



WEST AND SOUTHWEST WINNETKA STORMWATER MANAGEMENT STUDY

PUBLIC MEETING #3 • APRIL 2016

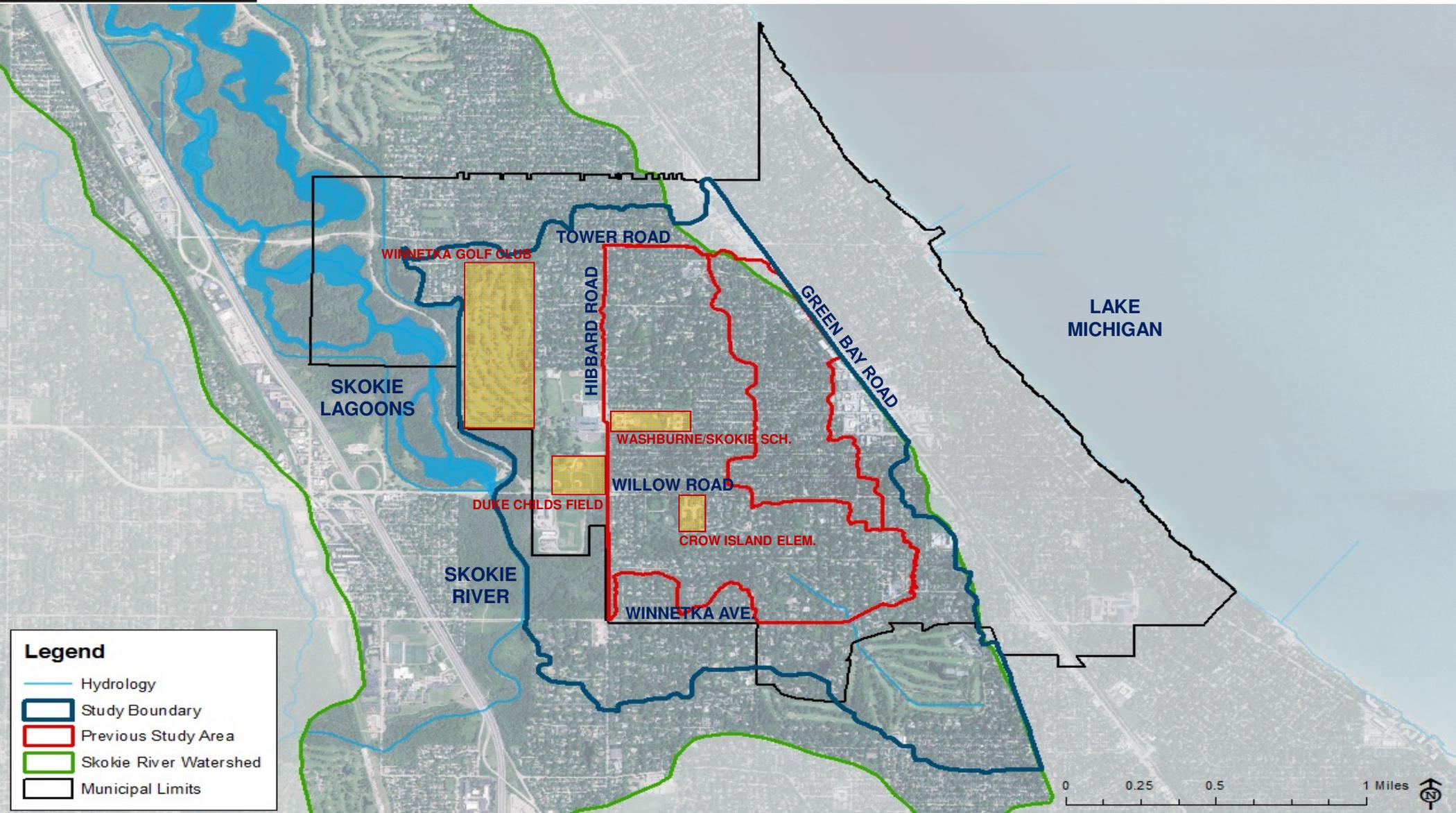
THE VILLAGE OF
WINNETKA
SINCE 1869



HUMAN
NATURE



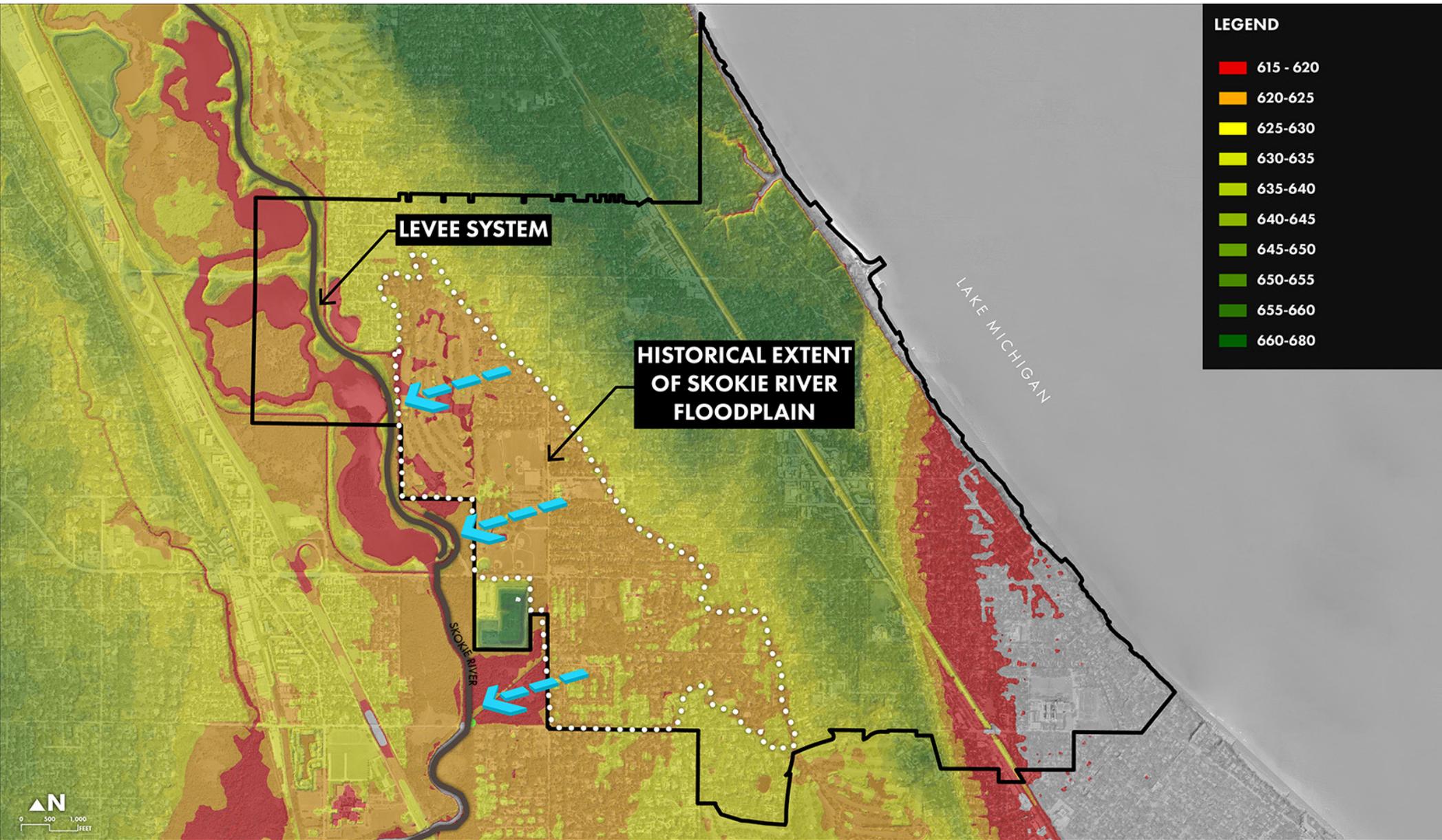
Study Area Boundary



“The character of the marsh varied from season to season.
During the spring and summer, water levels in the marsh ranged from a few inches to several feet deep.”



SOURCE: <http://skokielagoons.omeka.net>



LEGEND

Red	615 - 620
Orange	620-625
Yellow	625-630
Light Green	630-635
Green	635-640
Light Green	640-645
Green	645-650
Dark Green	650-655
Dark Green	655-660
Dark Green	660-680



ELEVATION RANGES

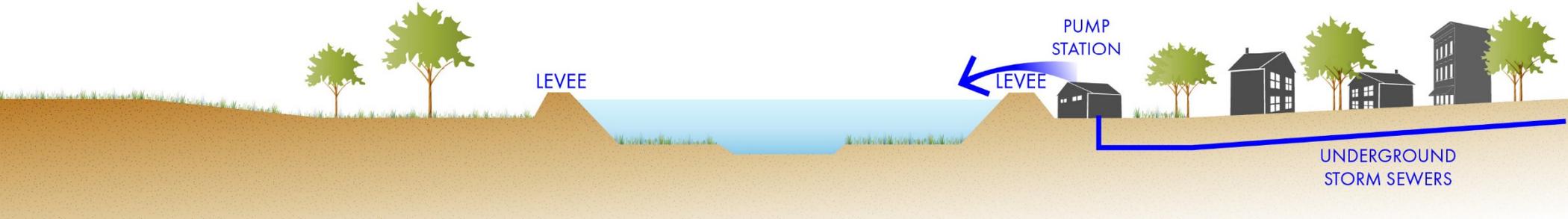
← SKOKIE RIVER FLOODPLAIN →



HISTORICAL CONDITION

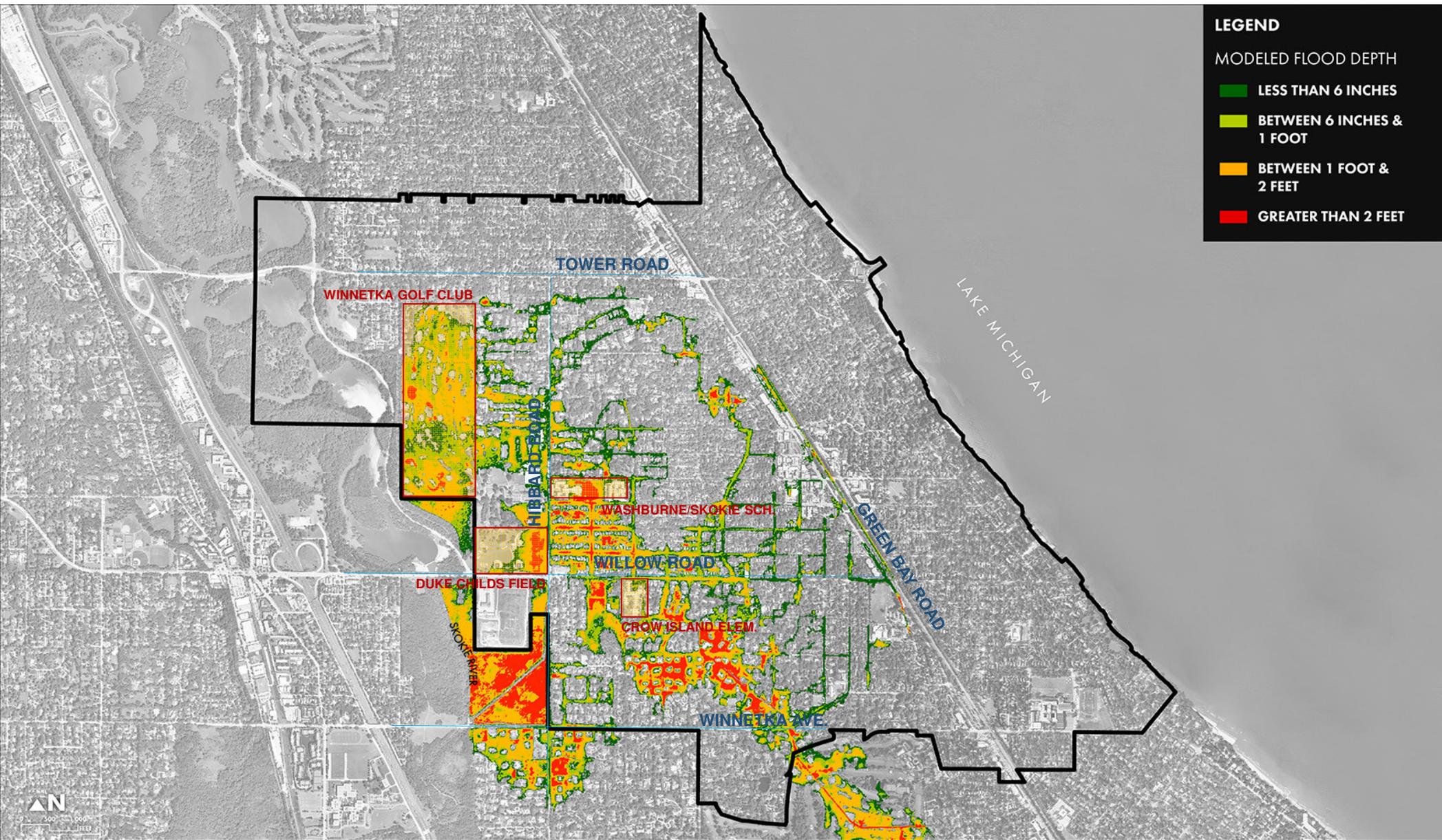
CONCEPTUAL GRAPHIC - NOT TO SCALE

← SKOKIE RIVER FLOODPLAIN →



CURRENT CONDITION

CONCEPTUAL GRAPHIC - NOT TO SCALE



LEGEND

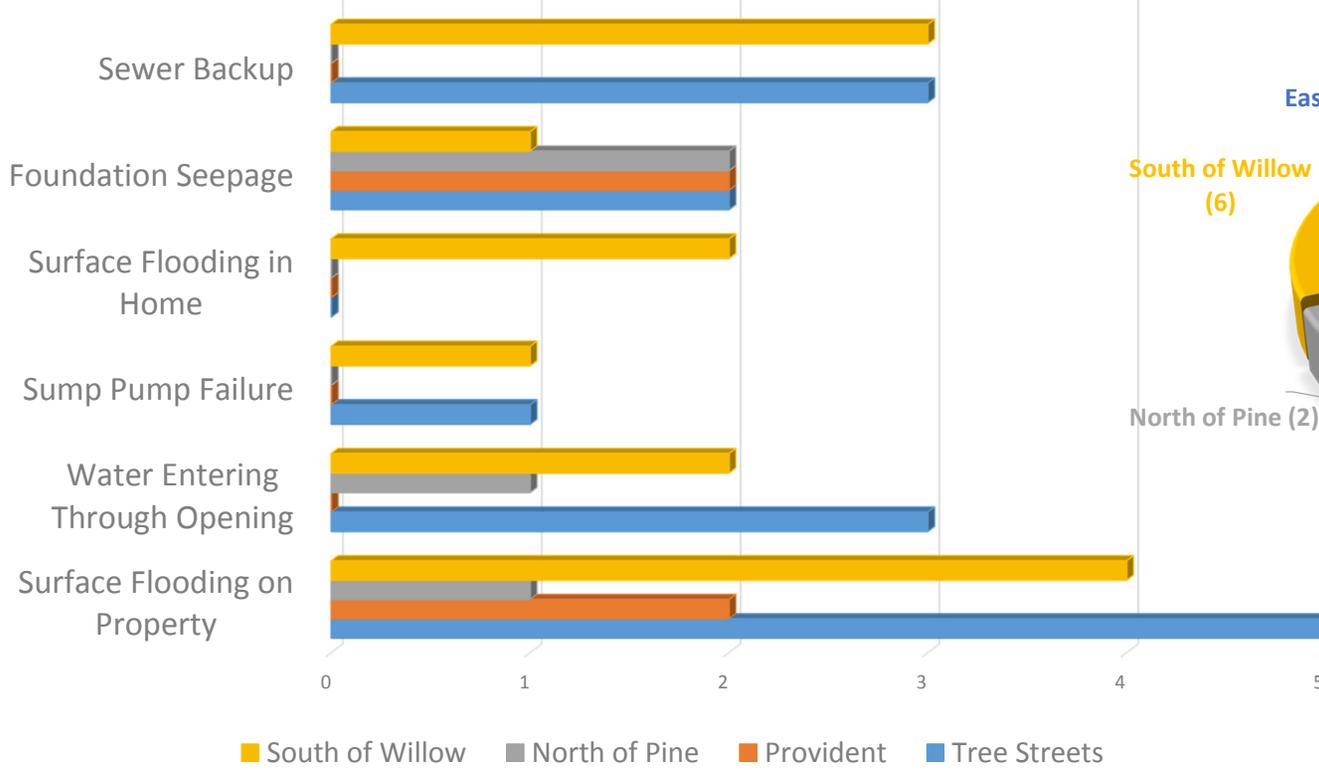
MODELED FLOOD DEPTH

- LESS THAN 6 INCHES
- BETWEEN 6 INCHES & 1 FOOT
- BETWEEN 1 FOOT & 2 FEET
- GREATER THAN 2 FEET

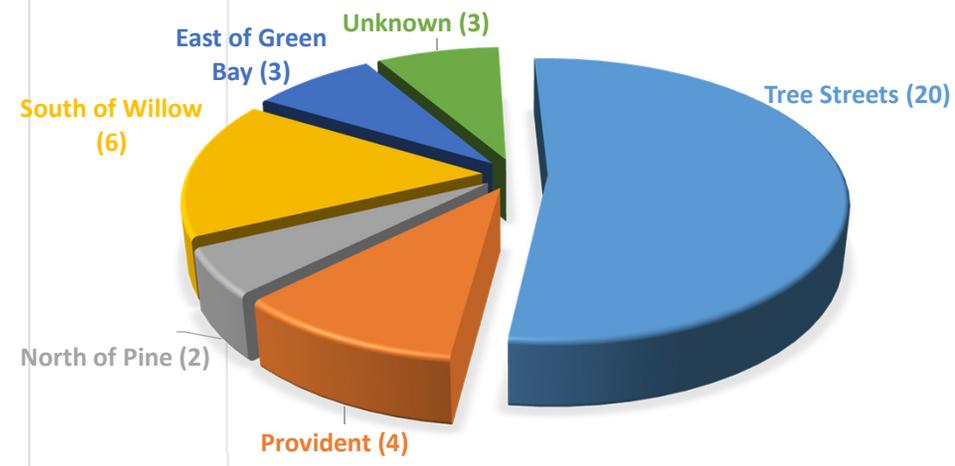
Public Meeting #1 Comments

- Comments received from 38 households at Jan. 23rd and 25th open houses
- Five neighborhoods represented

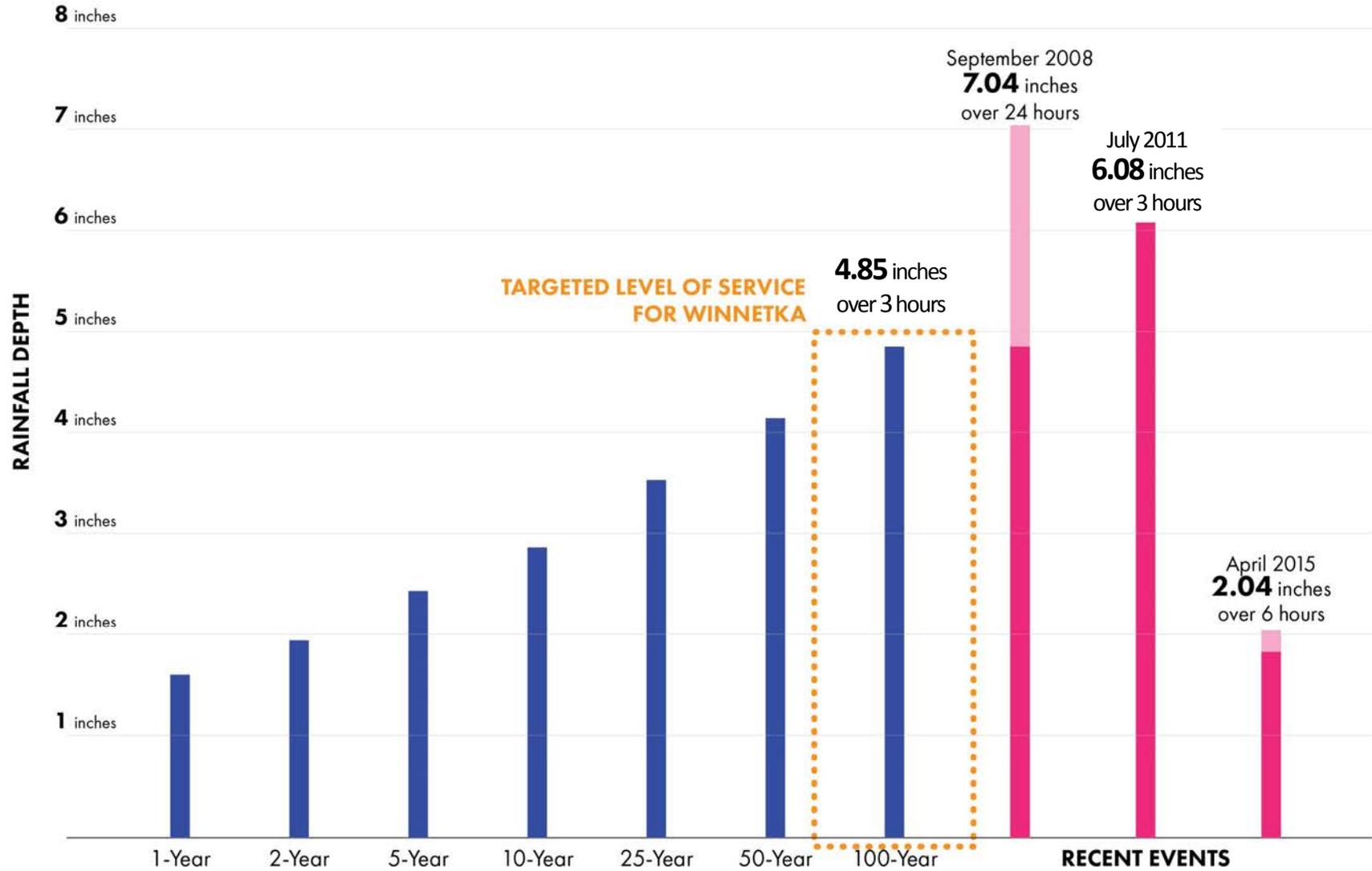
Number of Stormwater Flooding Experiences Reported by Attendees



COMMENTS RECEIVED BY NEIGHBORHOOD

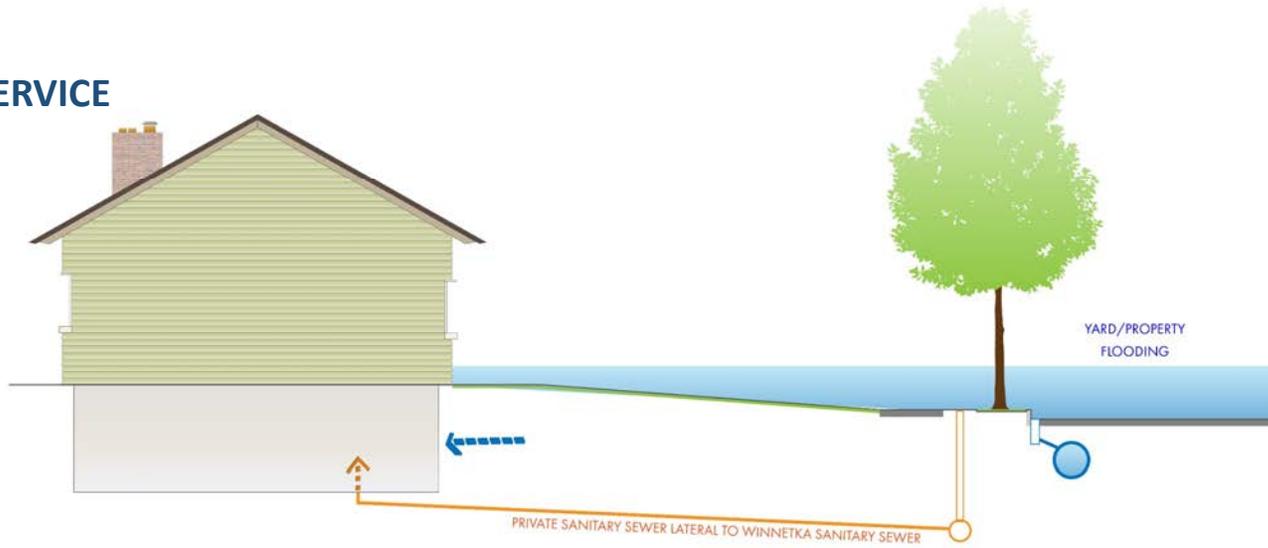


Target Level of Service

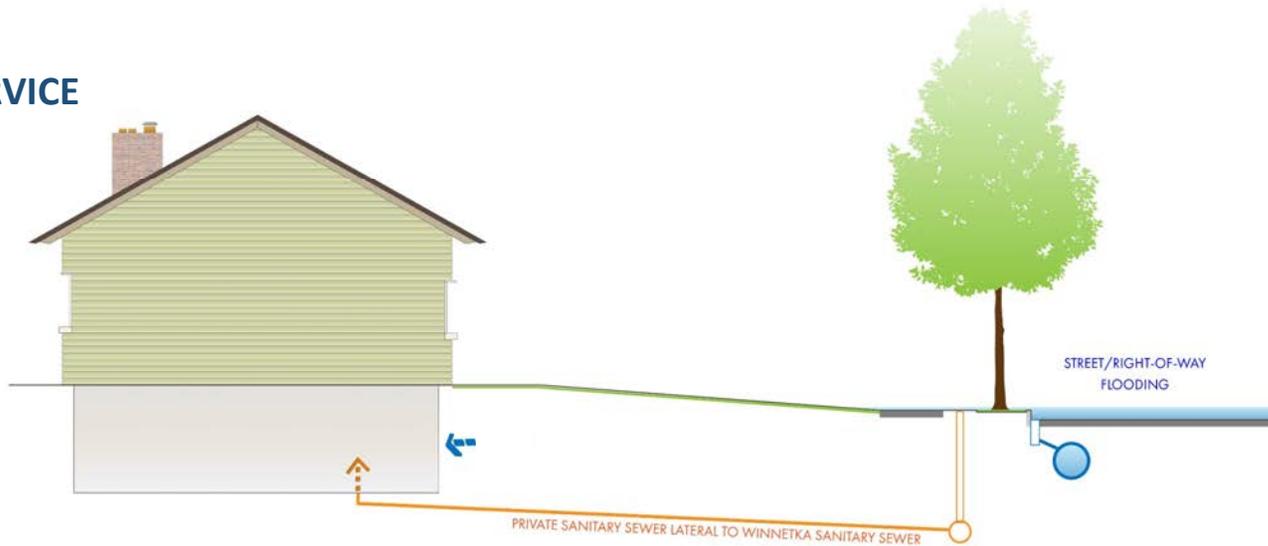


Target Level of Service

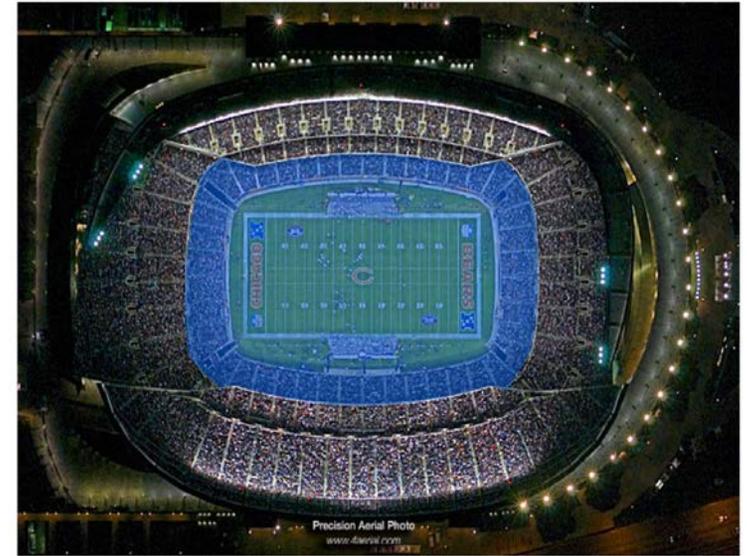
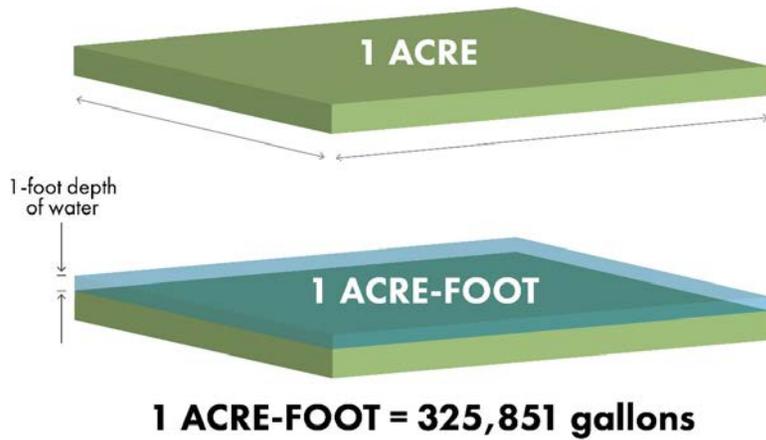
CURRENT LEVEL OF SERVICE



TARGET LEVEL OF SERVICE



Target Level of Service

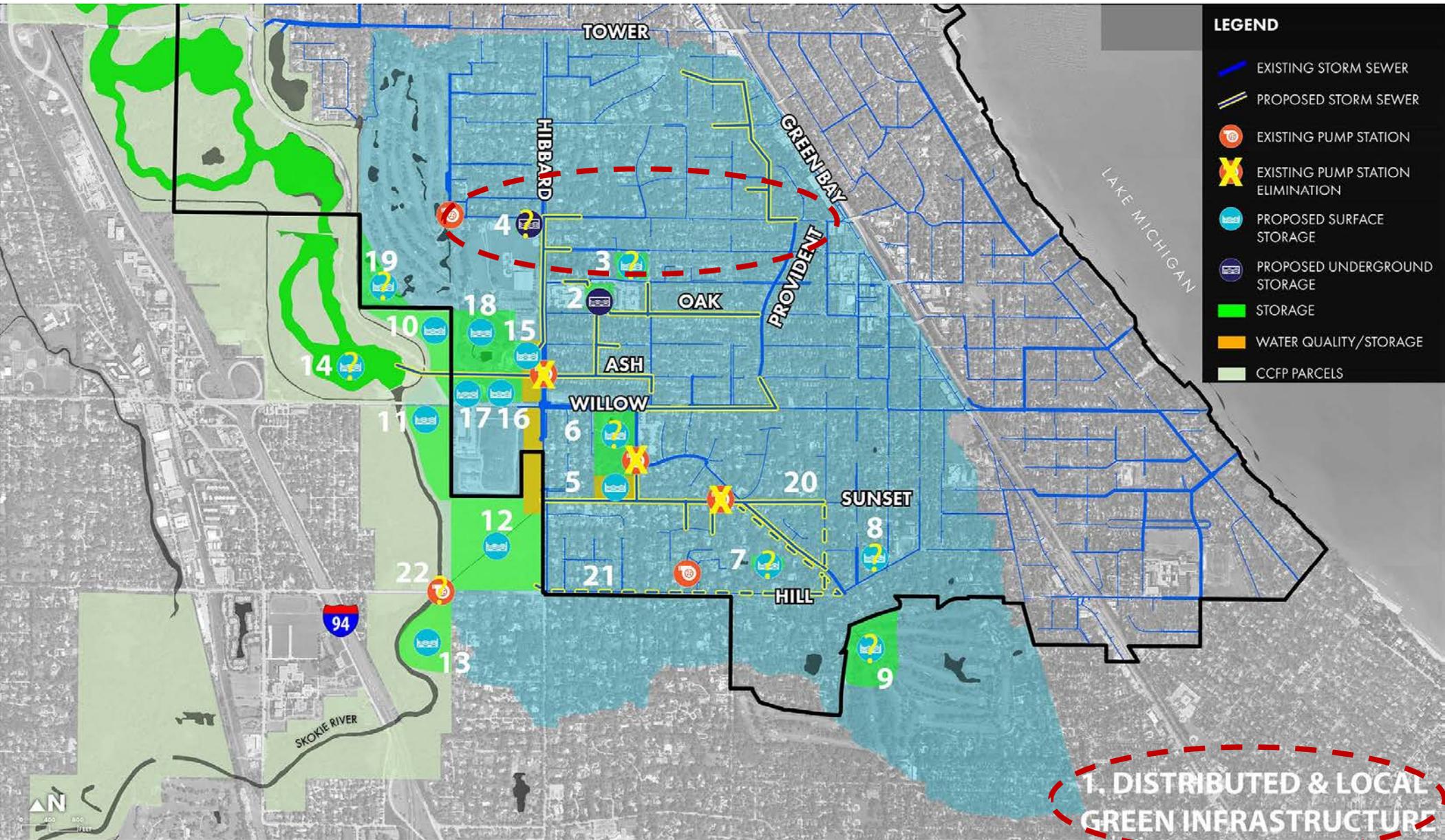


Source: precision Aerial Photo (www.4aerial.com)

150 STORAGE NEEDED TO MEET
ACRE-FEET THE TARGETED LEVEL OF
SERVICE IN WINNETKA



35 DEPTH OF WATER IN
FEET **SOLDIER FIELD**
(ALL OF SECTION 100)

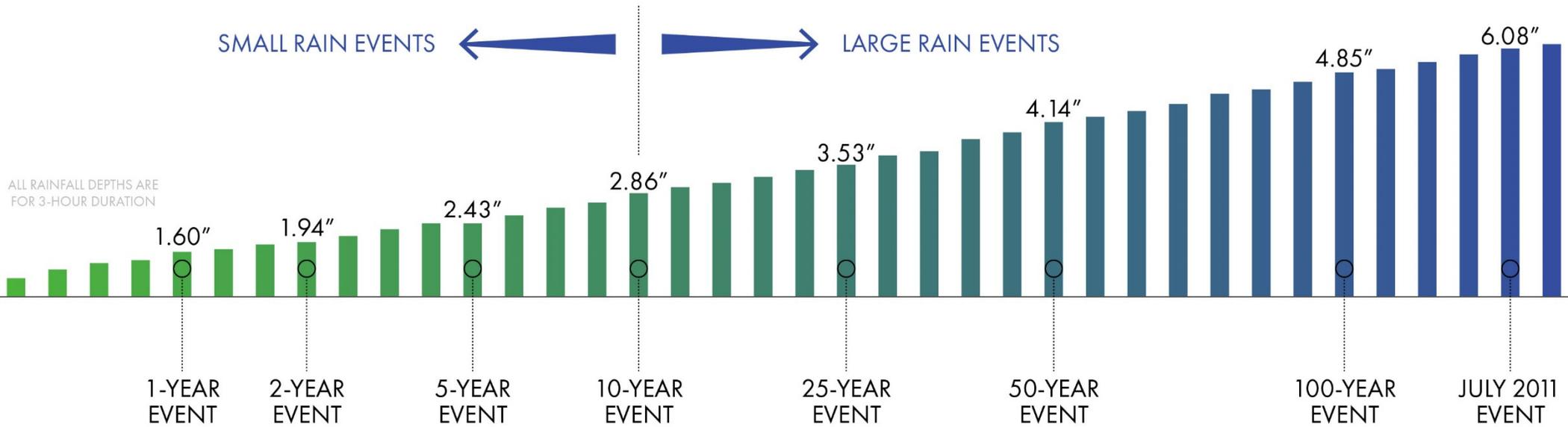


T. DISTRIBUTED & LOCAL GREEN INFRASTRUCTURE

Stormwater Management Opportunities

SMALL RAIN EVENTS

LARGE RAIN EVENTS



HOMEOWNER-LEVEL
INFRASTRUCTURE

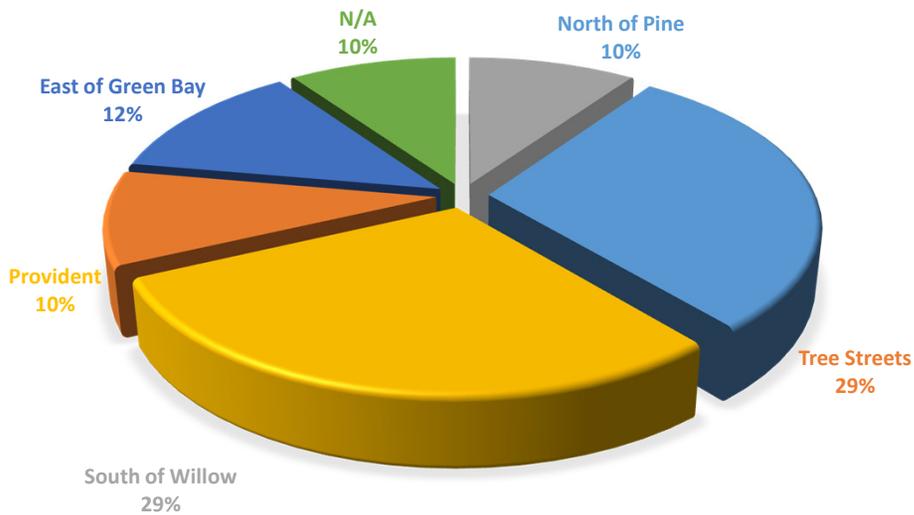
NEIGHBORHOOD-LEVEL
INFRASTRUCTURE

WATERSHED-LEVEL
INFRASTRUCTURE

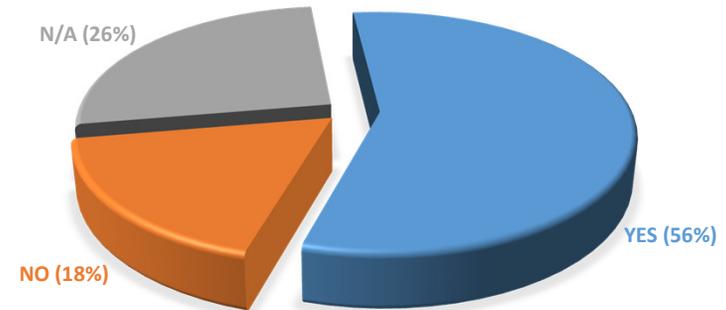
Public Meeting #2 Comments

- 86 residents attended the public meetings on March 3rd & 5th.
- 72 comments and comment cards were submitted to date.

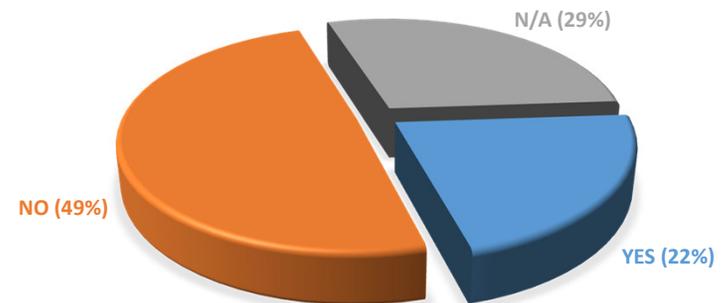
NEIGHBORHOODS REPRESENTED



ARE YOU WILLING TO IMPLEMENT DISTRIBUTED GREEN INFRASTRUCTURE ON YOUR PROPERTY?

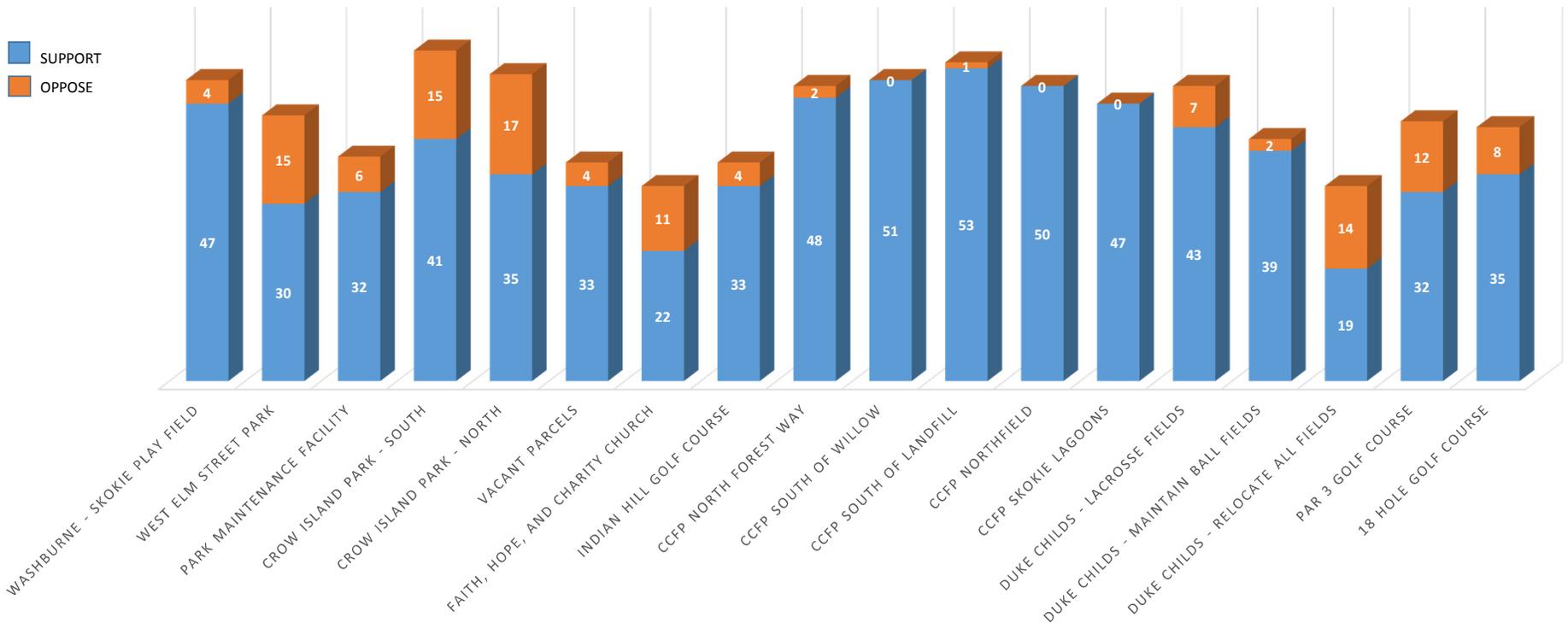


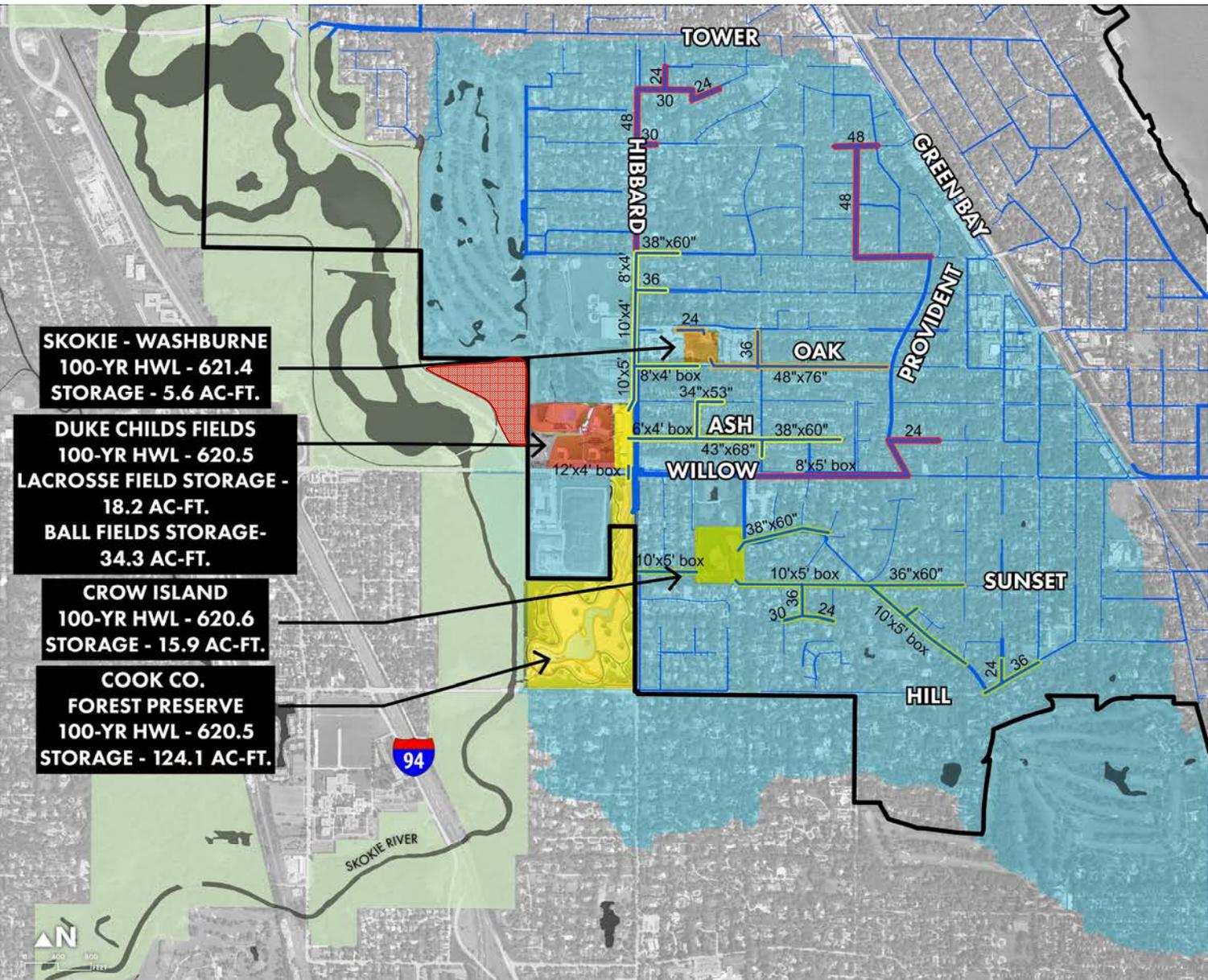
WOULD YOU BE WILLING TO LOSE PARKWAY TREES TO IMPLEMENT GREEN INFRASTRUCTURE?



Public Meeting #2 Comments

IDENTIFIED STORAGE OPPORTUNITIES





LEGEND

- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- STUDY AREA
- CCFP PARCELS

STORMWATER VISION

PHASE 1

- 1 FPD Cook County Hibbard Road Preserve Storage
- 2 Duke Childs Lacrosse Field Storage
- 3 Ash Street Conveyance
- 4 Hibbard Road Conveyance

PHASE 2

- 5 Crow Island South
- 6 Sunset Road East Conveyance
- 7 Sunset Road West Conveyance
- 8 Mount Pleasant Conveyance

PHASE 3

- 9 Skokie-Washburne Storage
- 10 Oak Street Conveyance

PHASE 4

- 11 Willow Road Conveyance
- 12 Provident Conveyance
- 13 North of Pine Conveyance
- 14 Duke Childs Baseball Field Storage
- 15 WPD Par-3 Golf Course

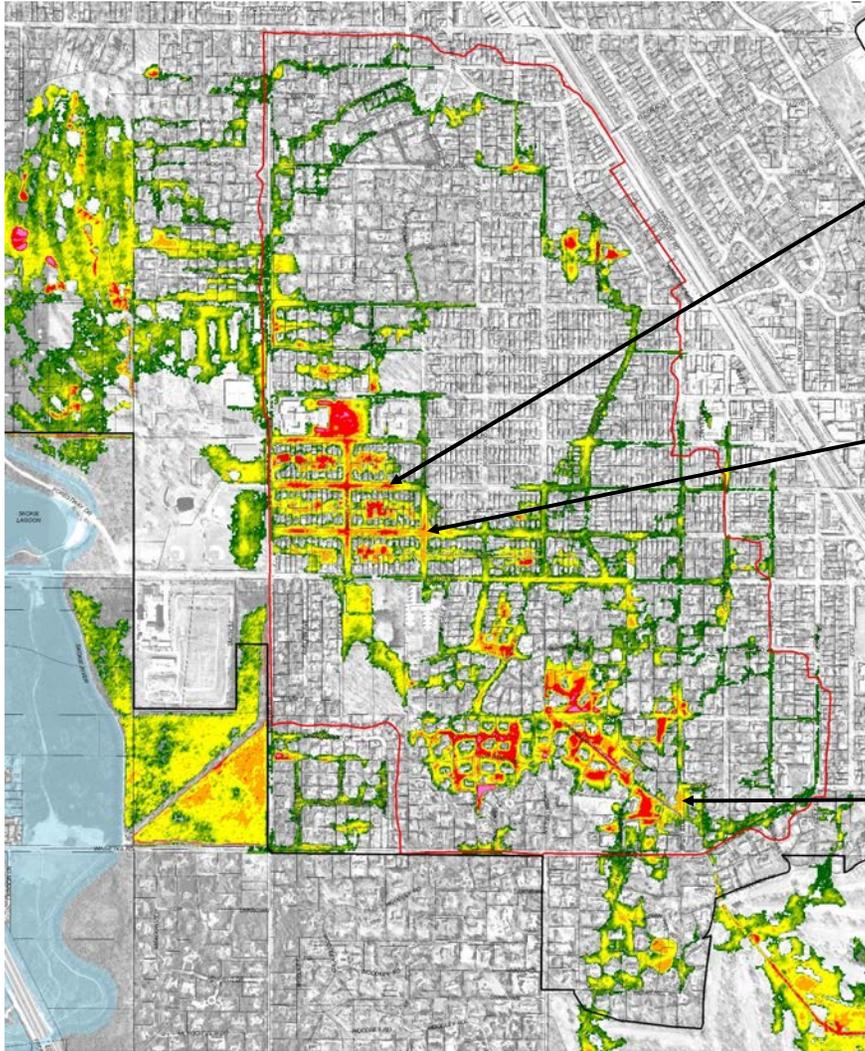
SKOKIE - WASHBURNE
100-YR HWL - 621.4
STORAGE - 5.6 AC-FT.

DUKE CHILDS FIELDS
100-YR HWL - 620.5
LACROSSE FIELD STORAGE -
18.2 AC-FT.
BALL FIELDS STORAGE-
34.3 AC-FT.

CROW ISLAND
100-YR HWL - 620.6
STORAGE - 15.9 AC-FT.

COOK CO.
FOREST PRESERVE
100-YR HWL - 620.5
STORAGE - 124.1 AC-FT.

EXISTING CONDITIONS, 100-YR, 3-HR EVENT



July 2011 – 1200 Block of Cherry

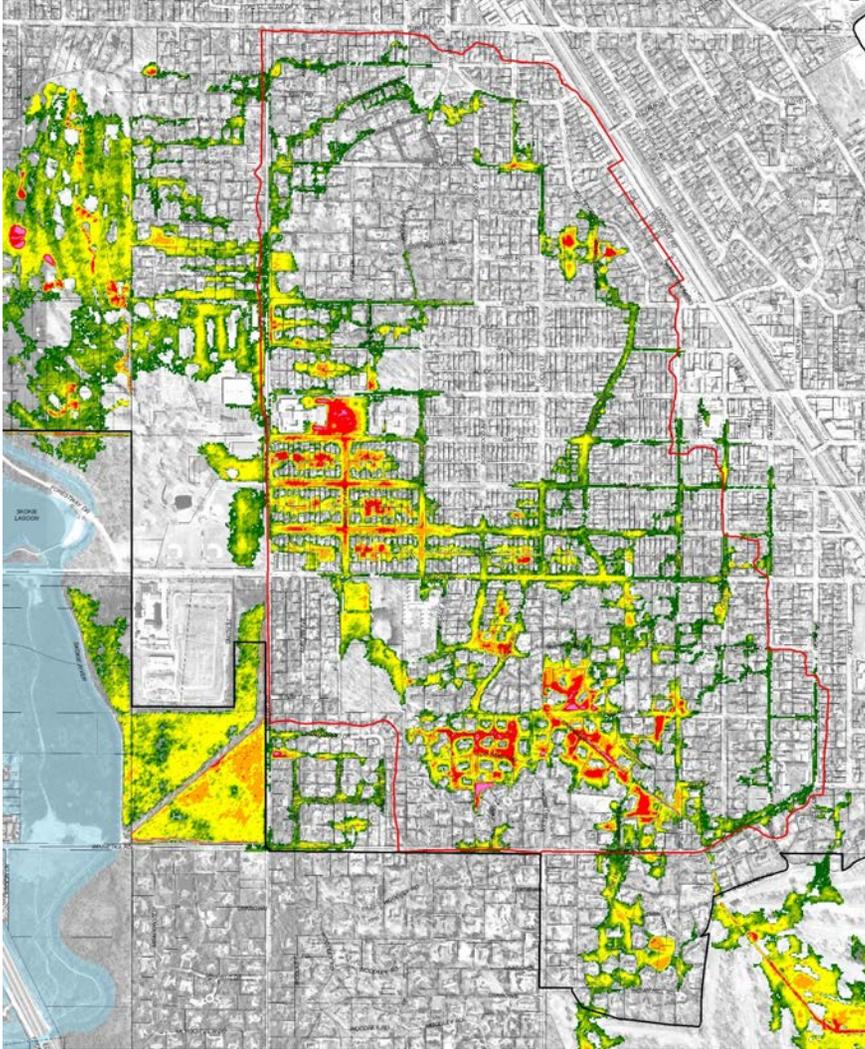


July 2011 – Ash and Glendale

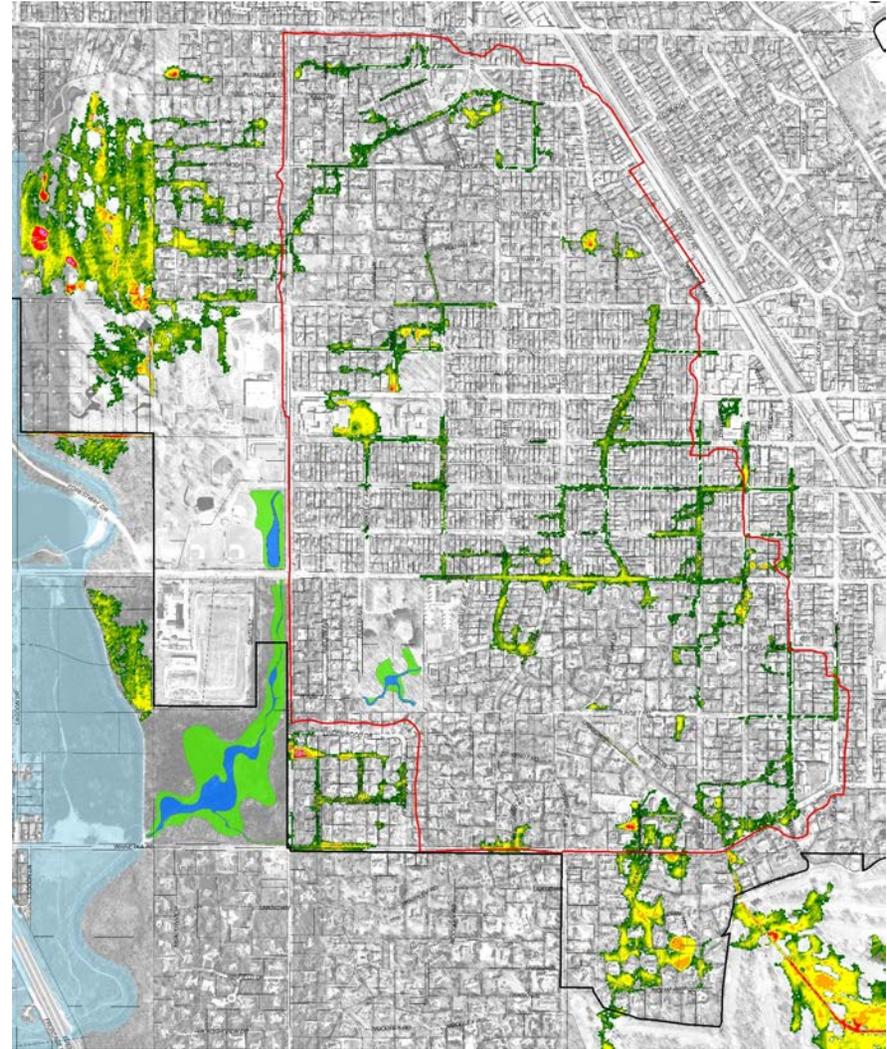


April 2013 – Birch and Alles

EXISTING CONDITIONS, 100-YR, 3-HR EVENT

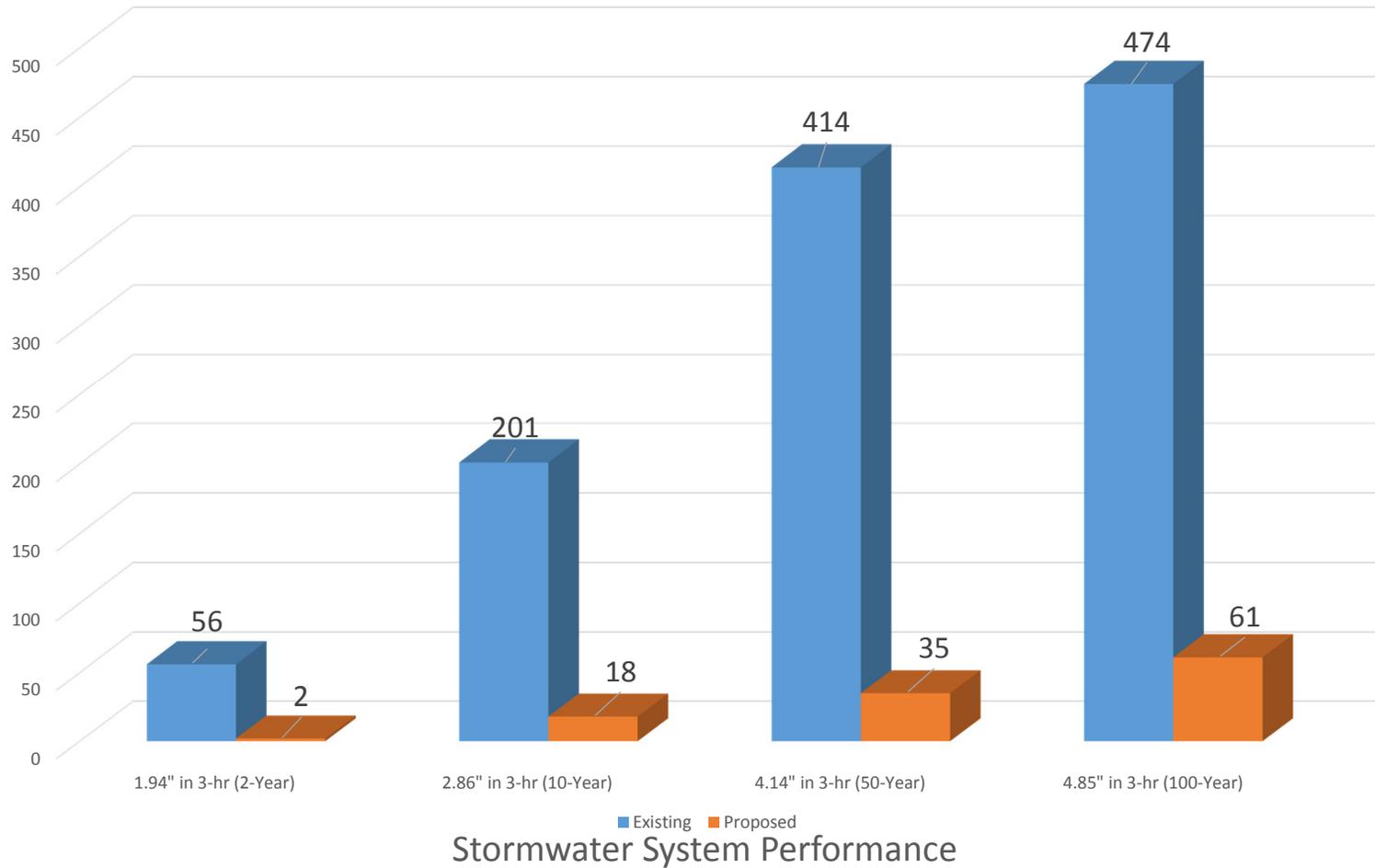


PROPOSED CONDITIONS, 100-YR, 3-HR EVENT



Overall Vision

Potentially Impacted Properties



Homeowner Level Green Infrastructure



**Incentivize Implementation Through Storm
Water Program**

Typical Household:

- 2 Rain Barrels @ 50 gallons per barrel = 100 gallons
- 1 Rain Garden @ 12" deep and 20 feet by 20 feet (400 sq. ft.)

Totals 3,100 gallons = 0.01 ac-ft.

100 households could provide 1 ac-ft. of storage volume

A typical household produces 7,000 gallons from a 1.60" rainfall
(2-year storm)

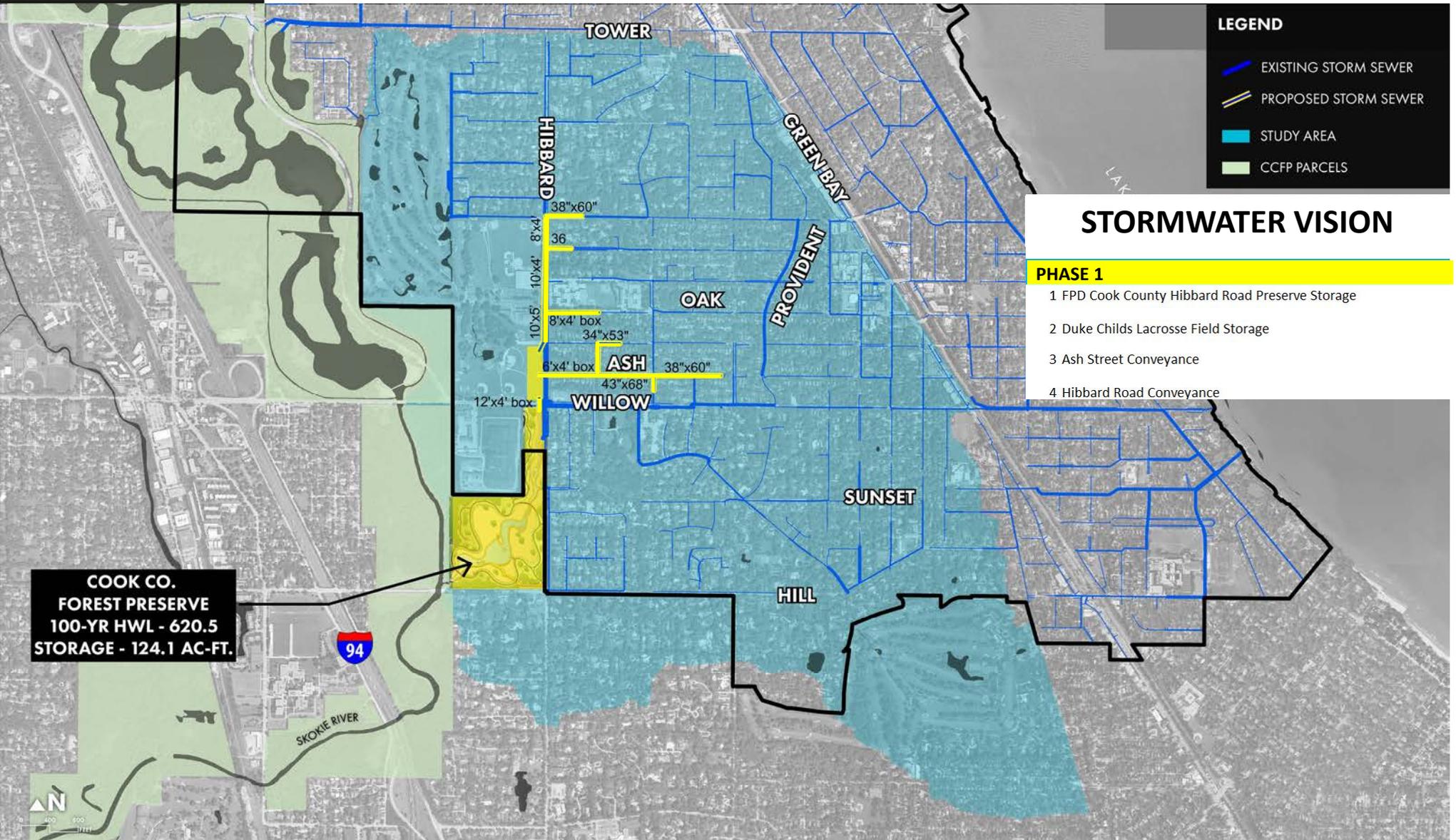
Neighborhood Level Green Infrastructure

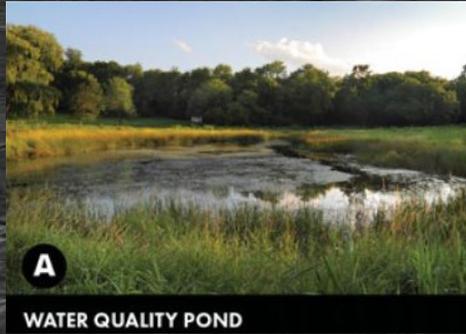


- Anticipate 15 to 20 intersections
- Anticipate 12 to 15 parkways (without tree removal)
- To be constructed along with other conveyance improvements

Provides 4 to 5 ac-ft. of storage volume
Provides valuable water quality improvements

Phase 1 Projects





A

WATER QUALITY POND



B

HABITAT ENHANCEMENT: SEDGE MEADOW



C

HABITAT ENHANCEMENT: UPLAND PRAIRIE



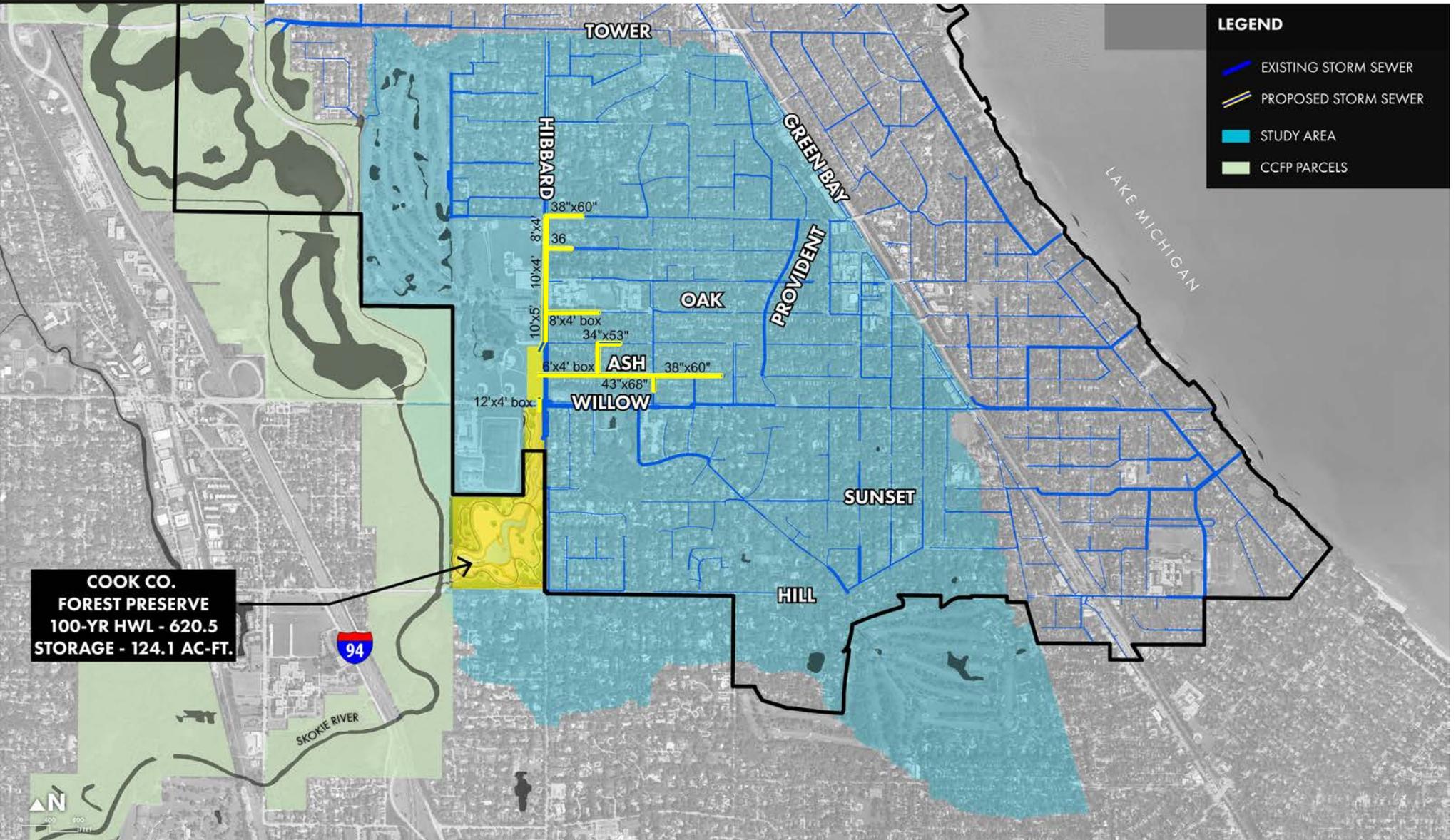
D

HABITAT ENHANCEMENT: MESIC FOREST

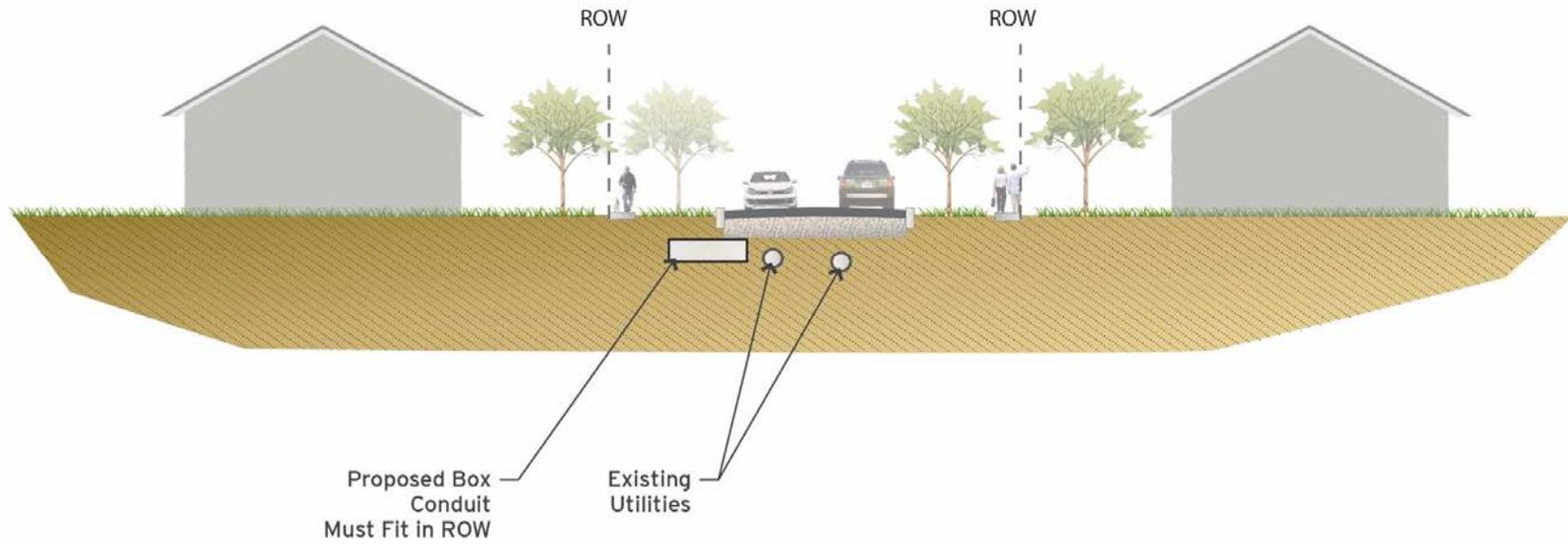




Phase 1 Projects - Conveyance



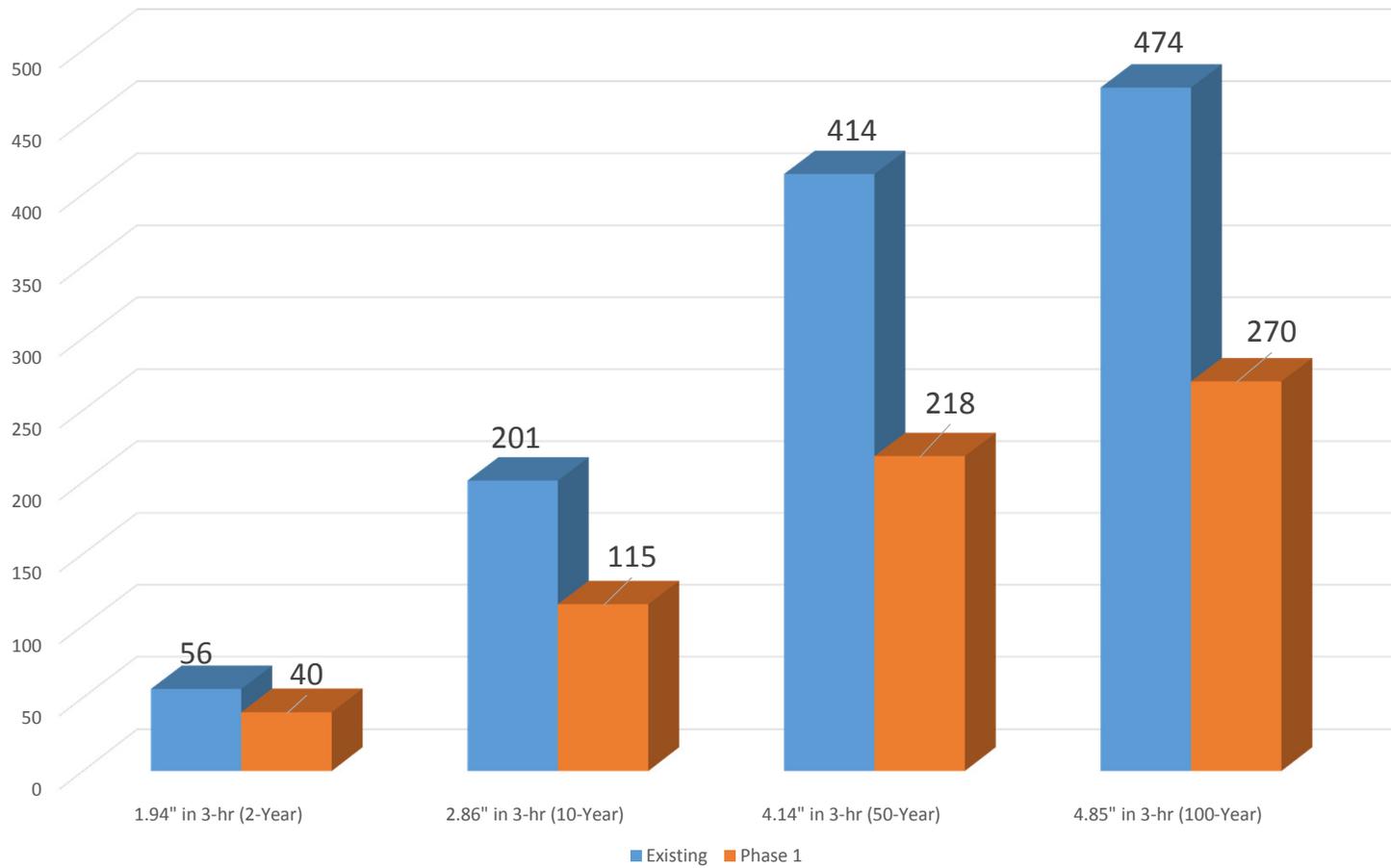
Conveyance



PROPOSED STORMWATER CONVEYANCE -
ALONG STREETS

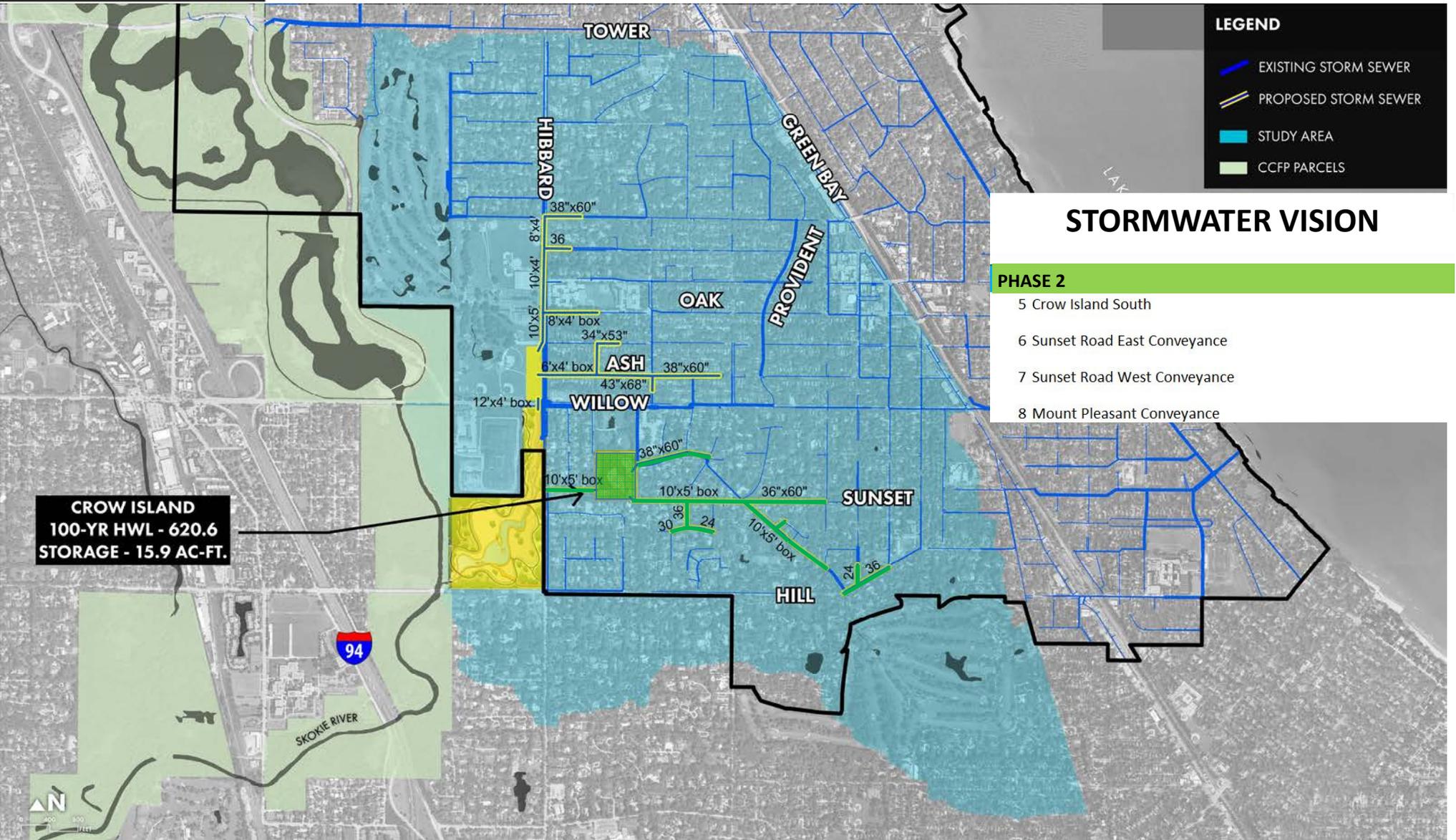
Phase 1 Results

Potentially Impacted Structures



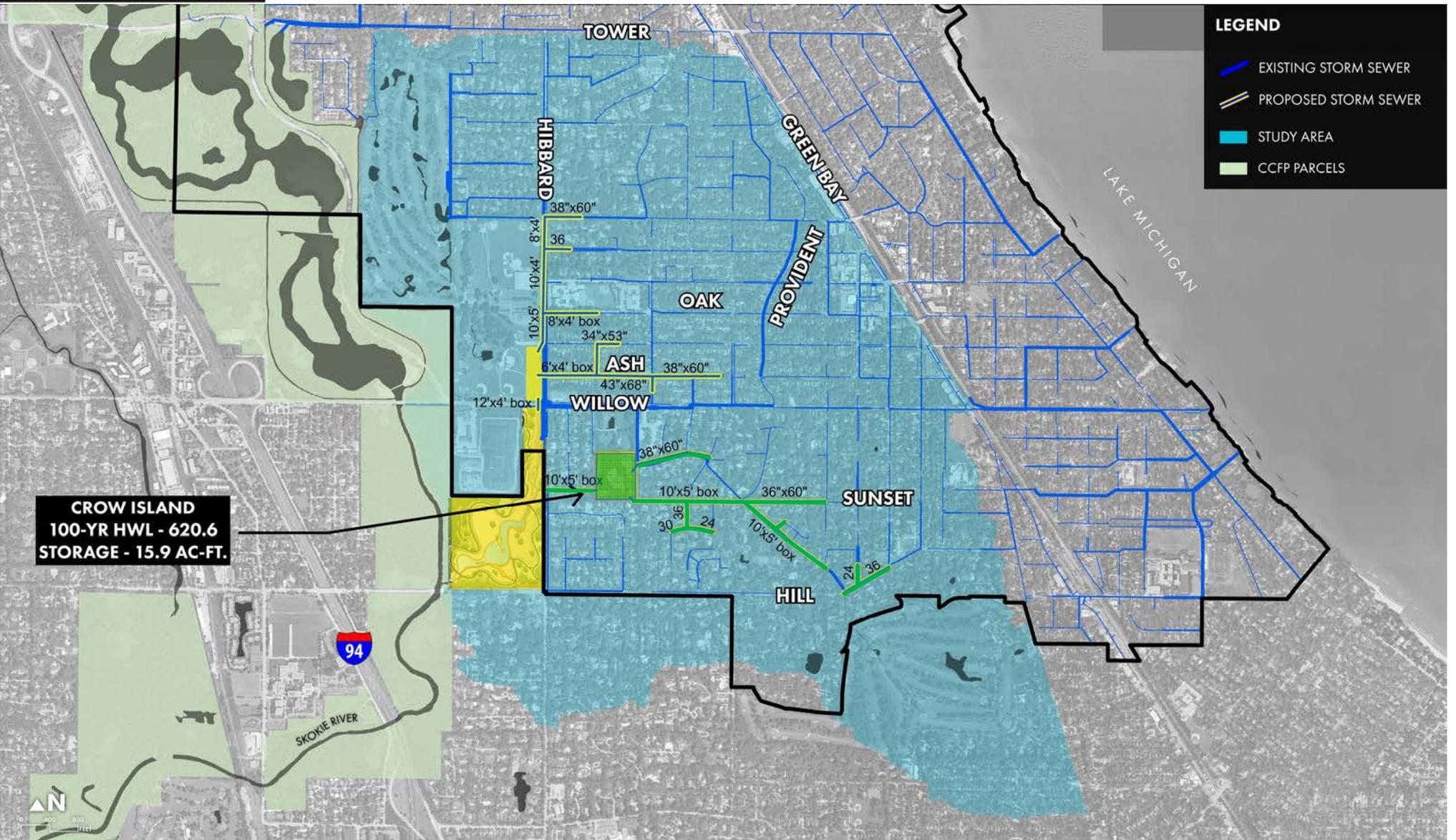
Stormwater System Performance

Phase 2 Projects

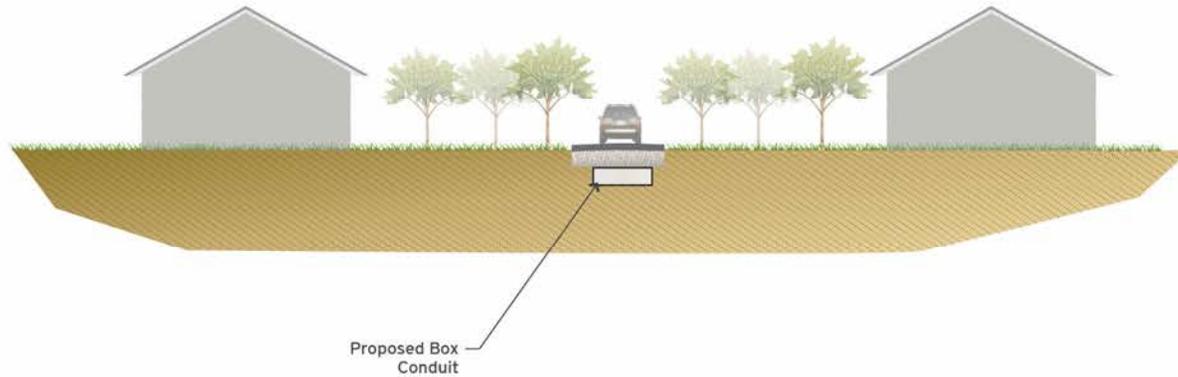




Phase 2 Projects - Conveyance



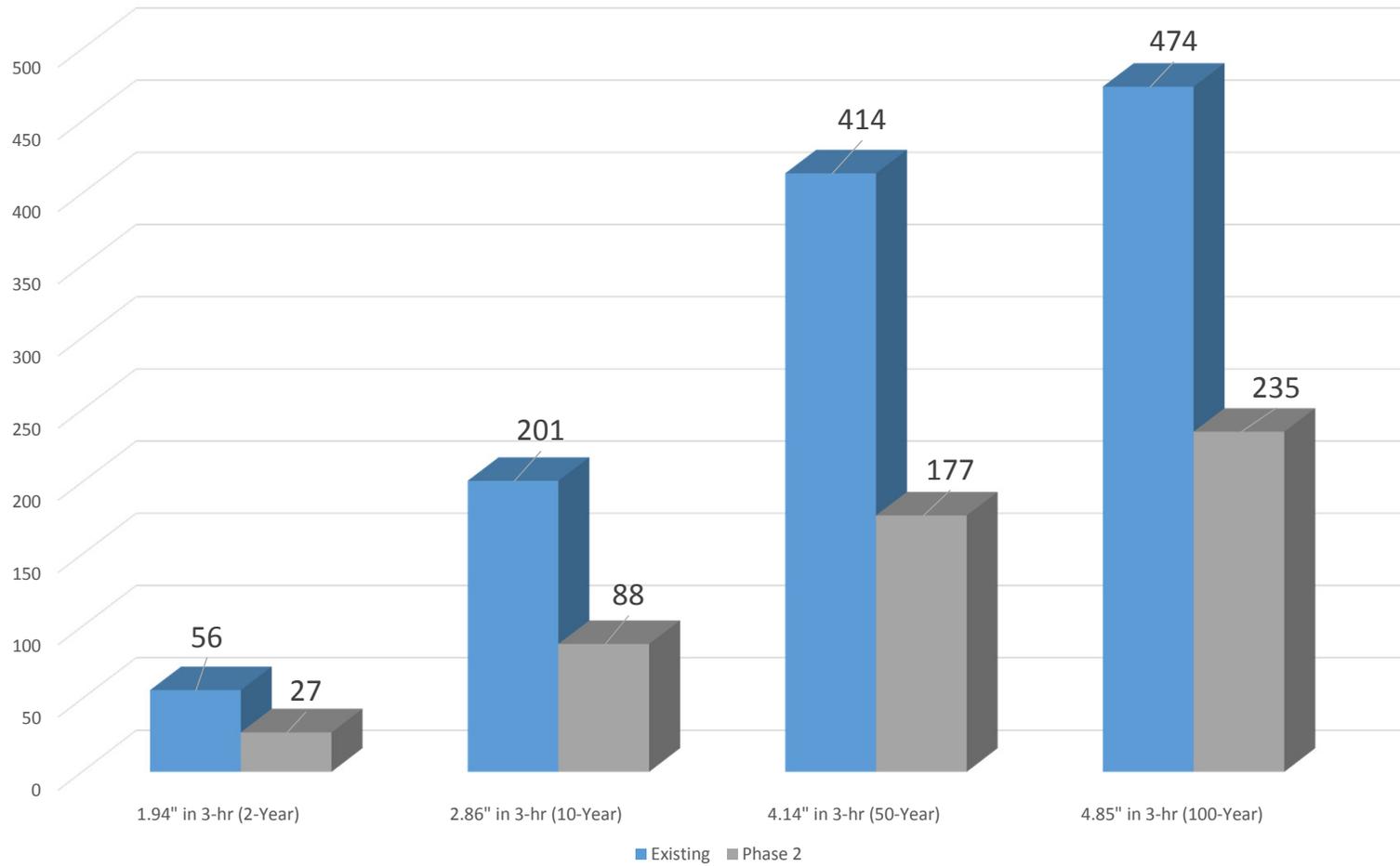
Conveyance



Sunset Avenue

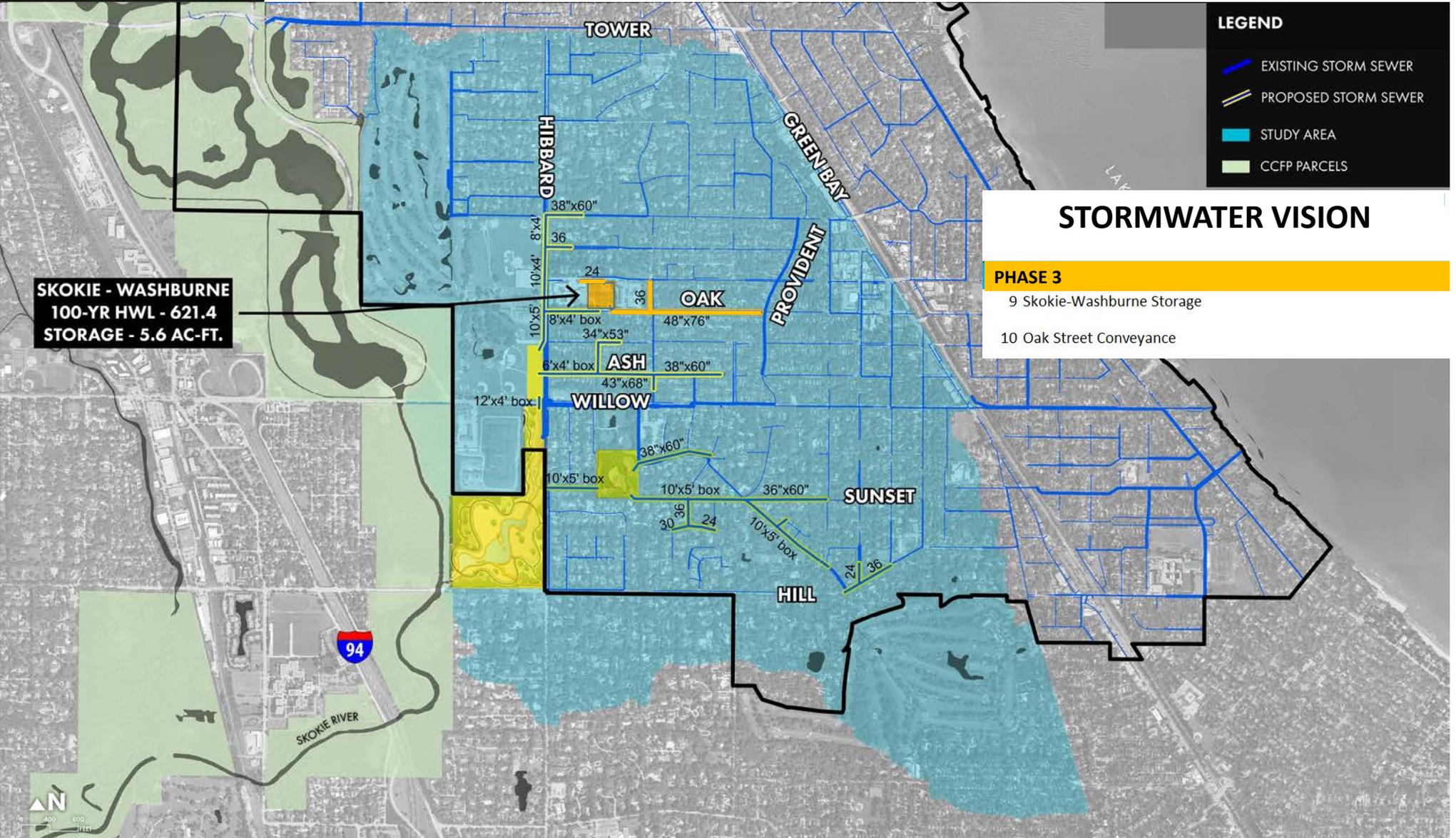
Phase 2 Results

Potentially Impacted Structures

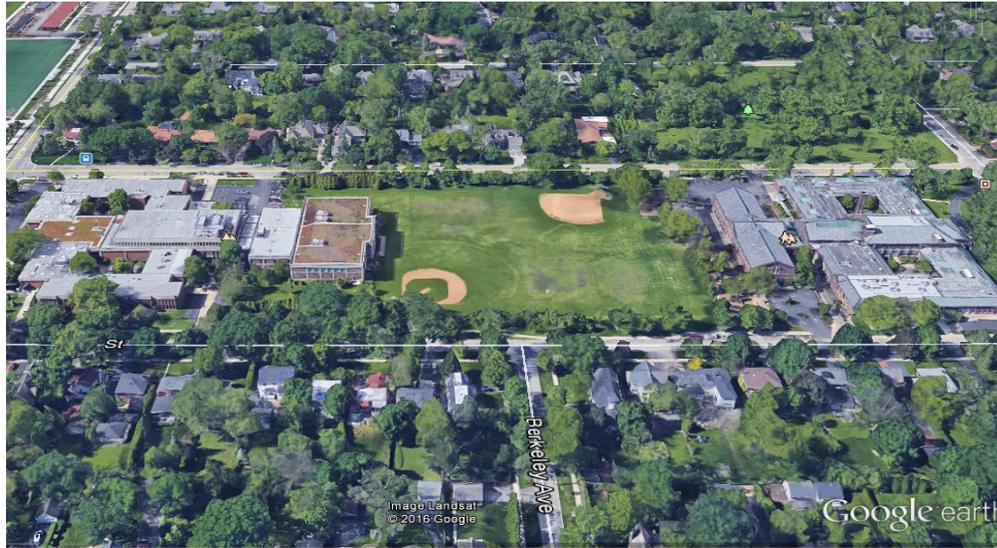


Stormwater System Performance

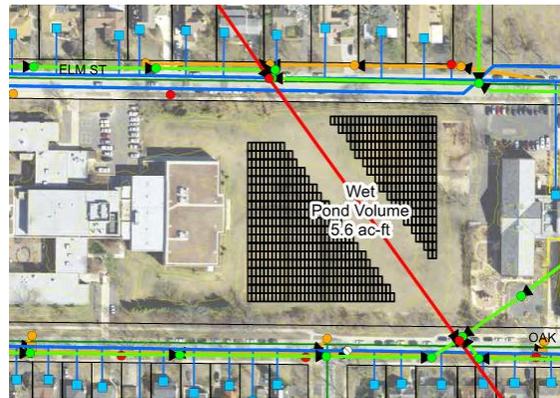
Phase 3 Projects



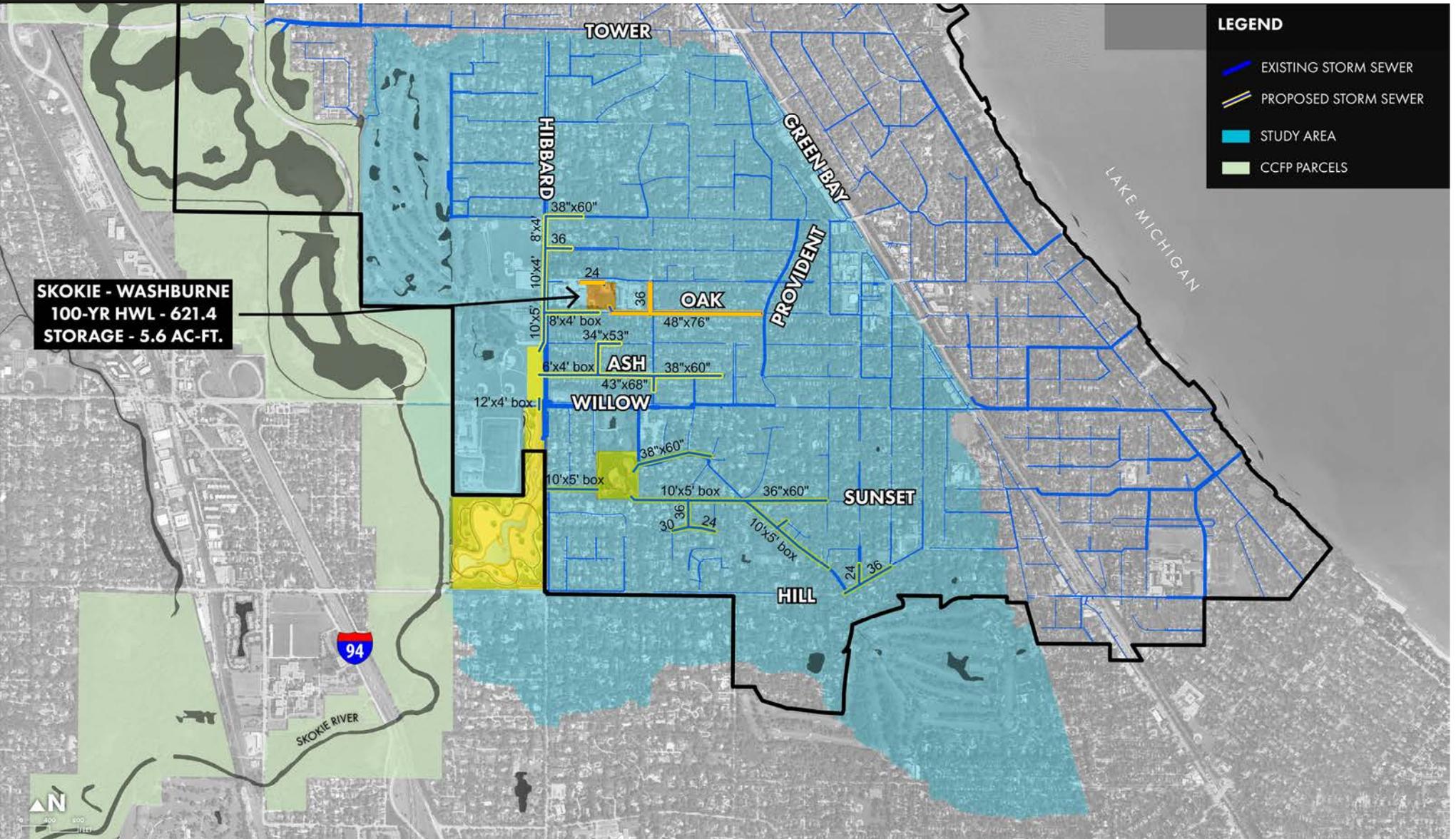
Skokie-Washburne Storage Project



Underground Storage with Playfields Rebuilt on Top

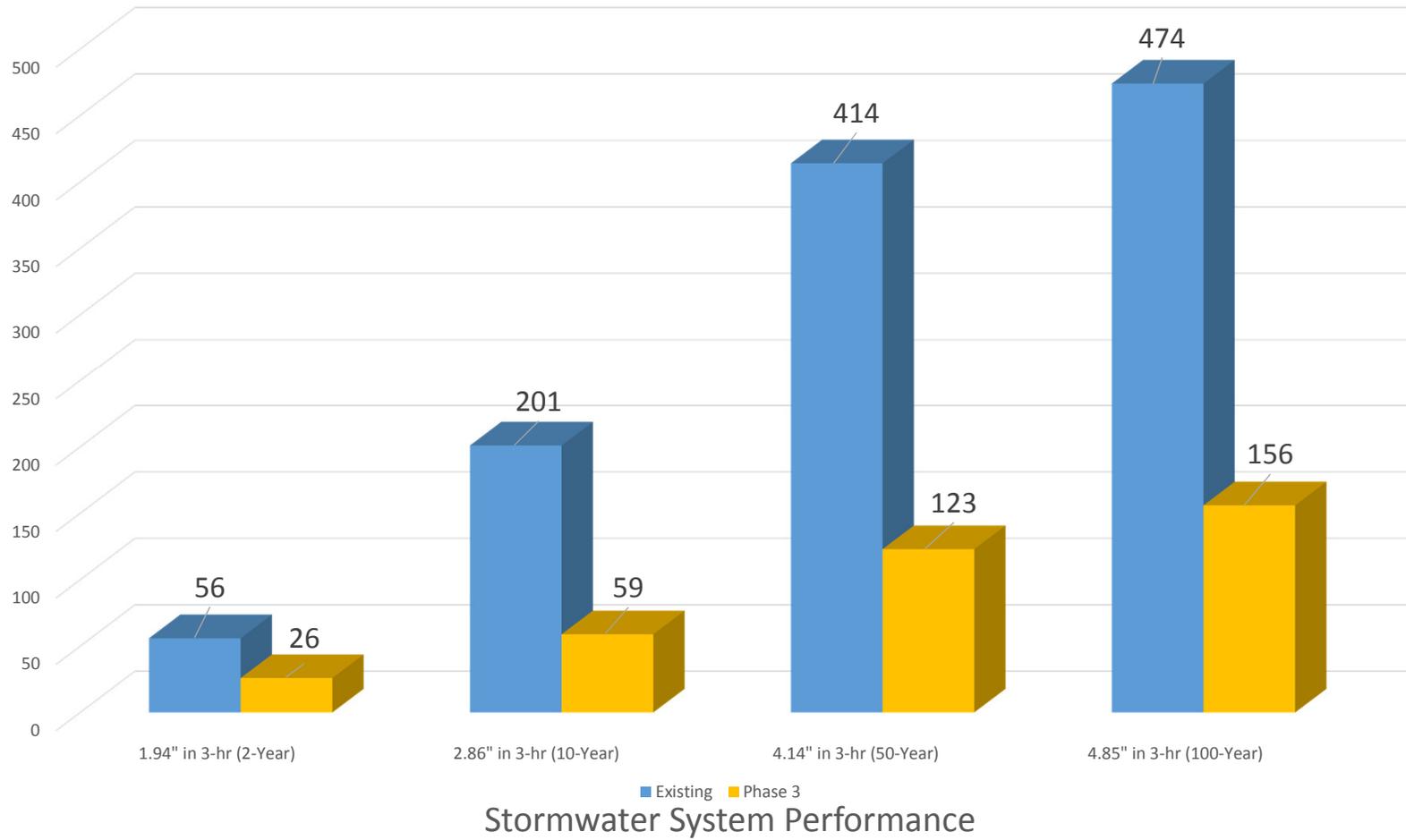


Phase 3 Projects - Conveyance



Phase 3 Results

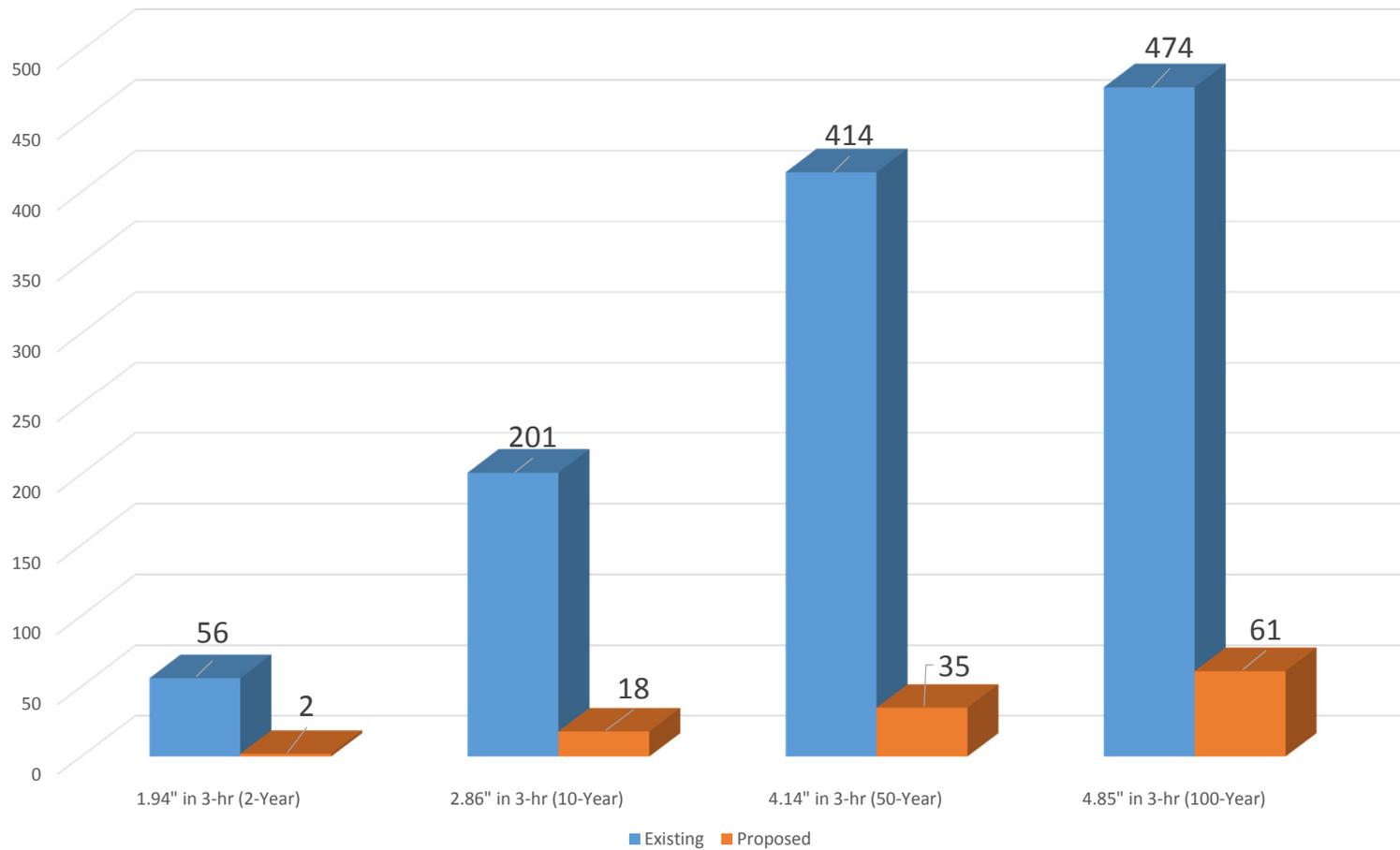
Potentially Impacted Structures





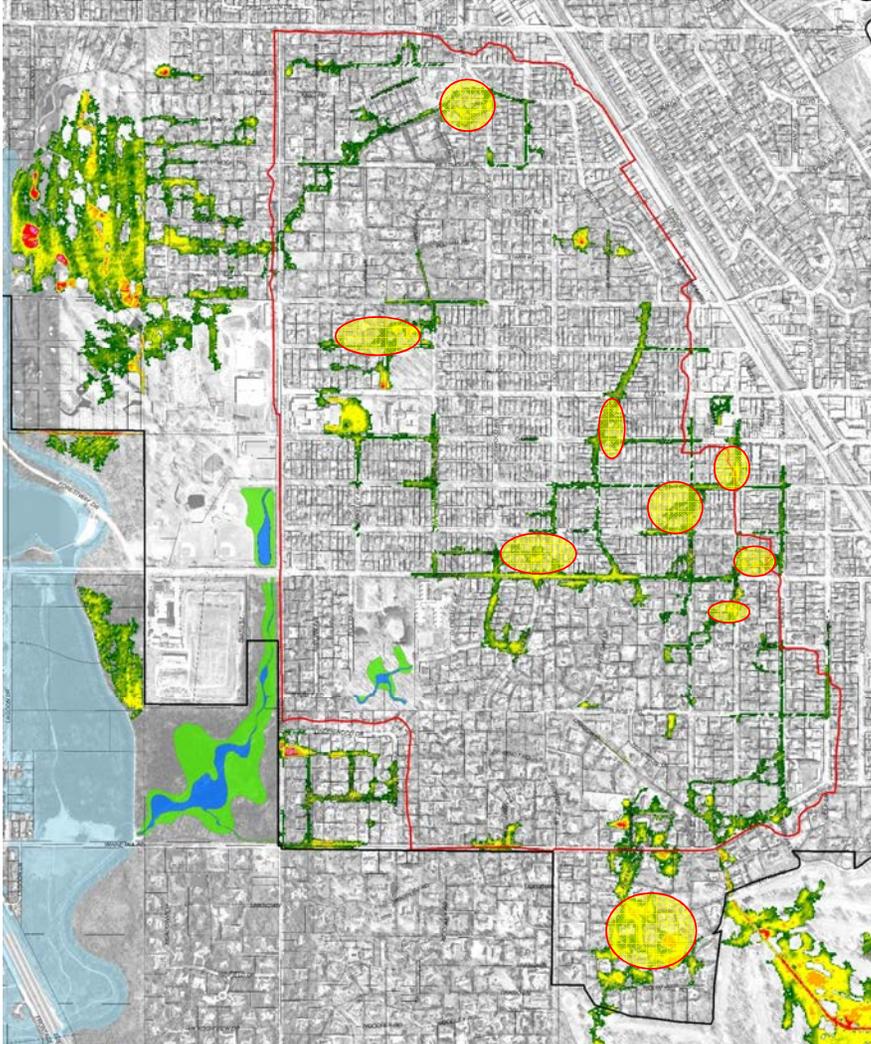
Phase 4 Results

Potentially Impacted Structures



Stormwater System Performance

Mitigation Zones



Preliminary Conceptual Cost Projection

Phase 1	Cost
○ FPDCC Hibbard Road stormwater storage project	\$ 8,582,000
○ Duke Childs lacrosse field stormwater storage project	\$ 1,005,000
○ Winnetka landfill improvements - lacrosse field relocation	\$ 2,331,000
○ Ash Street conveyance project	\$ 5,107,000
○ Hibbard Road North conveyance project	\$ 6,553,000
Total	\$ 23,578,000
Phase 2	Cost
○ Crow Island South stormwater storage project	\$ 1,841,000
○ Sunset Drive East conveyance project	\$ 10,356,000
○ Sunset Drive West conveyance project	\$ 2,821,000
○ Mount Pleasant conveyance project	\$ 1,362,000
Total	\$ 16,380,000
Phase 3	Cost
○ Washburne-Skokie school underground stormwater storage project	\$ 1,381,000
○ Oak Street conveyance project	\$ 3,294,000
Total	\$ 4,675,000
Phase 4	Cost
○ Provident local storm sewer improvement project	\$ 2,930,000
○ Willow Road local storm sewer improvement project	\$ 5,284,000
○ North of Pine conveyance project	\$ 2,408,000
○ Duke Childs/WPD Par-3 Golf Course/FPDCC storage project	\$ 2,461,000
Total	\$ 13,084,000
Project Total	\$ 57,717,000

Preliminary Conceptual Cost Projection

- Total Project Cost (in 2016 Dollars) = \$57.7 million
 - Conveyance Projects = \$40.1 million
 - Storage Projects = \$17.6 million
 - Green Infrastructure-Related Costs = \$4.0 million
 - ~7 percent of the total project cost

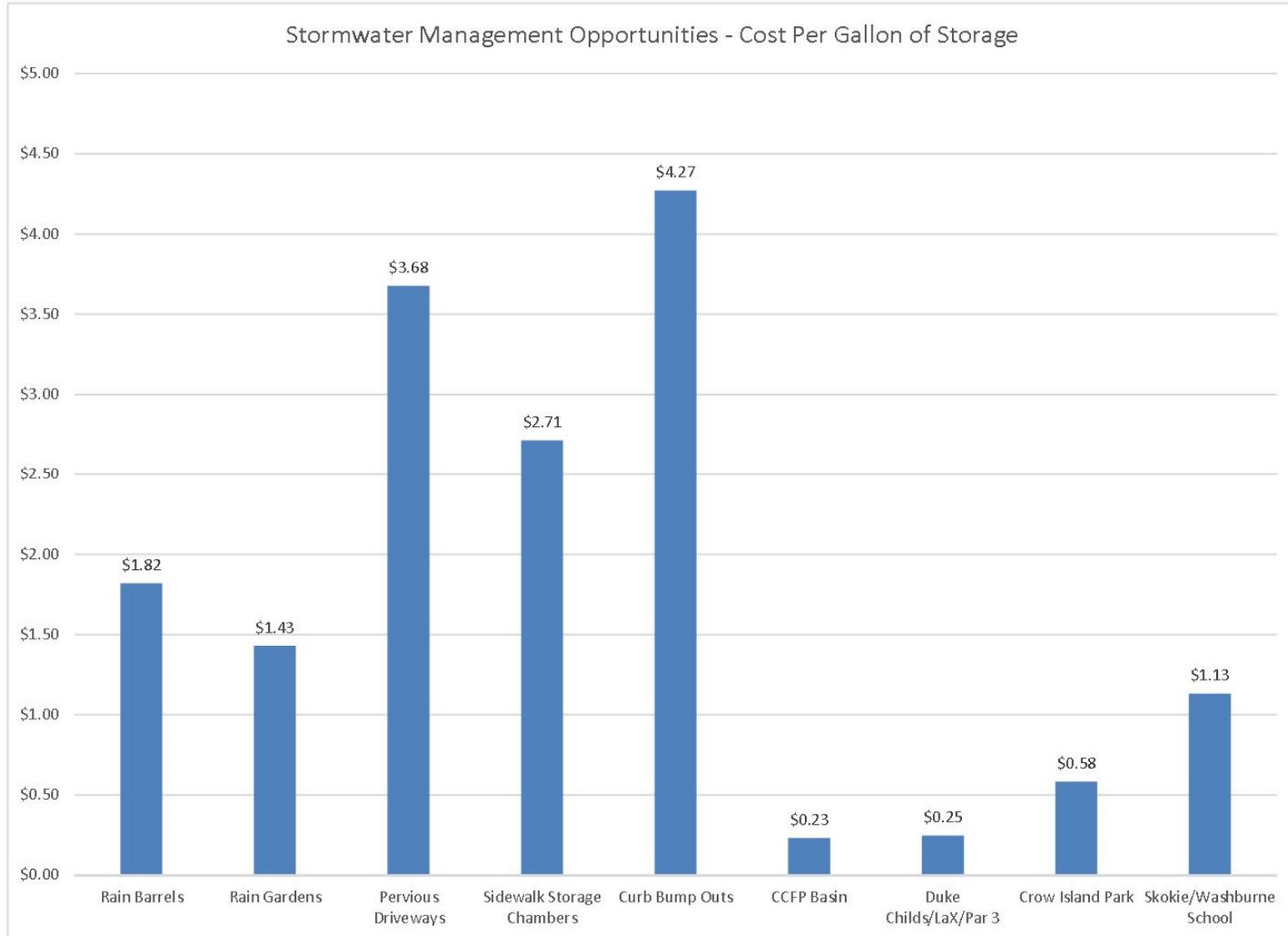
- Basis of Conceptual Cost
 - Bid Tabulation Review of Past Village and other Similar Projects
 - Review of V3/HMM 2015 Cost Evaluation (Conveyance Primarily)
 - Detailed Quantity Takeoffs Well Beyond Typical Planning Level Studies
 - Utility Conflict Resolution Considered
 - Re-use of Excess Soil Results in Significant Cost Savings

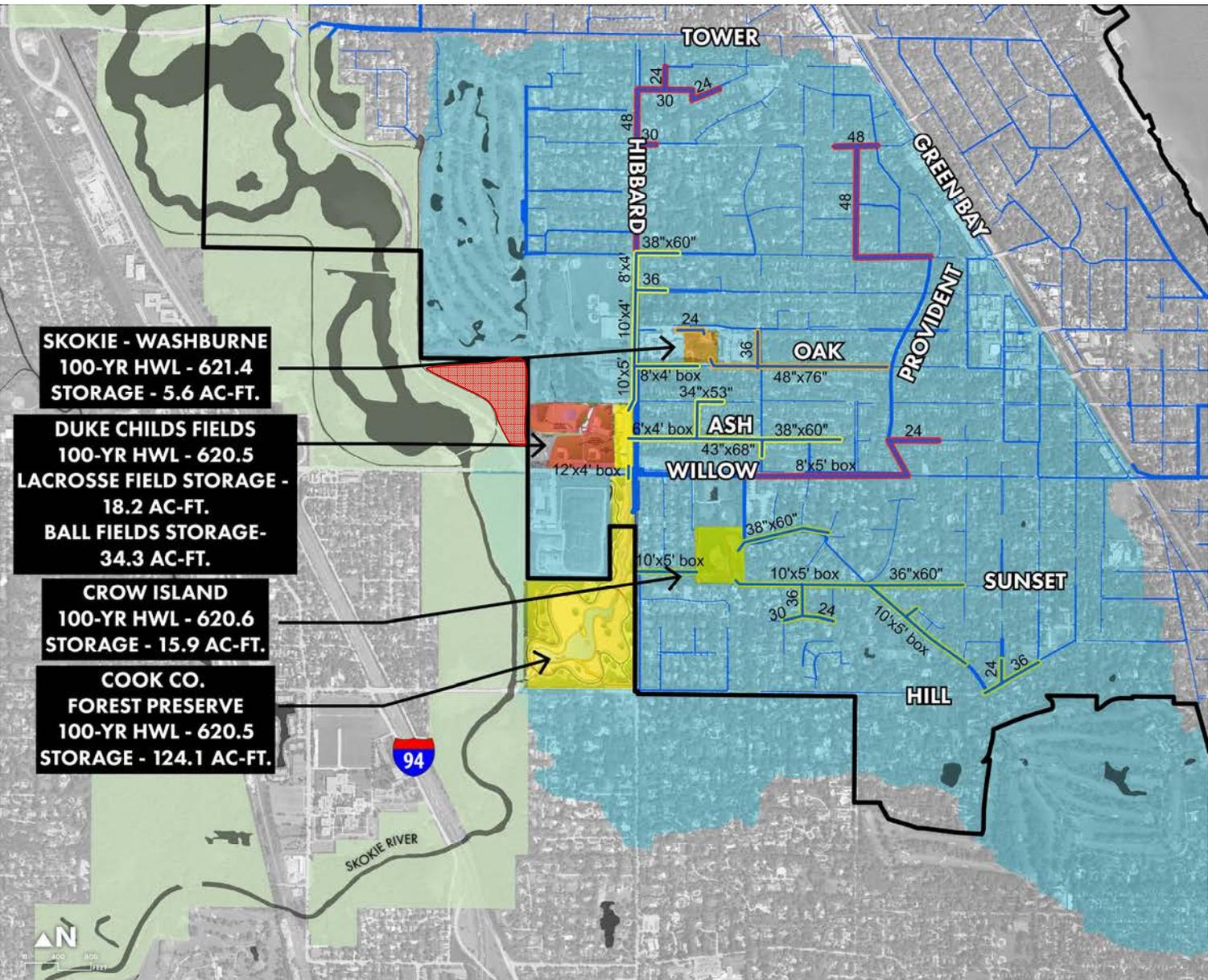
Preliminary Conceptual Cost Projection

- Design Contingencies
 - 30% for Conveyance Projects
 - 20% for Storage Projects
 - 15% Design & Construction Engineering

- Wetland Mitigation Costs (CCFP Project)

Preliminary Conceptual Cost Projection





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LEGEND

- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- STUDY AREA
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**WINNETKA WEST AND SOUTHWEST STORMWATER PLAN
PRIORITIZATION/IMPLEMENTATION**

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