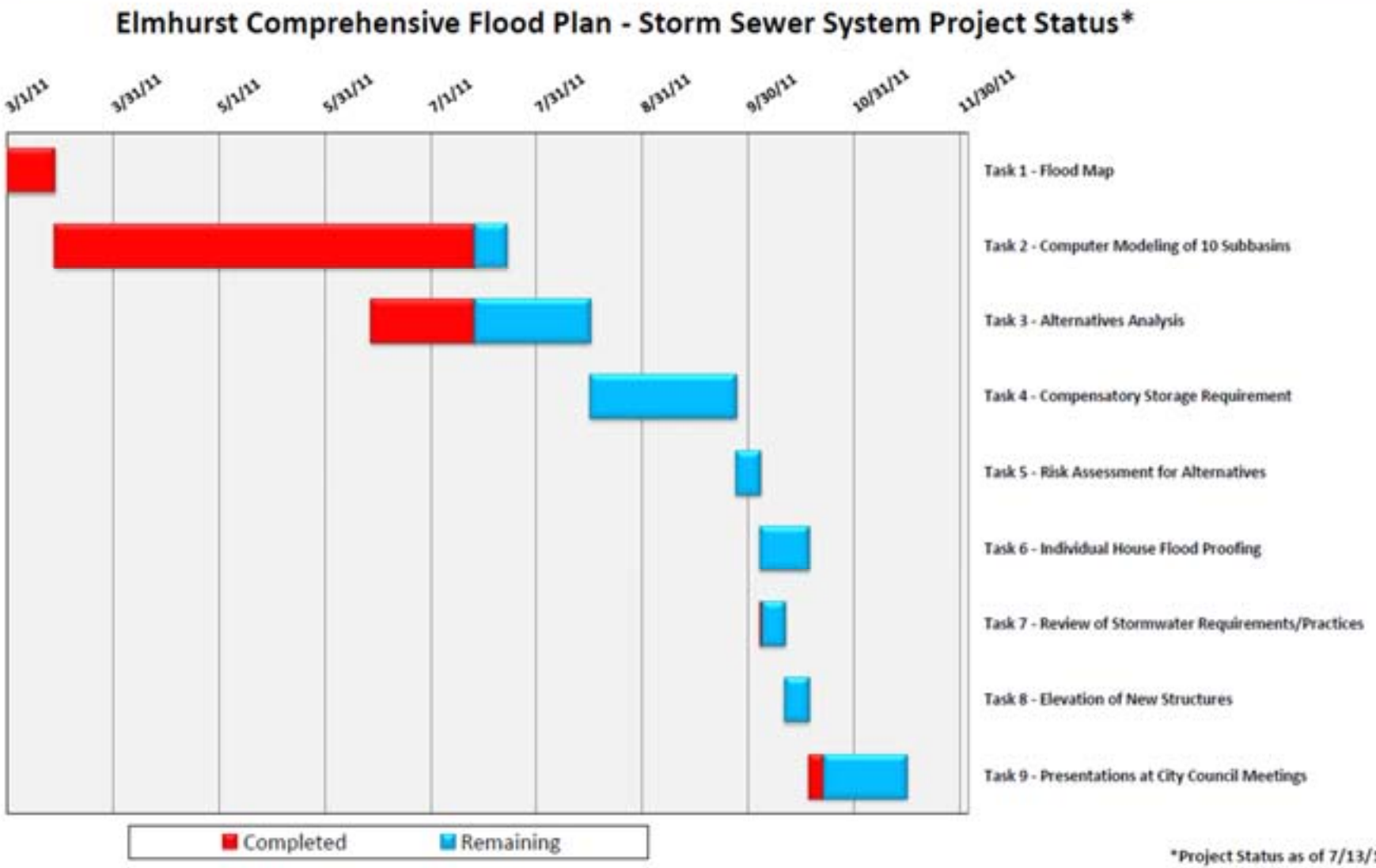


PROFILE VIEW

Rain garden should be located at least 15 feet away from building foundation and outside the zone of influence of the sanitary sewer.

Rain Garden Example

Project Status



Stormwater System Analysis

- Next Steps:
  - Calibrate model results for July 2010 storm event.
  - Survey low-entry elevations for a sample of homes located within flood problem areas.
  - Refine level of flood protection.
  - Develop cost estimates of proposed drainage improvements.