

A circular seal for the City of Wheaton, Illinois. The outer ring contains the text "CITY OF WHEATON" at the top and "ILLINOIS" at the bottom. The inner circle features a stylized illustration of a town with buildings, a church, and a flag, with the date "FEBRUARY 24, 1859" written along the bottom edge.

CITY OF WHEATON

EXISTING STORMWATER MANAGEMENT

EXISTING STORM WATER MANAGEMENT SYSTEMS

THE CITY OF WHEATON IS COMPRISED OF VARIOUS STORMWATER MANAGEMENT SYSTEMS. THESE SYSTEMS INCLUDE:

- CREEKS, LAKES, MARSHES, AND WETLANDS







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SPEED
LIMIT
30





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- STORM SEWERS
- STORM WATER DETENTION





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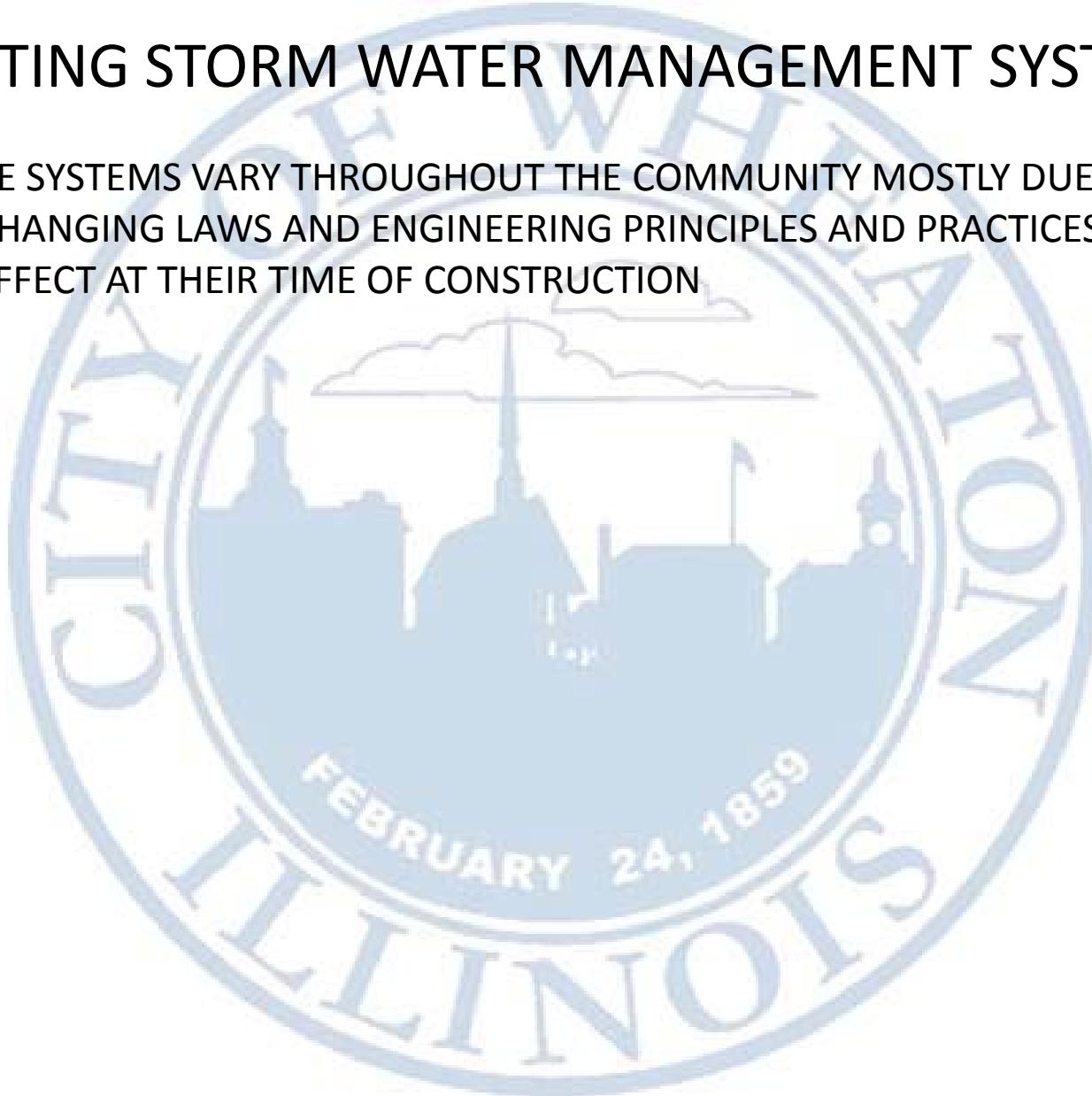
- CREEKS, LAKES, MARSHES, AND WETLANDS
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- STORM WATER RETENTION





EXISTING STORM WATER MANAGEMENT SYSTEMS

THESE SYSTEMS VARY THROUGHOUT THE COMMUNITY MOSTLY DUE TO
CHANGING LAWS AND ENGINEERING PRINCIPLES AND PRACTICES IN
EFFECT AT THEIR TIME OF CONSTRUCTION



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BEFORE THE MID TO LATE 1960's THE CITY OF WHEATON DID NOT HAVE SUBDIVISION STANDARDS. AS SUCH ANY LAND DEVELOPED BEFORE THIS TIME HAD A VARIETY OF INFRASTRUCTURE IMPROVEMENTS INSTALLED, MUCH WITHOUT FULL IMPROVEMENT.

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AFTER SUBDIVISION DEVELOPMENT STANDARDS WERE IN PLACE ALL DEVELOPMENT WAS REQUIRED TO PROVIDE COMPLETE INFRASTRUCTURE IMPROVEMENT WITH LIMITED EXCEPTIONS.

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HOWEVER ENGINEERING OF FORMAL STORMWATER MANAGEMENT DID NOT REALLY BEGIN UNTIL THE LATE 1970's TO EARLY 1980's. AS SUCH PLANNING SUBDIVISIONS IN RELATION TO WATERSHEDS MAY OR MAY NOT HAVE BEEN DONE. ALSO DETENTION / RETENTION WAS NOT TYPICALLY CONSTRUCTED UNTIL THEN.

HISTORICAL APPROACH TO INFRASTRUCTURE IMPROVEMENT

DUE TO THE VARIETY OF PUBLIC IMPROVEMENTS IN ANY GIVEN GEOGRAPHICAL AREA OF THE CITY, THE CITY HAS HISTORICALLY MAINTAINED, AS IS, THE EXISTING IMPROVEMENTS (EXCEPT FOR WATER MAINS AND SIDEWALKS) WITHIN A GIVEN NEIGHBORHOOD. THE CITY HAS NOT, WITH SOME EXCEPTION, UPGRADED THE ORIGINAL IMPROVEMENTS OR ADDED MISSING COMPONENTS OF THE INFRASTRUCTURE SYSTEM. EXCEPTIONS HAVE BEEN FOR MAJOR STREETS WHERE WIDENING, CURB & GUTTER IMPROVEMENTS, STREET LIGHTING, AND SIDEWALKS WERE DETERMINED TO BE NECESSARY BASED UPON THE TRAFFIC VOLUME OF THE STREET. IN ADDITION, THE CITY HAS PLACED SOME SIDEWALK IN NEIGHBORHOODS ADJACENT TO SCHOOLS IN AN EFFORT TO FACILITATE STUDENTS' MOVEMENT TO AND FROM THE SCHOOLS.

HISTORICAL APPROACH TO INFRASTRUCTURE IMPROVEMENT

WHEN APPROACHED BY RESIDENTS IN GEOGRAPHICAL AREAS WHERE COMPLETE INFRASTRUCTURE SYSTEMS DO NOT EXIST WHO ASK FOR THE INSTALLATION OF MISSING INFRASTRUCTURE COMPONENTS, THE CITY HAS HISTORICALLY SUGGESTED THAT THE RESIDENT ESTABLISH A SPECIAL TAXING DISTRICT IN THE GEOGRAPHICAL AREA FOR THE PURPOSE OF INSTALLING THE DESIRED IMPROVEMENTS. THE GENERAL PHILOSOPHY WITH THIS APPROACH HAS BEEN THAT WHERE FULL IMPROVEMENTS EXIST, THE ORIGINAL HOMEOWNERS, IN THE PRICE OF THE HOME, PAID FOR THE IMPROVEMENTS. A LOWER HOME SALE PRICE IN AREAS WITHOUT COMPLETE IMPROVEMENTS WAS REFLECTIVE OF THE LACK OF TOTAL IMPROVEMENTS. TO DATE, NO SPECIAL TAXING DISTRICTS HAVE BEEN ESTABLISHED FOR THIS PURPOSE.

-Memo: Strategic Issues – Infrastructure Improvement
January 16, 2008

EXISTING STORM WATER SYSTEM MAINTENANCE

CREEKS, LAKES, MARSHES, AND WETLANDS

- THESE SYSTEMS ARE GENERALLY LEFT AS WILD, NATURAL, SELF MAINTAINING SYSTEMS WITH NO PLANNED YEARLY MAINTENANCE. MAINTENANCE SUCH AS DREDGING OF MAN MADE LAKES OR REMOVAL OF FELLED TREES IS PROVIDED WHEN THE NEED ARISES.

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GRADED SWALES

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ROADSIDE DITCHES & CULVERTS

- DITCHES HAVE BEEN HISTORICALLY LEFT TO ADJOINING PRIVATE PROPERTY OWNERS TO MAINTAIN JUST LIKE THE PARKWAY. CULVERTS ARE REQUIRED TO BE MAINTAINED BY THE PROPERTY SERVED. AS SUCH DITCHES AND CULVERTS ARE MAINTAINED AT WHATEVER LEVEL THE ADJOINING OWNER PROVIDES. CITY OWNED CULVERTS THAT FLOW UNDER STREETS ARE MAINTAINED BY THE SEWER DIVISION.

EXISTING STORM WATER SYSTEM MAINTENANCE

CURB AND GUTTER

- CURB AND GUTTER IS MAINTAINED AND REPAIRED ON A CONSTANT BASIS BY THE CITY OF WHEATON STREETS DIVISION AND BY THE ROAD PROGRAM.

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STORM SEWERS

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STORM WATER DETENTION PONDS & STORM WATER RETENTION PONDS

- RESIDENTIAL DEVELOPMENT
 - STORM SEWERS & STRUCTURES MAINTAINED BY CITY OF WHEATON
 - BASINS OWNED & MAINTAINED BY PRIVATE OWNER, BY H.O.A, OR BY WHEATON PARK DISTRICT
- COMMERCIAL DEVELOPMENT / P.U.D
 - STORM SEWERS & STRUCTURES ARE PRIVATELY MAINTAINED
 - BASINS ARE PRIVATELY MAINTAINED

ALL COMPLAINTS ABOUT CURRENT STORMWATER MANAGEMENT HAVE BEEN CATEGORIZED AND MAPPED

COMPLAINTS HAVE BEEN CATEGORIZED AS FOLLOWS:

- SANITARY BACKUPS
- OVERLAND FLOODING (NON-FLOODPLAIN)
- BASEMENT FLOODING (ANY STORM WATER IN BASEMENT)
- OVERLAND FLOODING (FLOODPLAIN)
- OVERLAND FLOODING (ACCESSORY STRUCTURE)
- STANDING WATER IN ROADSIDE DITCH / ROW
- STANDING WATER ON PRIVATE PROPERTY

MISCELLANEOUS

- ILLEGAL SUMP PUMP DISCHARGE
- ILLEGAL DOWNSPOUT DISCHARGE
- ILLEGAL CHANGE IN GRADES
- DEBRIS AFFECTING DRAINAGE
- ICING IN WINTER
- SUMP PUMP RUNS A LOT

COMPLAINTS ARE NOT RANKED IN ANY SPECIFIC ORDER

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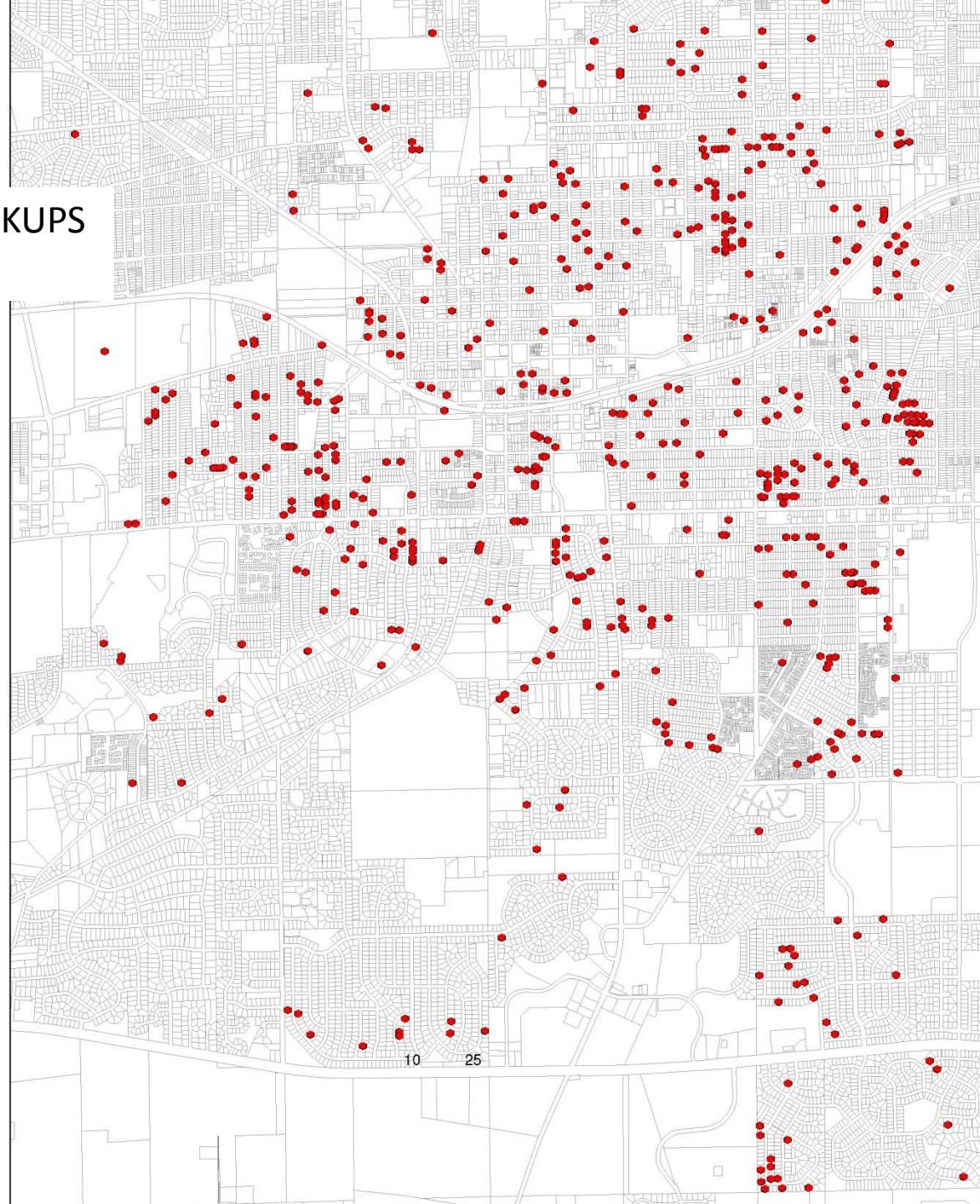
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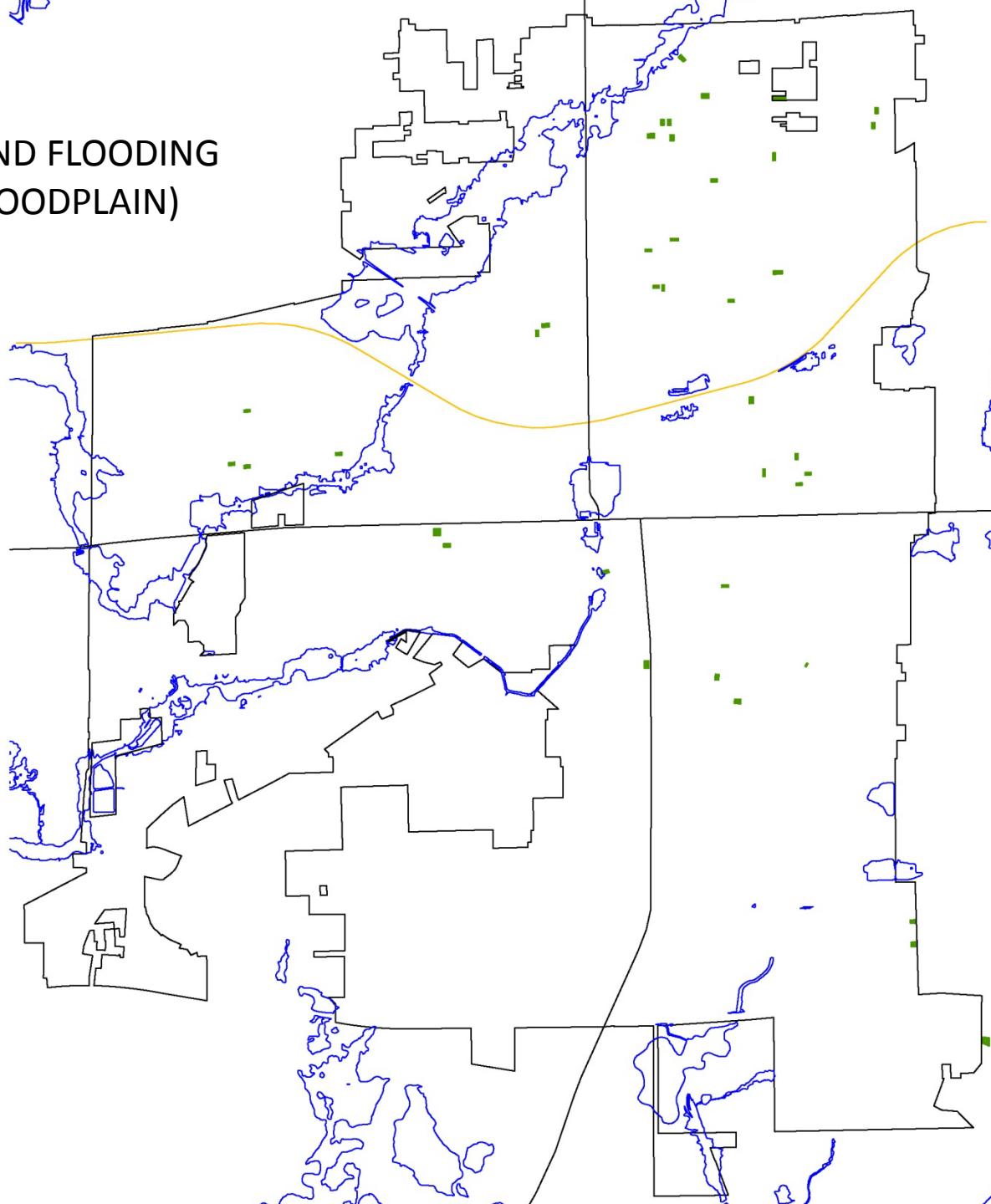
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HOPE IS THAT COMPLAINTS HAVE CORRELATION AND AS SUCH CAN HELP GUIDE US TO PROBLEM AREAS

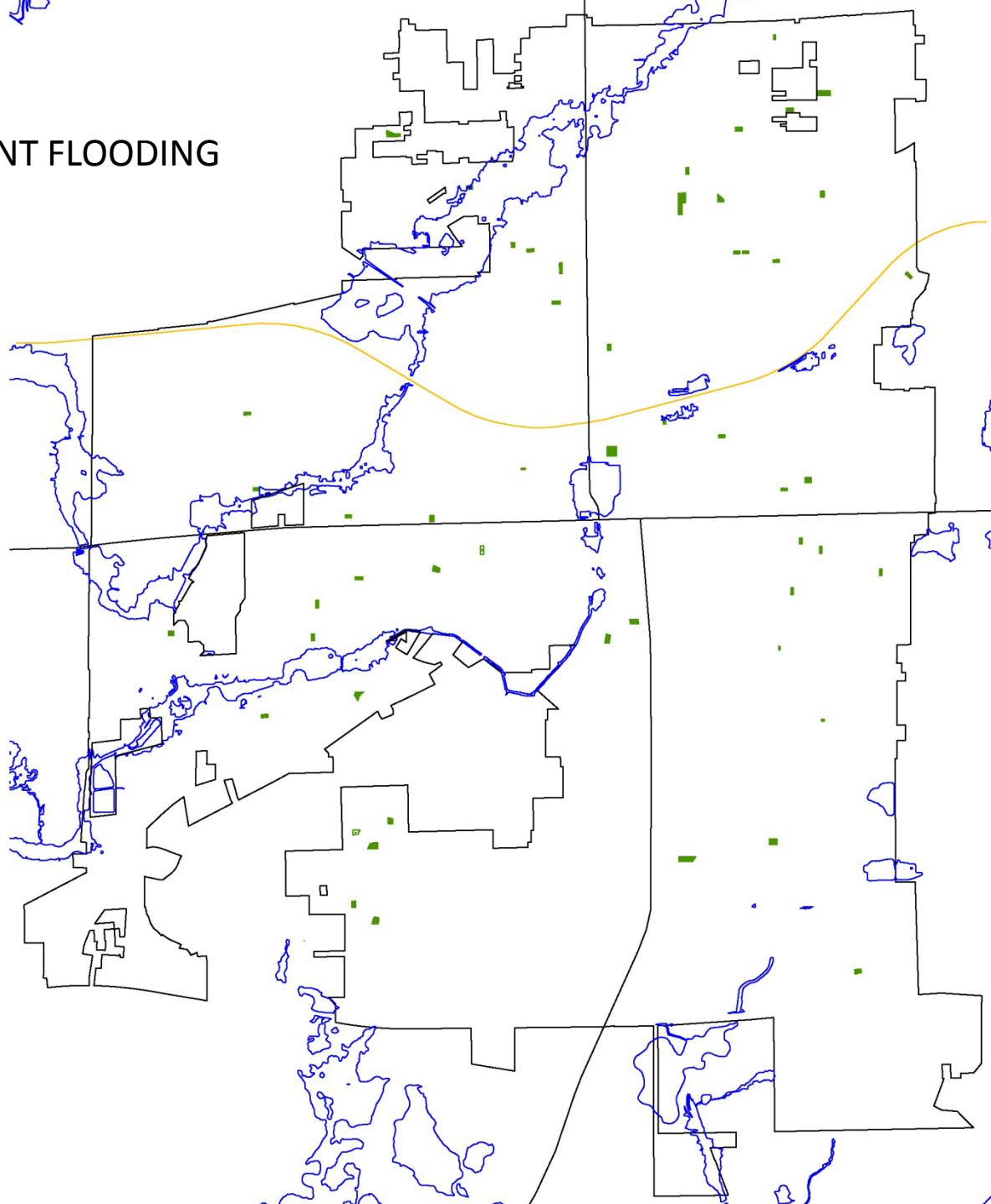
SANITARY BACKUPS (1978-1998)



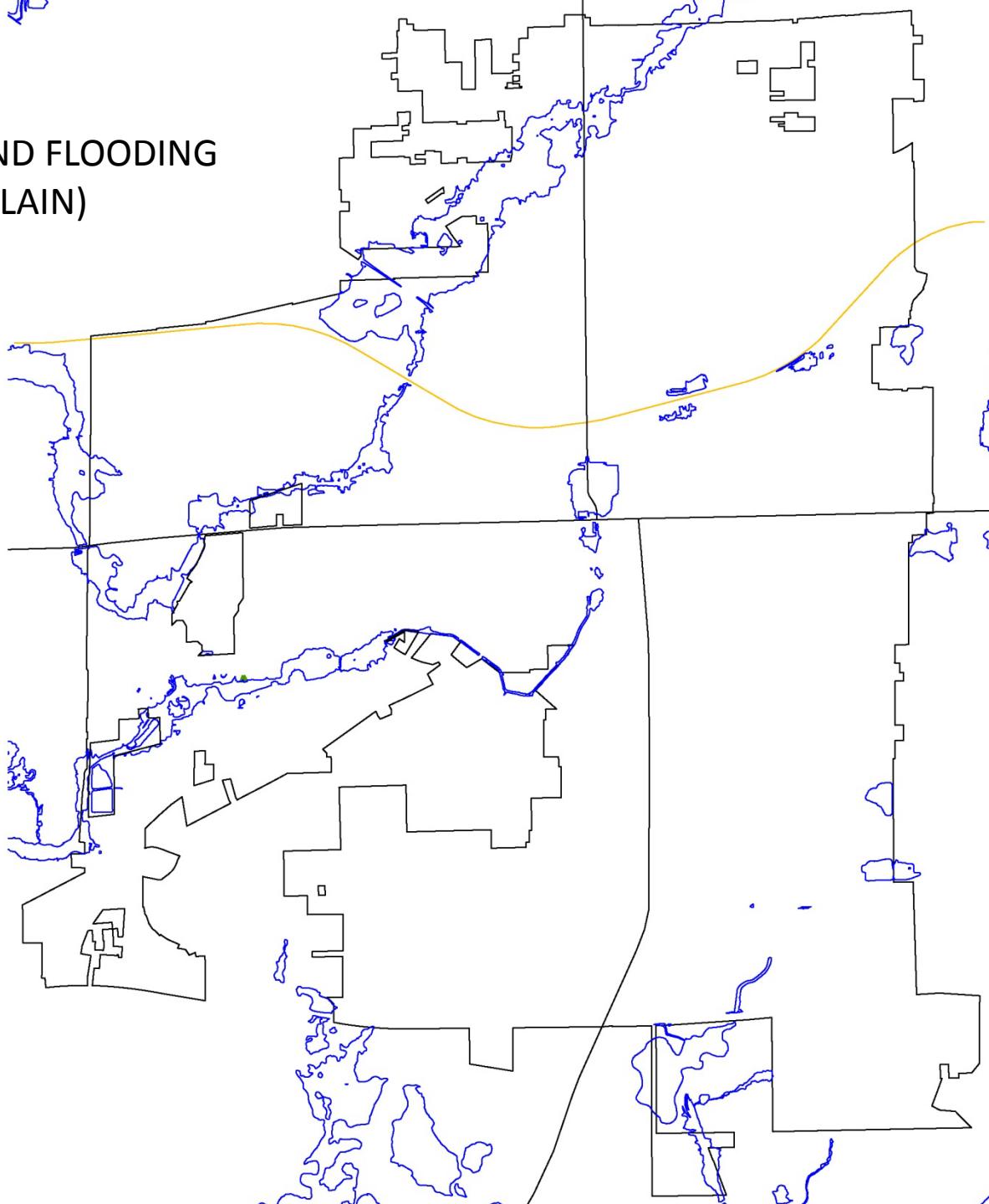
OVERLAND FLOODING
(NON-FLOODPLAIN)



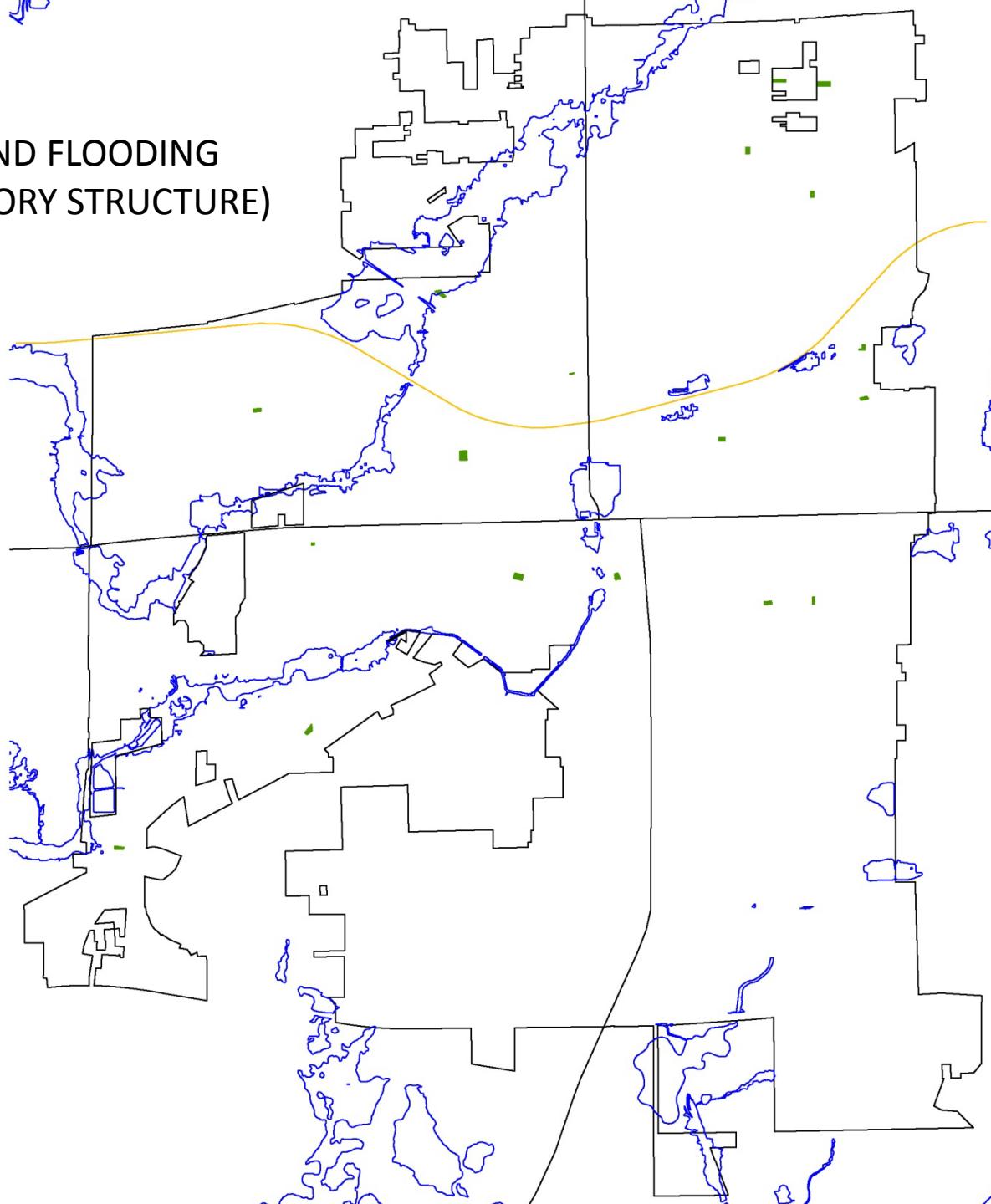
BASEMENT FLOODING



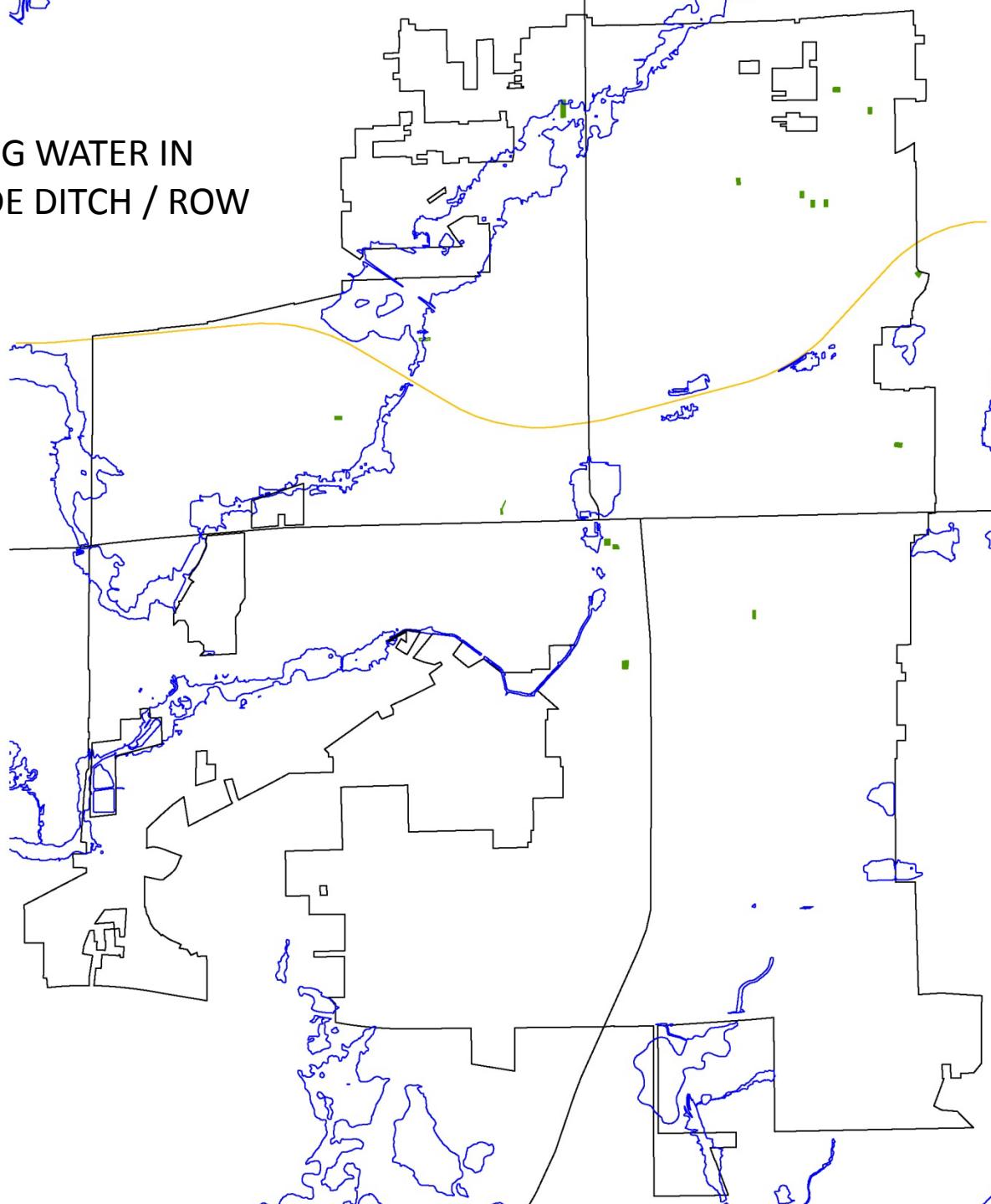
OVERLAND FLOODING
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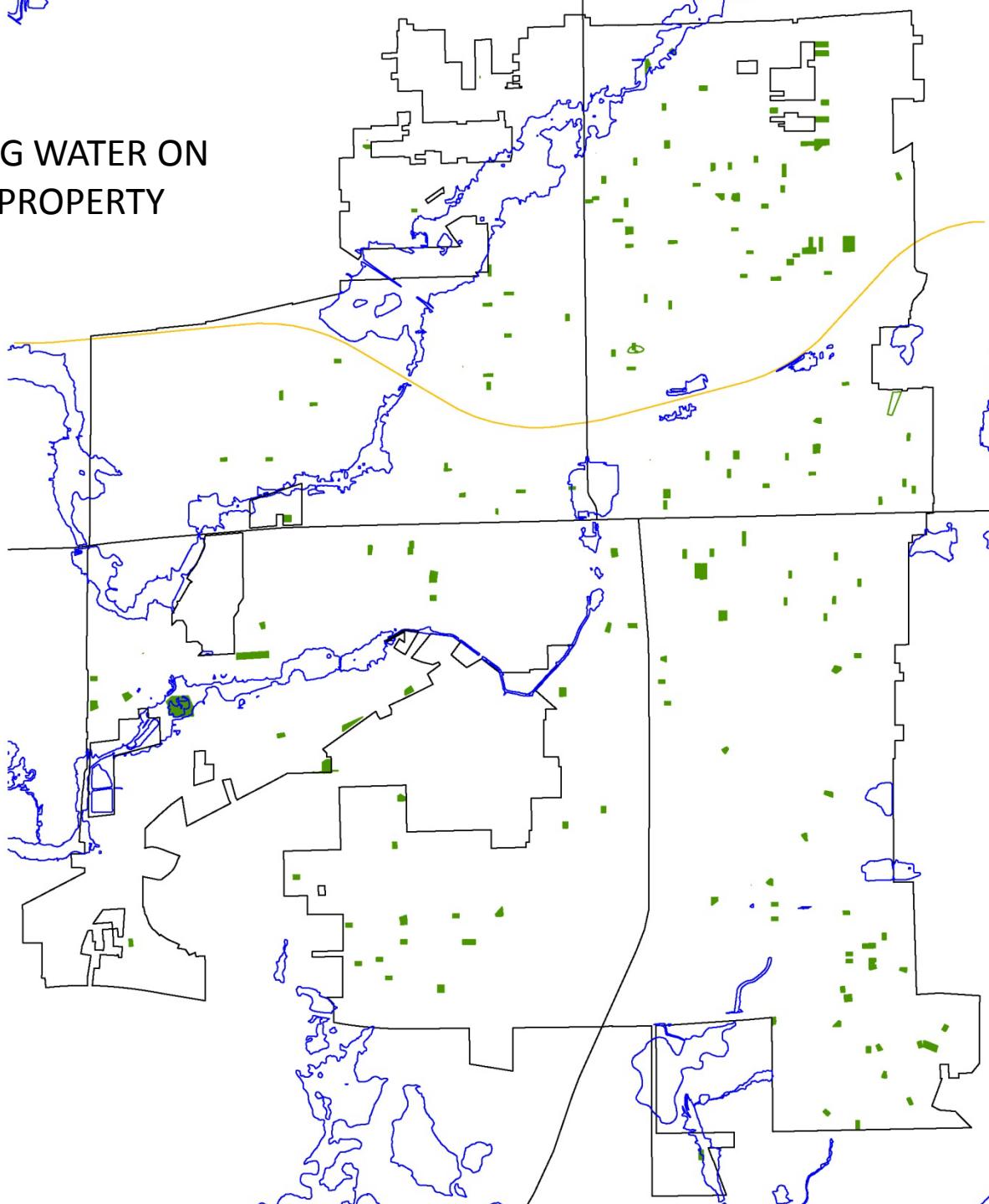
OVERLAND FLOODING
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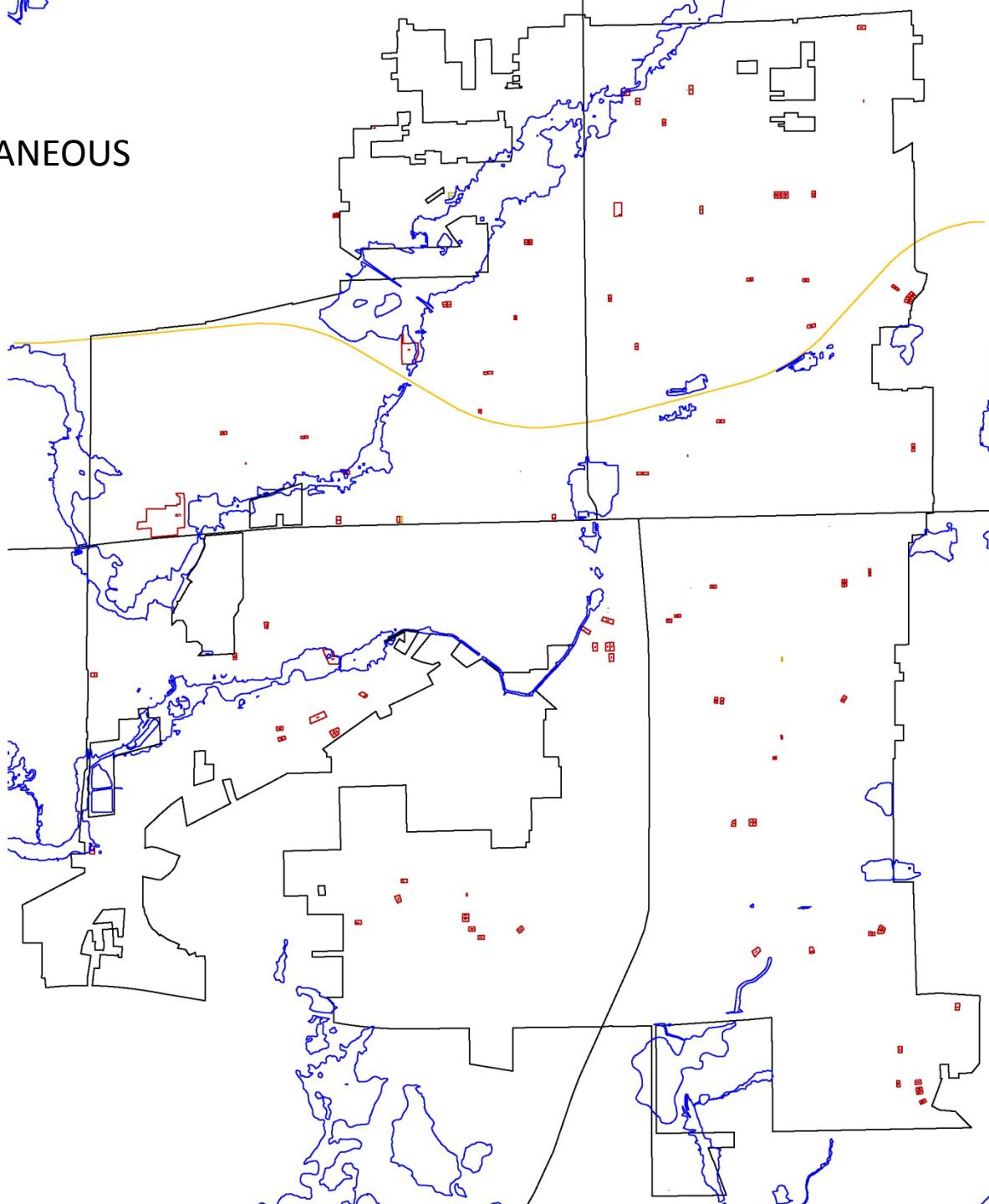
**STANDING WATER IN
ROADSIDE DITCH / ROW**



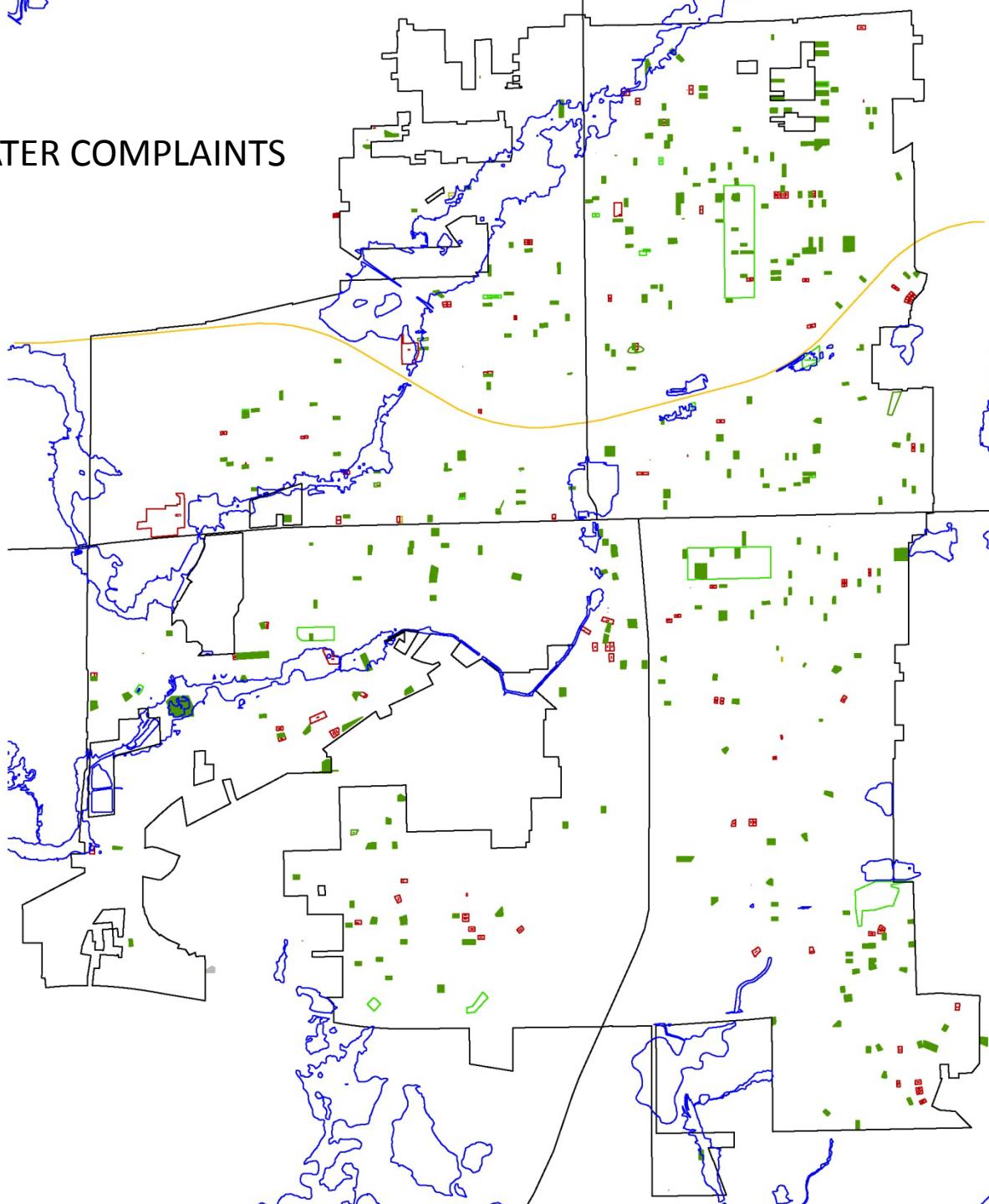
STANDING WATER ON PRIVATE PROPERTY



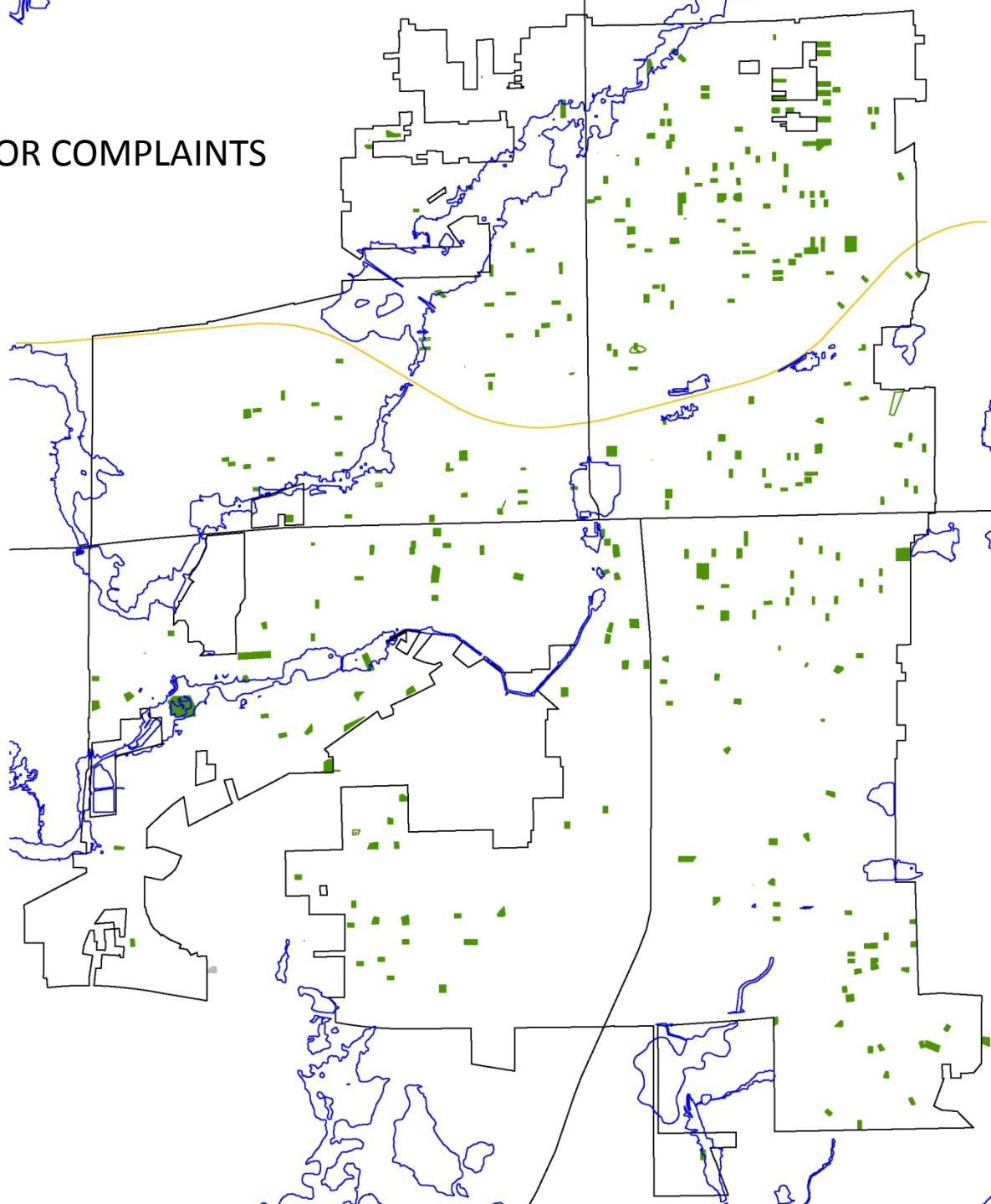
MISCELLANEOUS



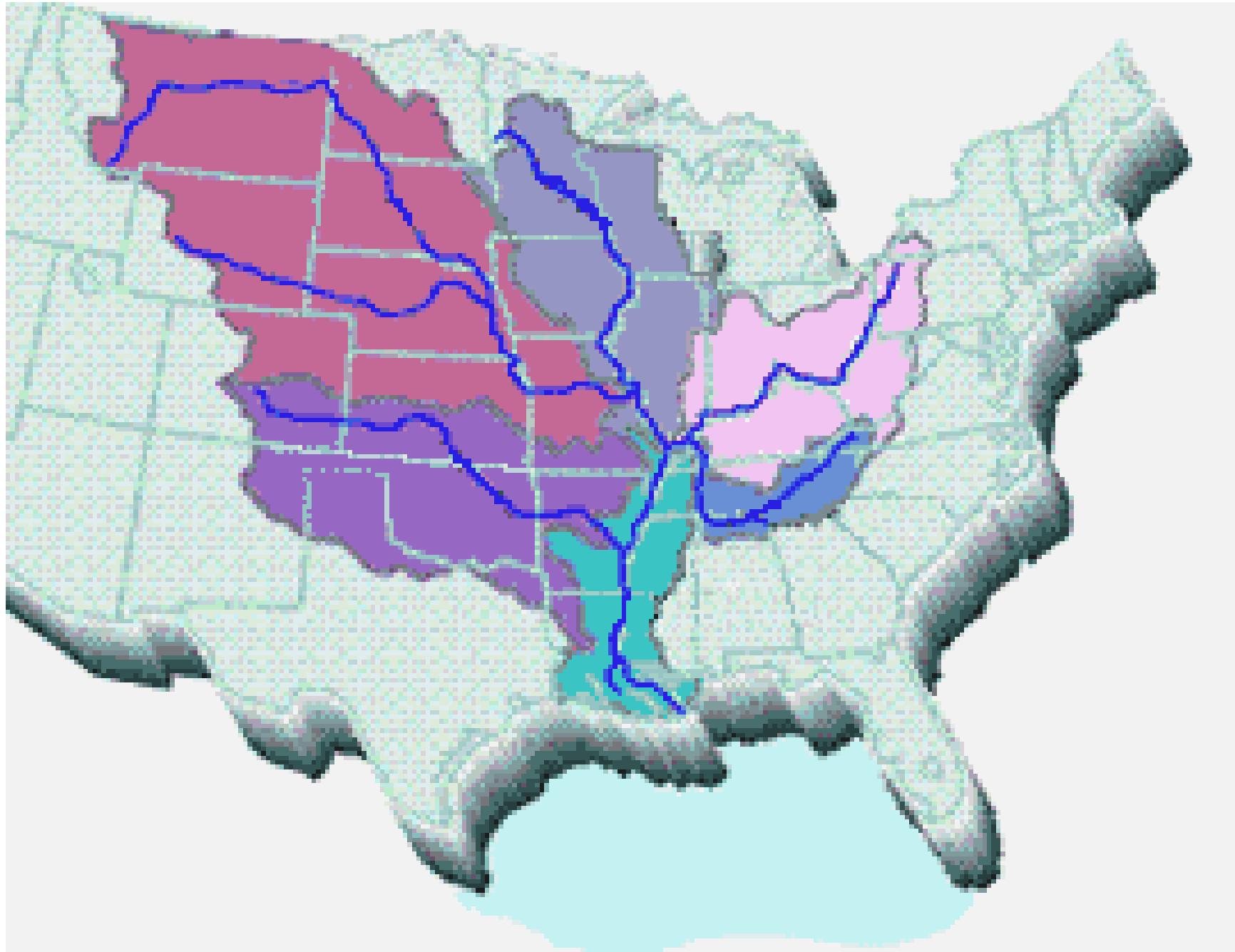
ALL STORMWATER COMPLAINTS



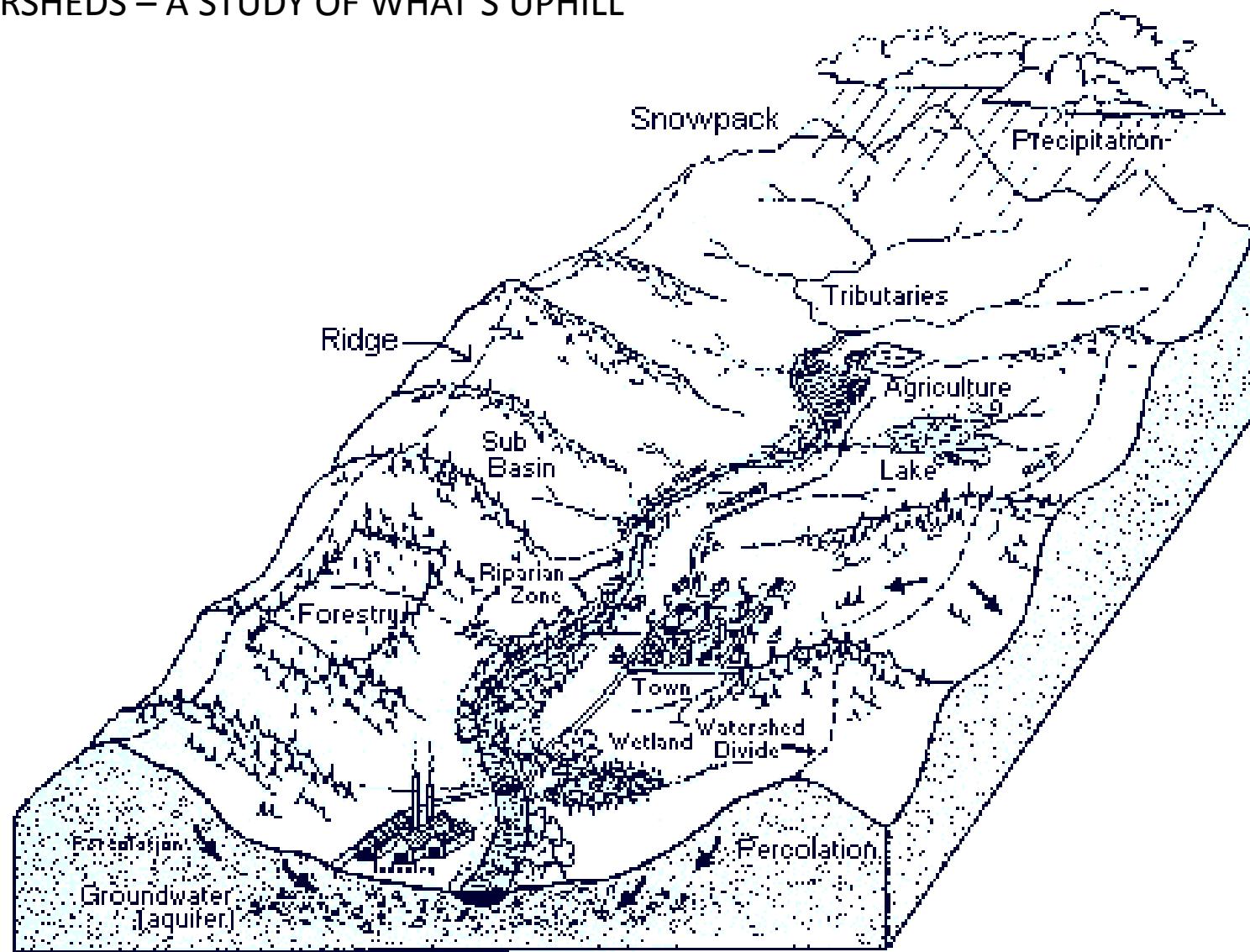
ALL MAJOR COMPLAINTS



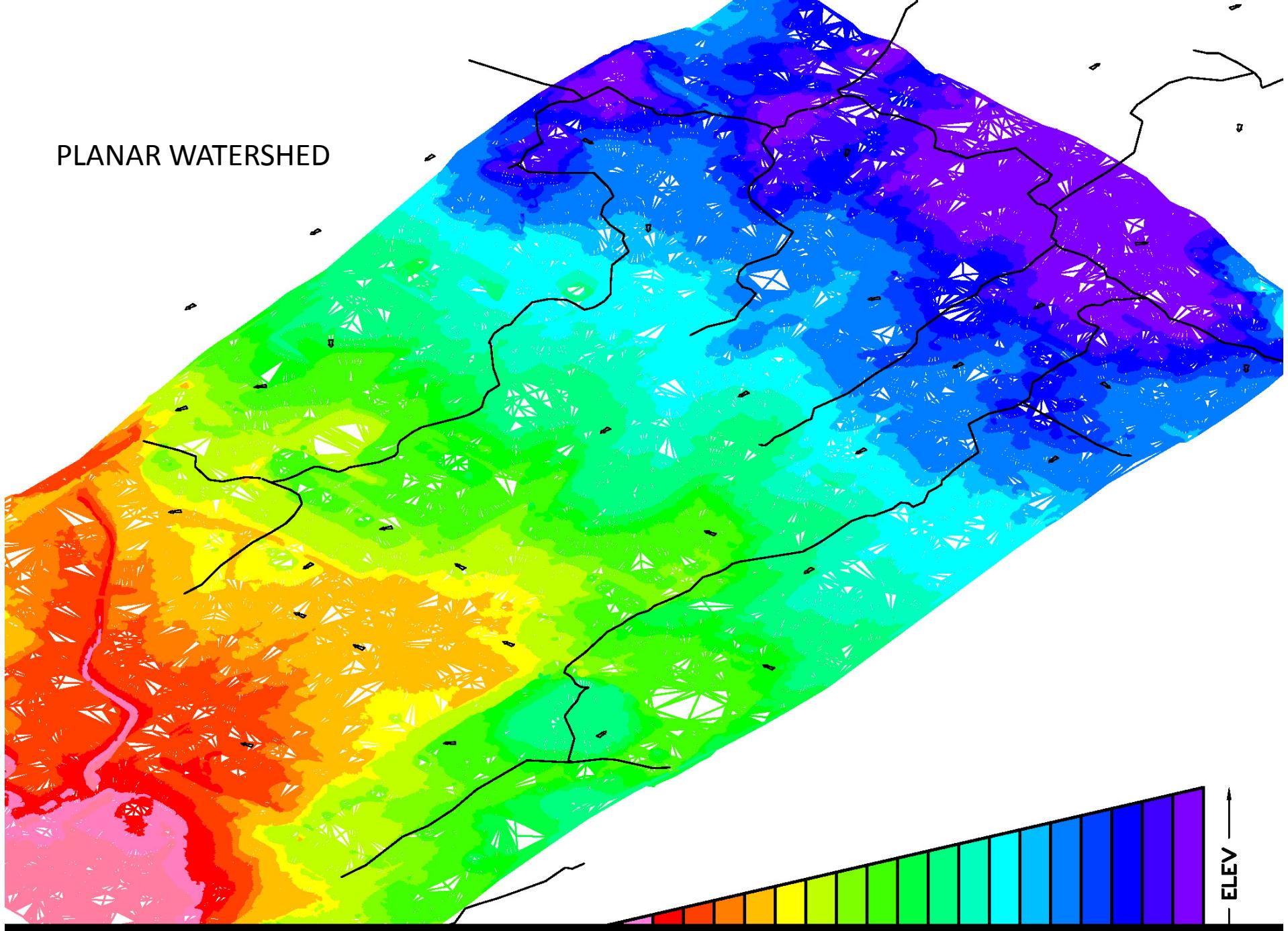
WATERSHEDS DELINEATE WHAT DRAINS WHERE



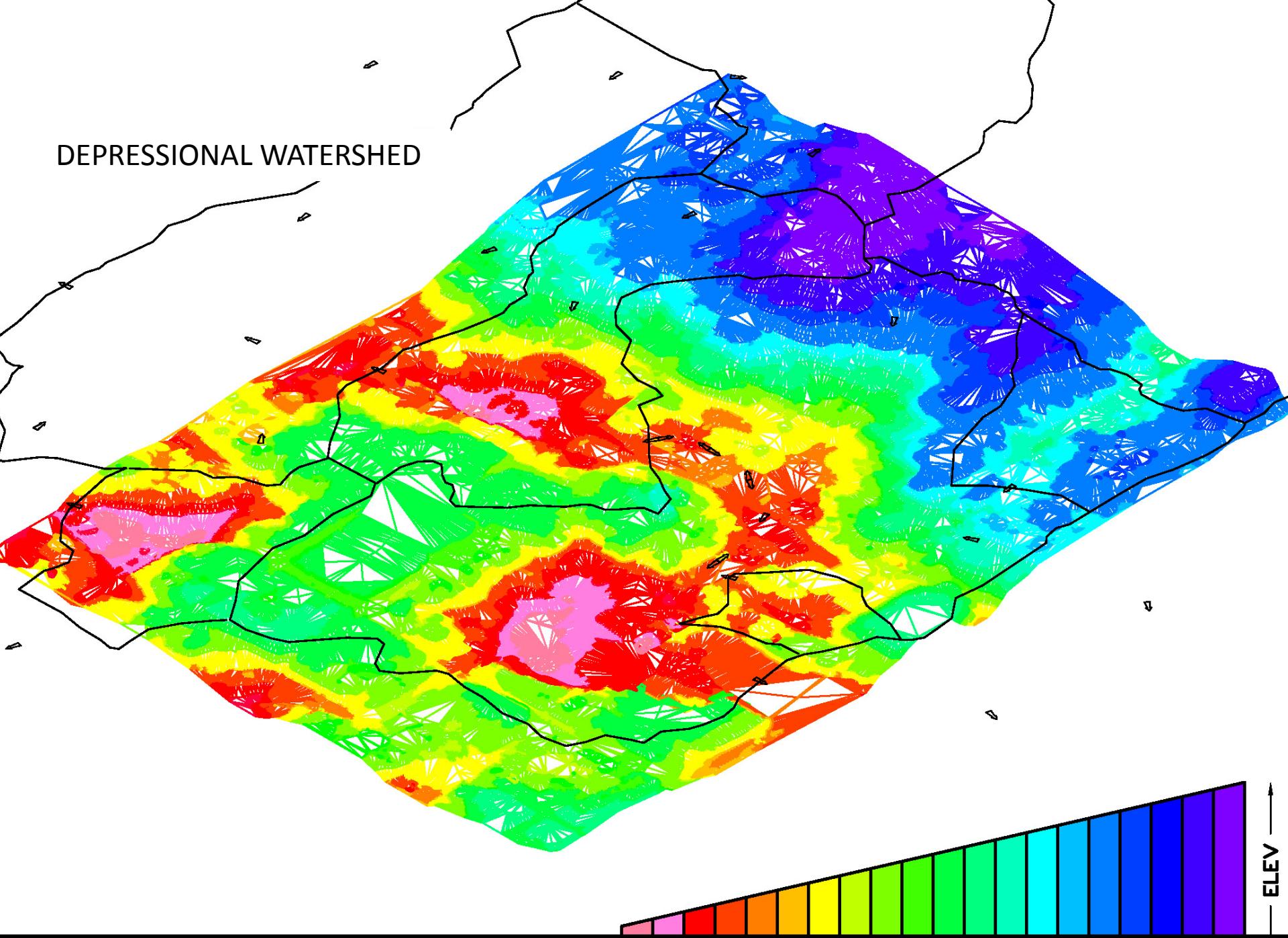
WATERSHEDS – A STUDY OF WHAT'S UPHILL



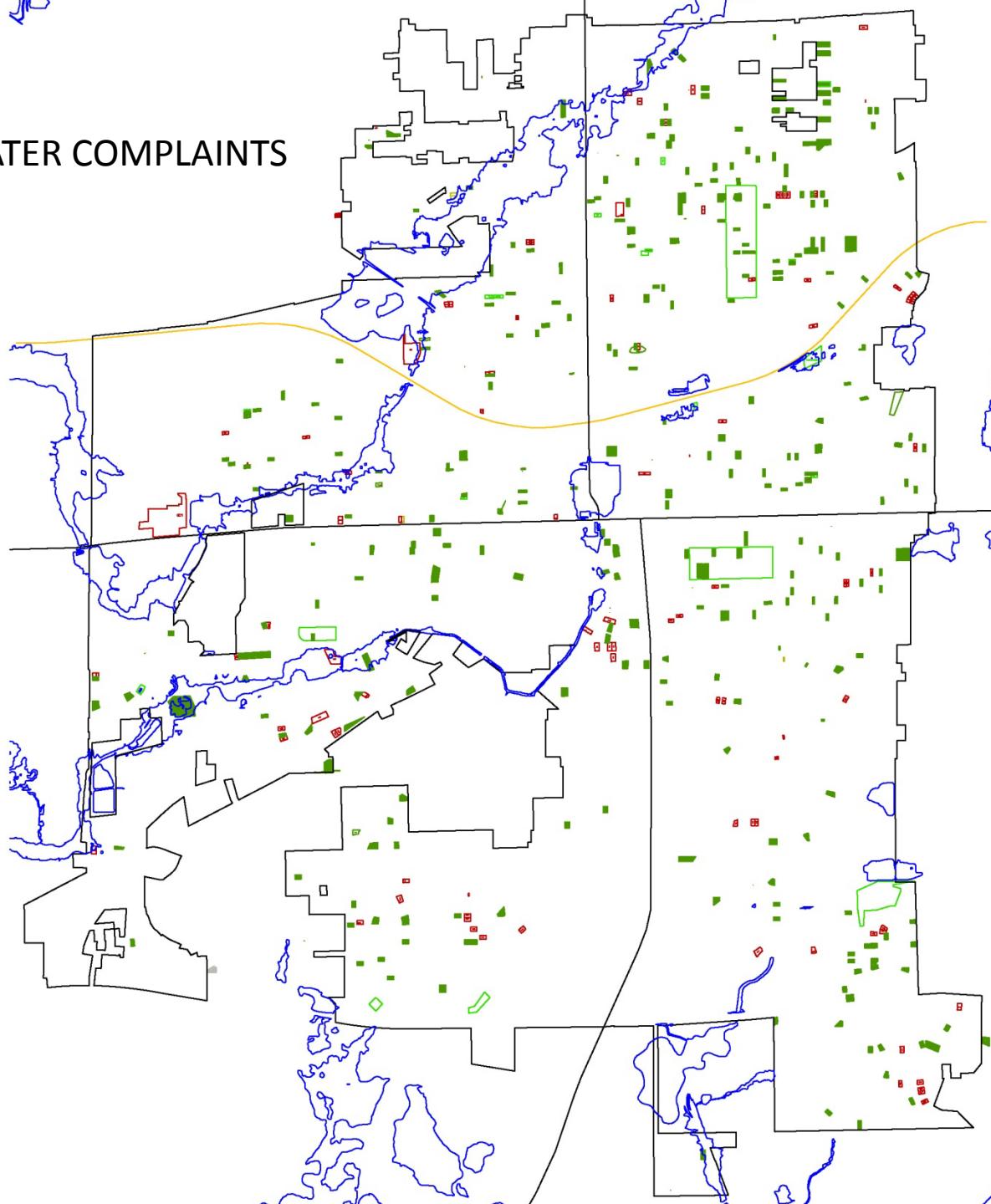
PLANAR WATERSHED



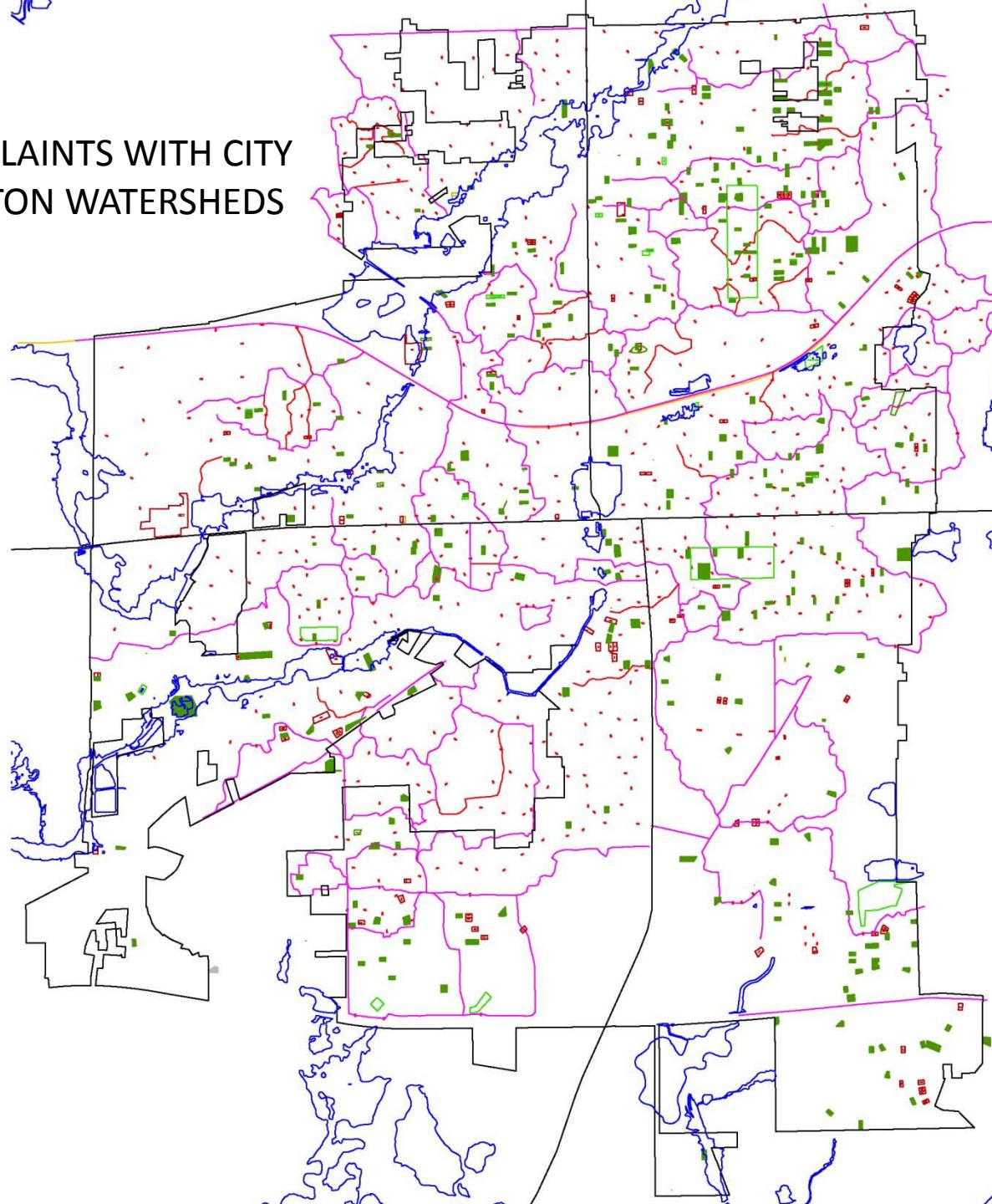
DEPRESSATIONAL WATERSHED



ALL STORMWATER COMPLAINTS

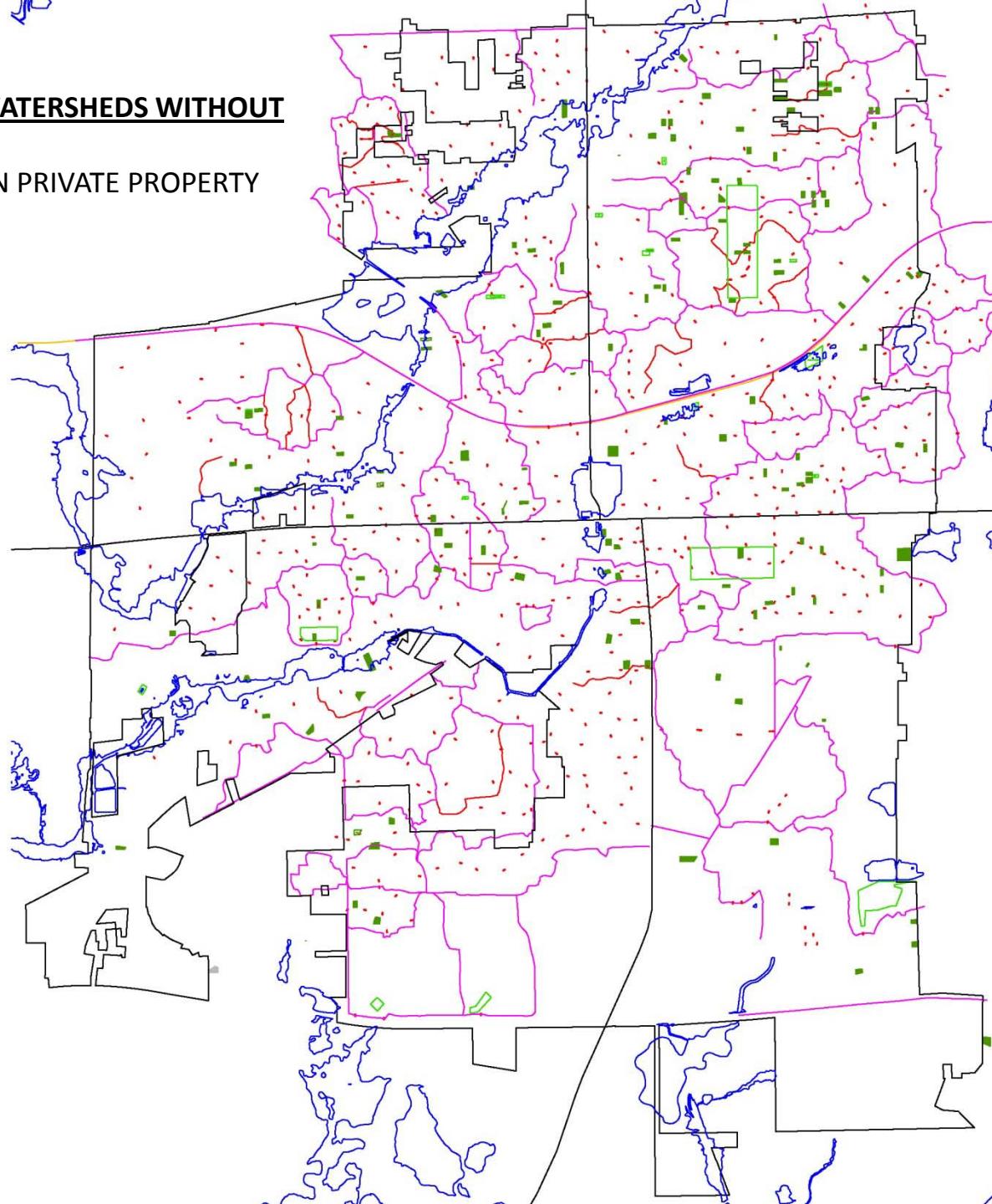


ALL COMPLAINTS WITH CITY
OF WHEATON WATERSHEDS



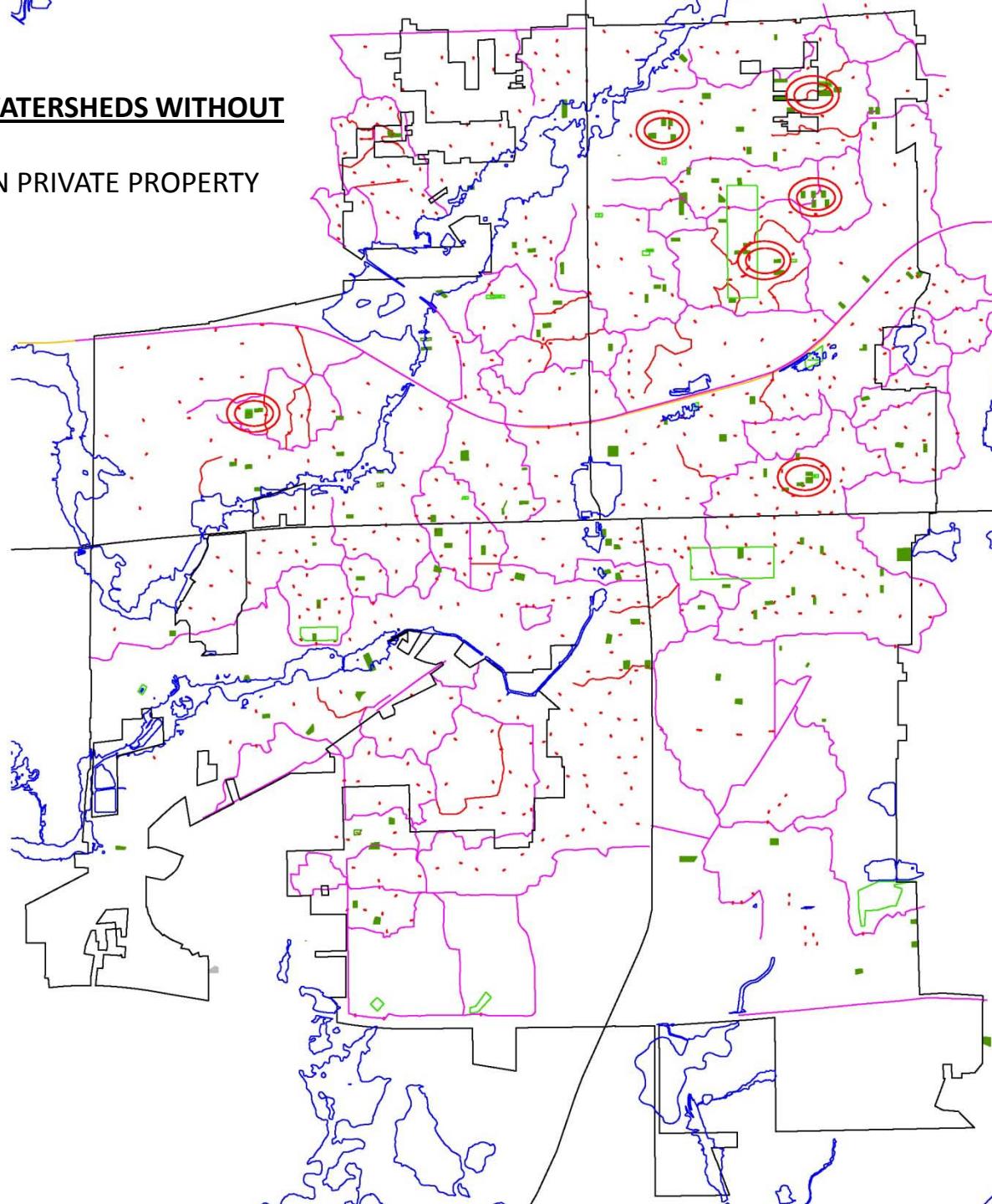
CITY OF WHEATON WATERSHEDS WITHOUT

- MISCELLANEOUS
- STANDING WATER ON PRIVATE PROPERTY



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EXISTING STORMWATER DEFICIENCIES COMPARED TO TODAY'S STANDARDS



LACK OF ACCEPTABLE OVERLAND FLOW PATHS

EXISTING STORMWATER DEFICIENCIES COMPARED TO TODAY'S STANDARDS



LACK OF ACCEPTABLE OVERLAND FLOW PATHS



LACK OF FORMAL DETENTION

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LACK OF ACCEPTABLE OVERLAND FLOW PATHS



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DEGRADATION OF DITCH SYSTEM

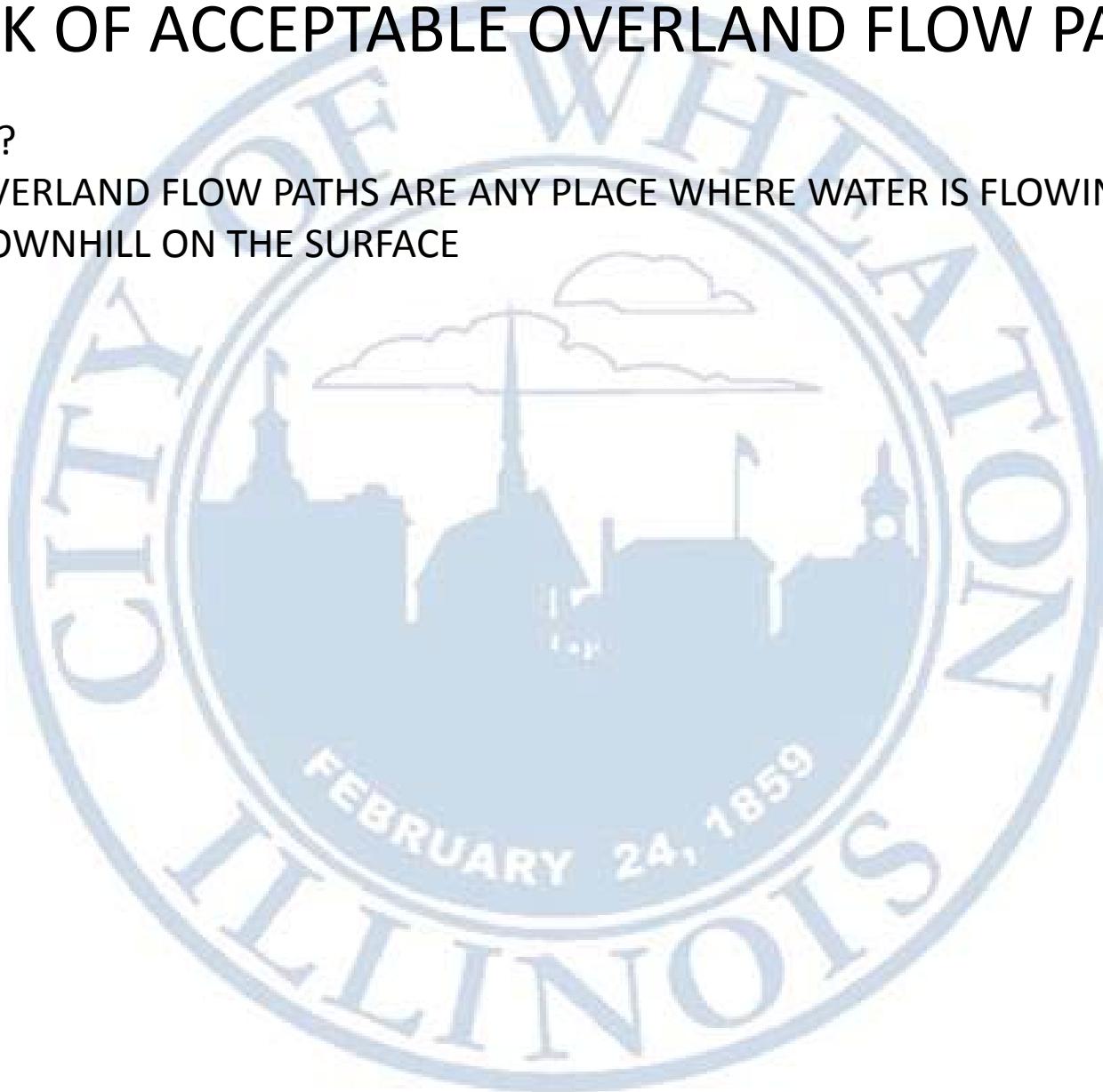


LACK OF
ACCEPTABLE
OVERLAND FLOW
PATHS

LACK OF ACCEPTABLE OVERLAND FLOW PATHS

WHAT IS IT?

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WHAT IS UNACCEPTABLE?

- AN OVERLAND FLOW PATH IS UNACCEPTABLE WHEN IT CAUSES DAMAGE TO STRUCTURES

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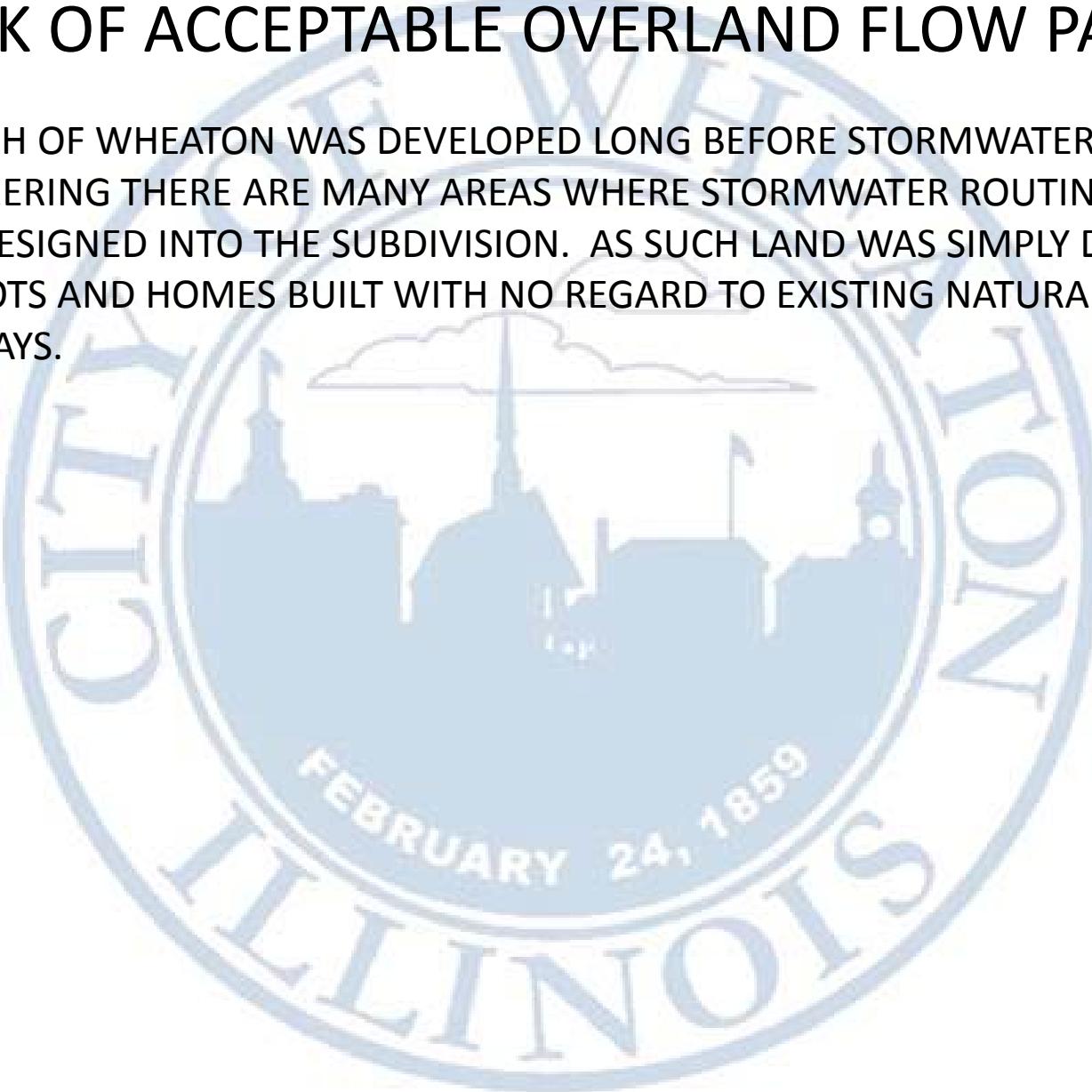
- AN OVERLAND FLOW PATH IS UNACCEPTABLE WHEN IT CAUSES DAMAGE TO STRUCTURES

WHY IS IT DEFICIENT?

- AN OVERLAND FLOW PATH IS DEFICIENT WHEN THE OVERLAND FLOW PATH CHANNEL IS NOT LARGE ENOUGH TO PASS THE FLOW THAT REACHES IT WITHOUT CAUSING DAMAGE

LACK OF ACCEPTABLE OVERLAND FLOW PATHS

SINCE MUCH OF WHEATON WAS DEVELOPED LONG BEFORE STORMWATER ENGINEERING THERE ARE MANY AREAS WHERE STORMWATER ROUTING HAS NOT BEEN DESIGNED INTO THE SUBDIVISION. AS SUCH LAND WAS SIMPLY DIVIDED INTO LOTS AND HOMES BUILT WITH NO REGARD TO EXISTING NATURAL DRAINAGE PATHWAYS.



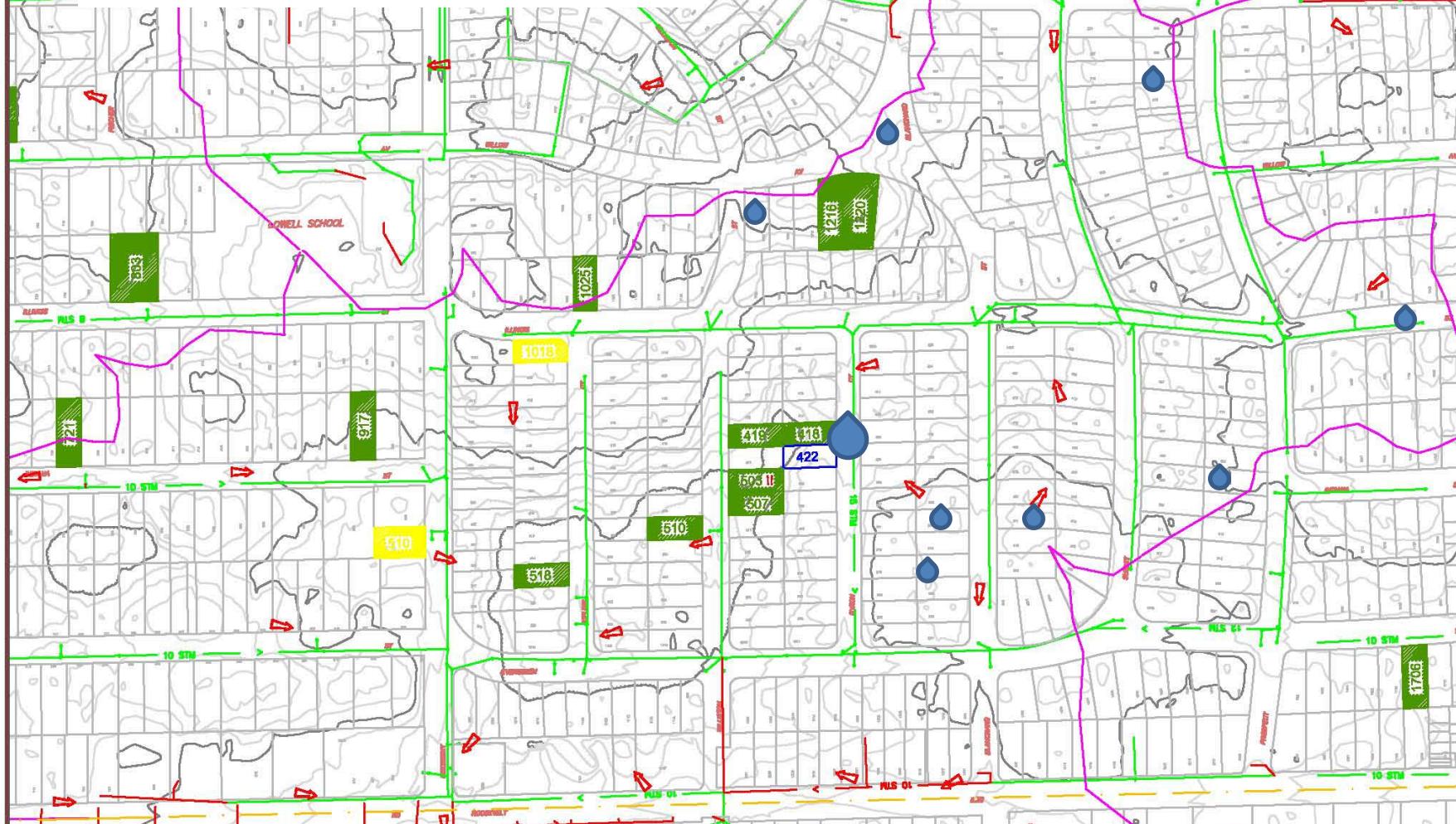
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THIS RESULTS IN HOMES THAT HAVE BEEN BUILT IN/NEAR LOCATIONS WHERE LARGE FLOWS OF WATER OCCUR. LARGE FLOWS OF WATER CAN CAUSE FLOODING WHERE NOT PROPERLY MANAGED.

40.02 Acres upstream

Approx 193.91 cfs in 100 year storm



CITY OF WHEATON
ENGINEERING DEPARTMENT
303 WEST WESLEY STREET
WHEATON, ILLINOIS 60187
PHONE 630.260.2065
WWW.WHEATON.IL.US

DRAINAGE REVIEW

WILLISTON STREET TRIBUTARY AREA

PROJECT NO. **xx xx xx xx**

SCALE: 1" = 350'

DATE: 06/11/2009

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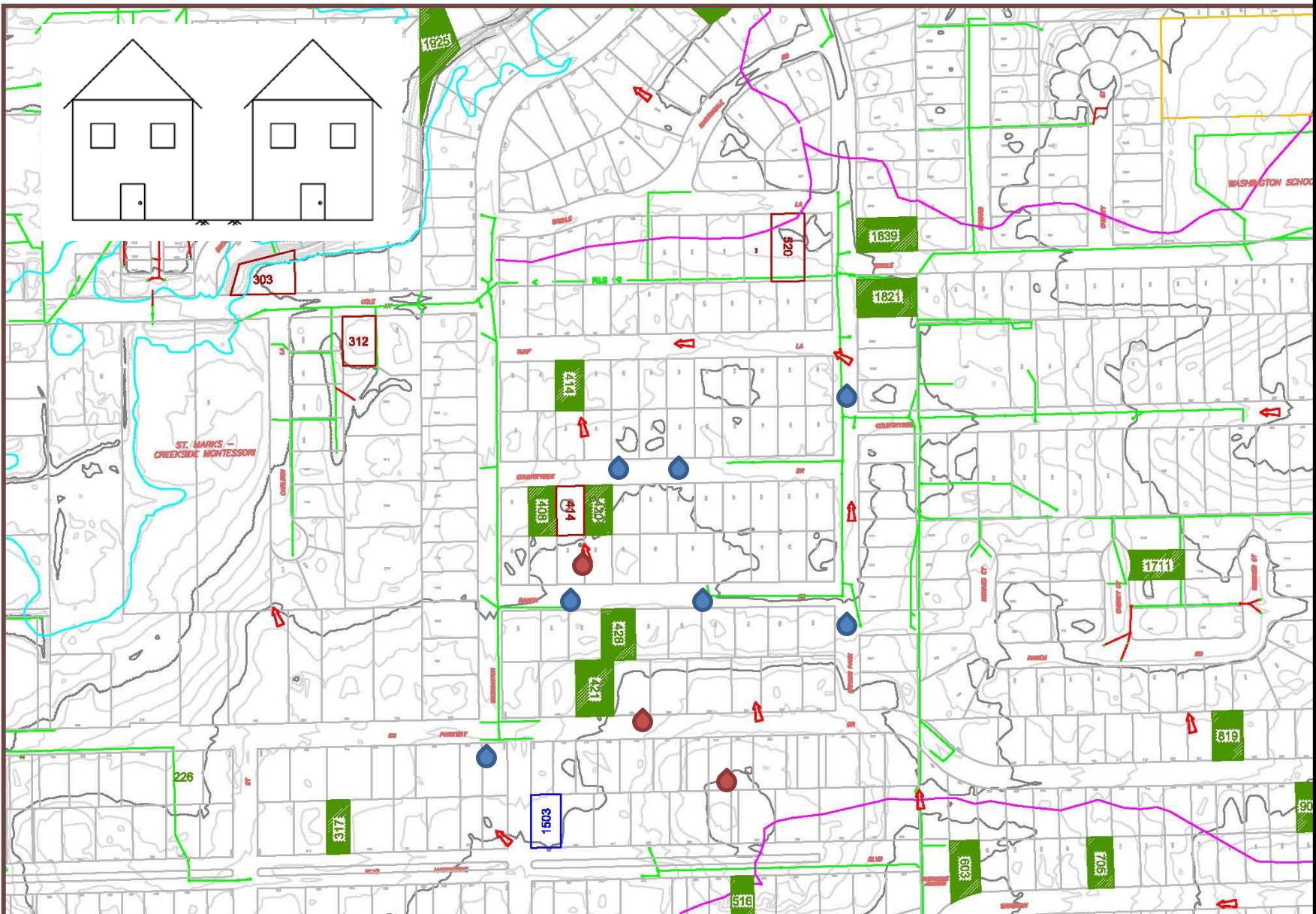
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THIS RESULTS IN HOMES THAT FORM A DAM ACROSS THE NATURAL FLOW PATH. IF WATER DOES NOT HAVE A FLOW PATH THROUGH A PROPERTY THEN WATER DEPTHS RISE BEHIND THE “DAM” AND FLOODING OCCURS.



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WHEATON, ILLINOIS 60187
PHONE 630.260.2065
WWW.WHEATON.IL.US

DRAINAGE REVIEW
TURF, COUNTRYSIDE, & RANCH TRIBUTARY AREA

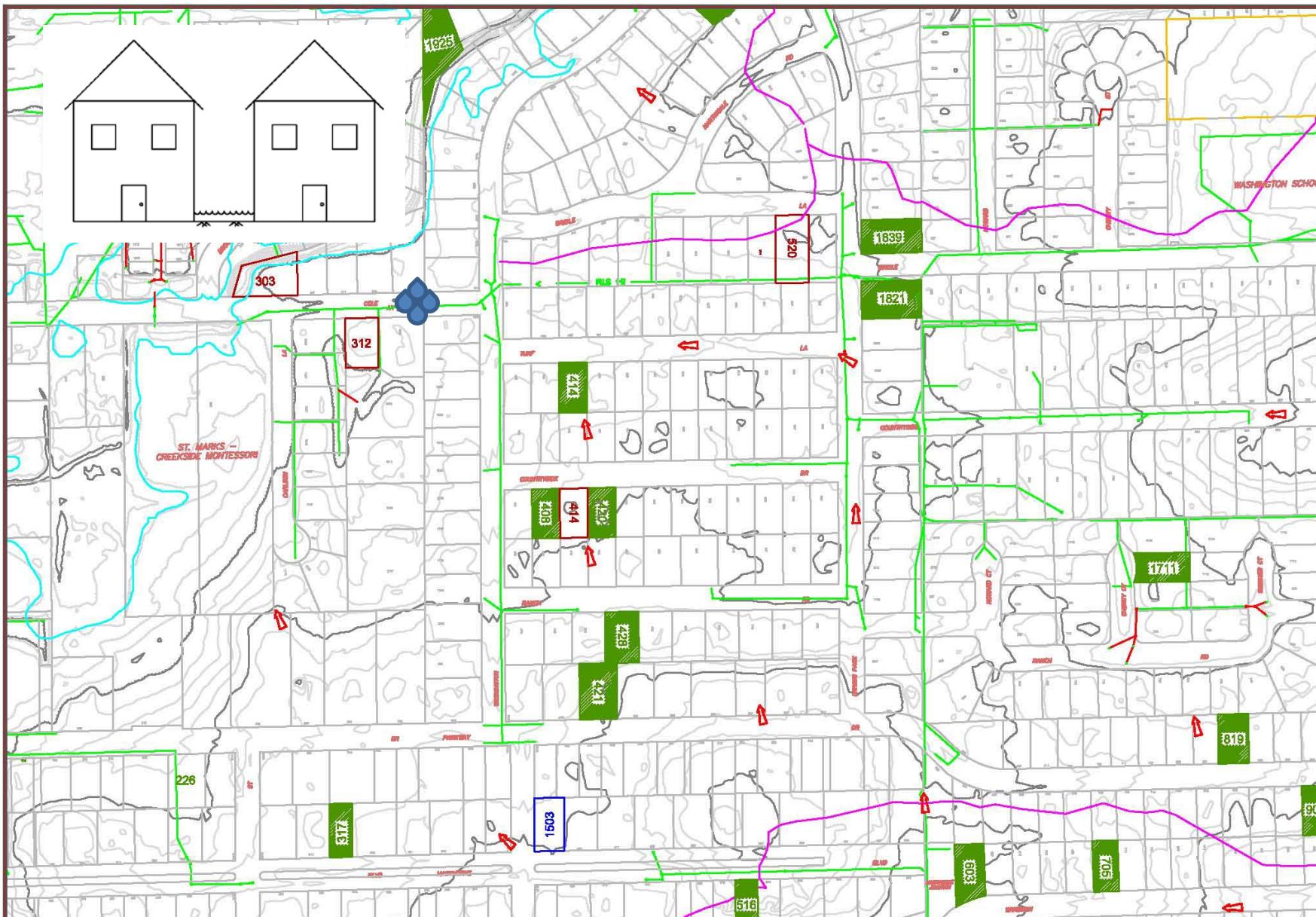
PROJECT NO. XX XXX XX

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CITY OF WHEATON
ENGINEERING DEPARTMENT

DRAINAGE REVIEW

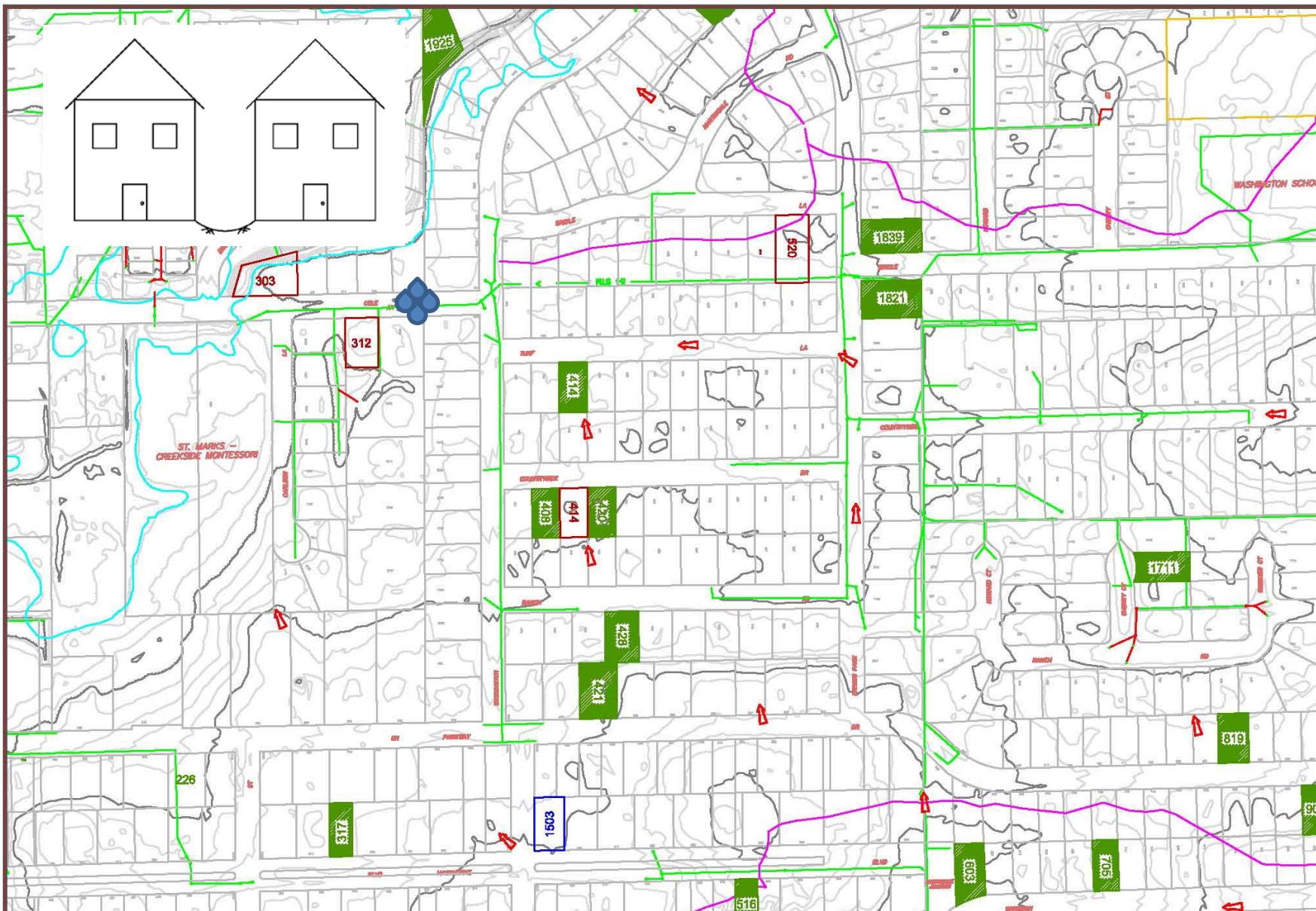
PROJECT NO. **xx xx xx xx**

SCALE: 1" = 350'

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**CITY OF WHEATON
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303 WEST WESLEY STREET
WHEATON, ILLINOIS 60187
PHONE 630.260.2085
WWW.WHEATON.IL.US

DRAINAGE REVIEW

TURF, COUNTRYSIDE, & RANCH TRIBUTARY AREA

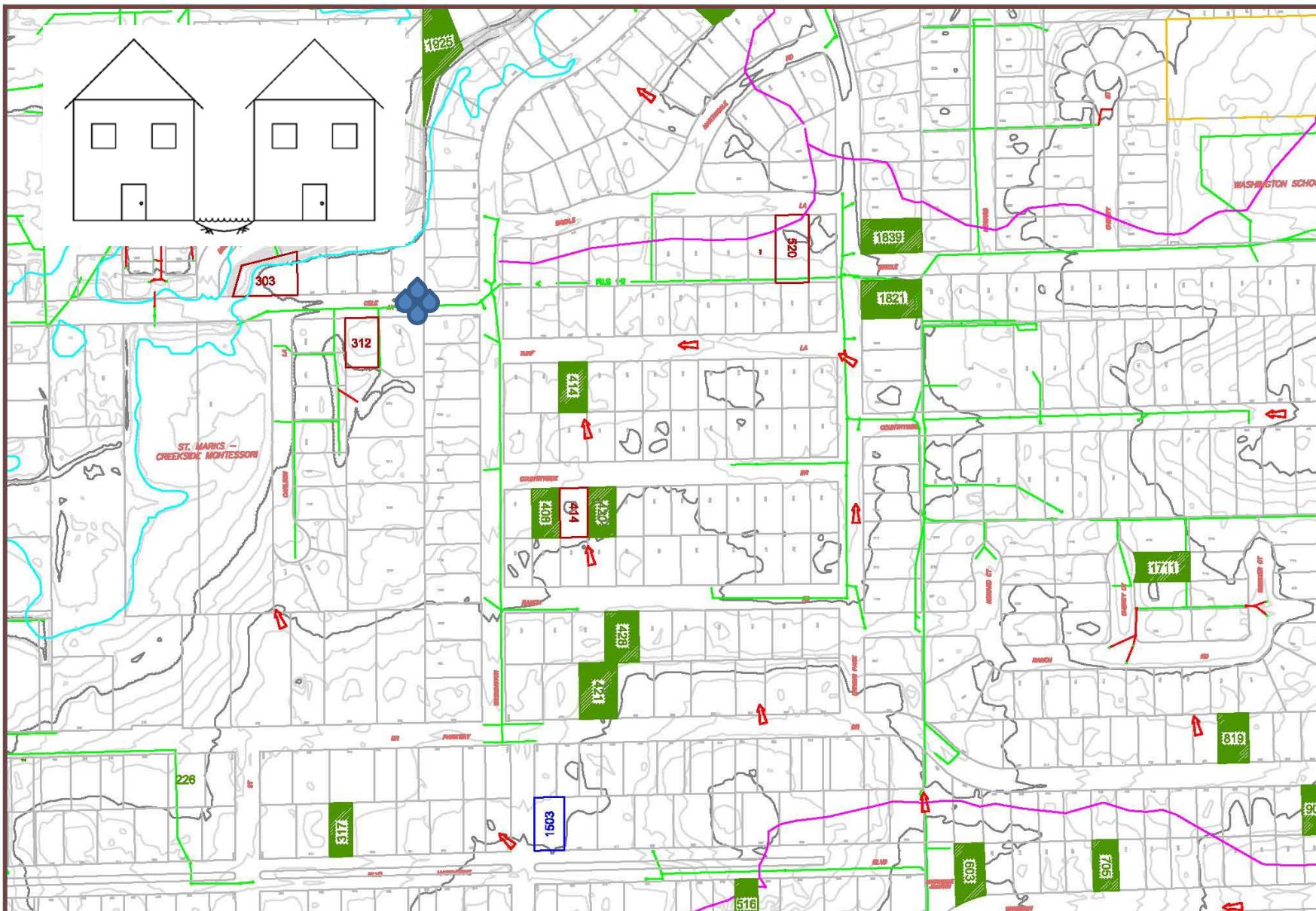
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TURF, COUNTRYSIDE, & RANCH TRIBUTARY AREA

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LACK OF ACCEPTABLE OVERLAND FLOW PATHS

WHAT COULD BE ACHIEVED?

- OVERLAND FLOW PATH IMPROVEMENT CAN BE A WAY TO IMMEDIATELY FLOOD PROTECT A STRUCTURE



LACK OF ACCEPTABLE OVERLAND FLOW PATHS

WHAT COULD BE ACHIEVED?

- OVERLAND FLOW PATH IMPROVEMENT CAN BE A WAY TO IMMEDIATELY FLOOD PROTECT A STRUCTURE
- HOWEVER CARE MUST BE TAKEN SINCE IT CAN INCREASE FLOW DOWNSTREAM

LACK OF ACCEPTABLE OVERLAND FLOW PATHS

WHAT COULD BE ACHIEVED?

- OVERLAND FLOW PATH IMPROVEMENT CAN BE A WAY TO IMMEDIATELY FLOOD PROTECT A STRUCTURE
- HOWEVER CARE MUST BE TAKEN SINCE IT CAN INCREASE FLOW DOWNSTREAM
- IF DOWNSTREAM FLOW IS INCREASED THEN A SYSTEM TO STORE THE INCREASE IN FLOW MUST BE INSTALLED TO PREVENT AN INCREASE IN DOWNSTREAM DAMAGES

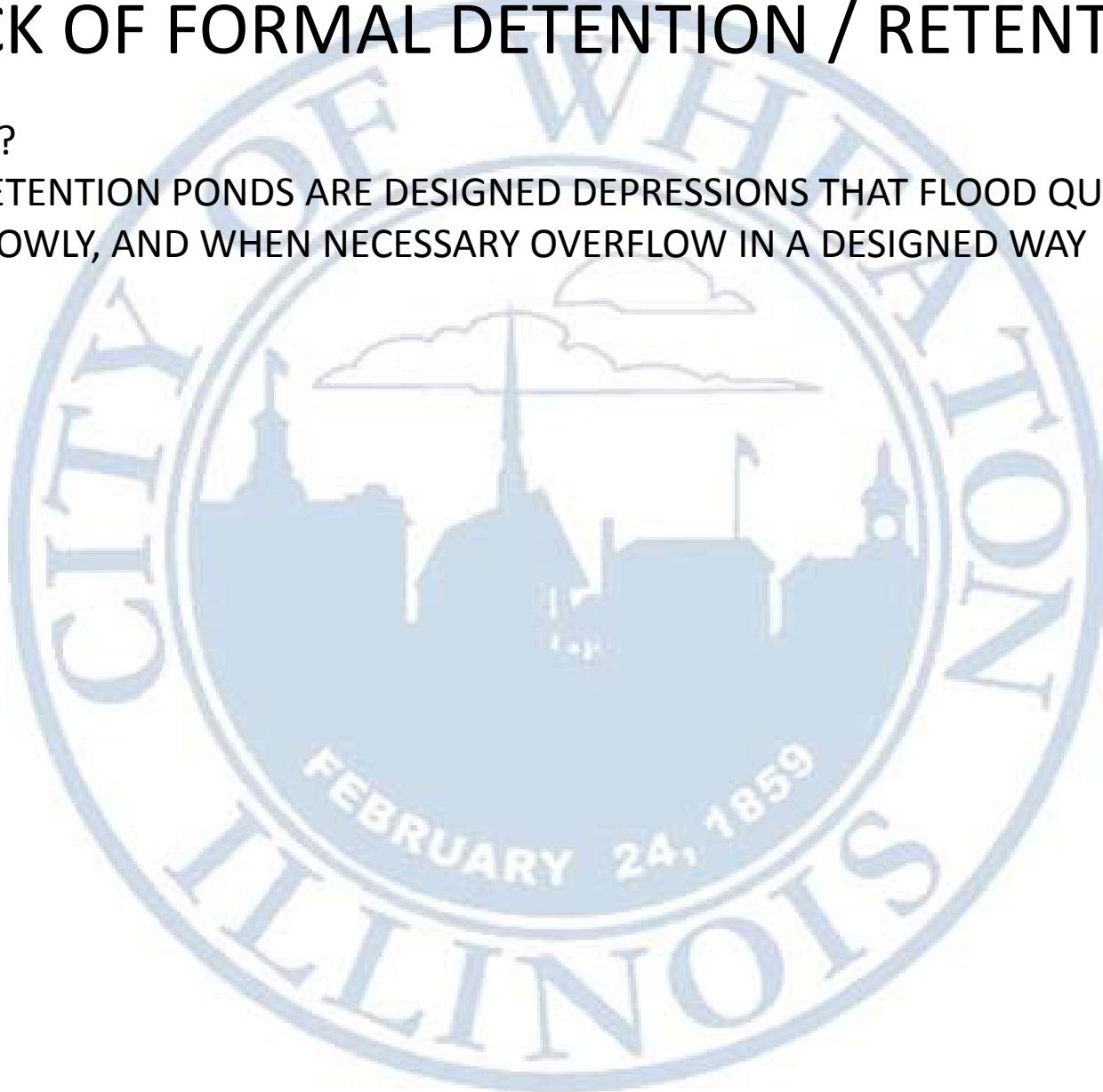


LACK OF
FORMAL
DETENTION

LACK OF FORMAL DETENTION / RETENTION

WHAT IS IT?

- DETENTION PONDS ARE DESIGNED DEPRESSIONS THAT FLOOD QUICKLY, DRAIN SLOWLY, AND WHEN NECESSARY OVERFLOW IN A DESIGNED WAY



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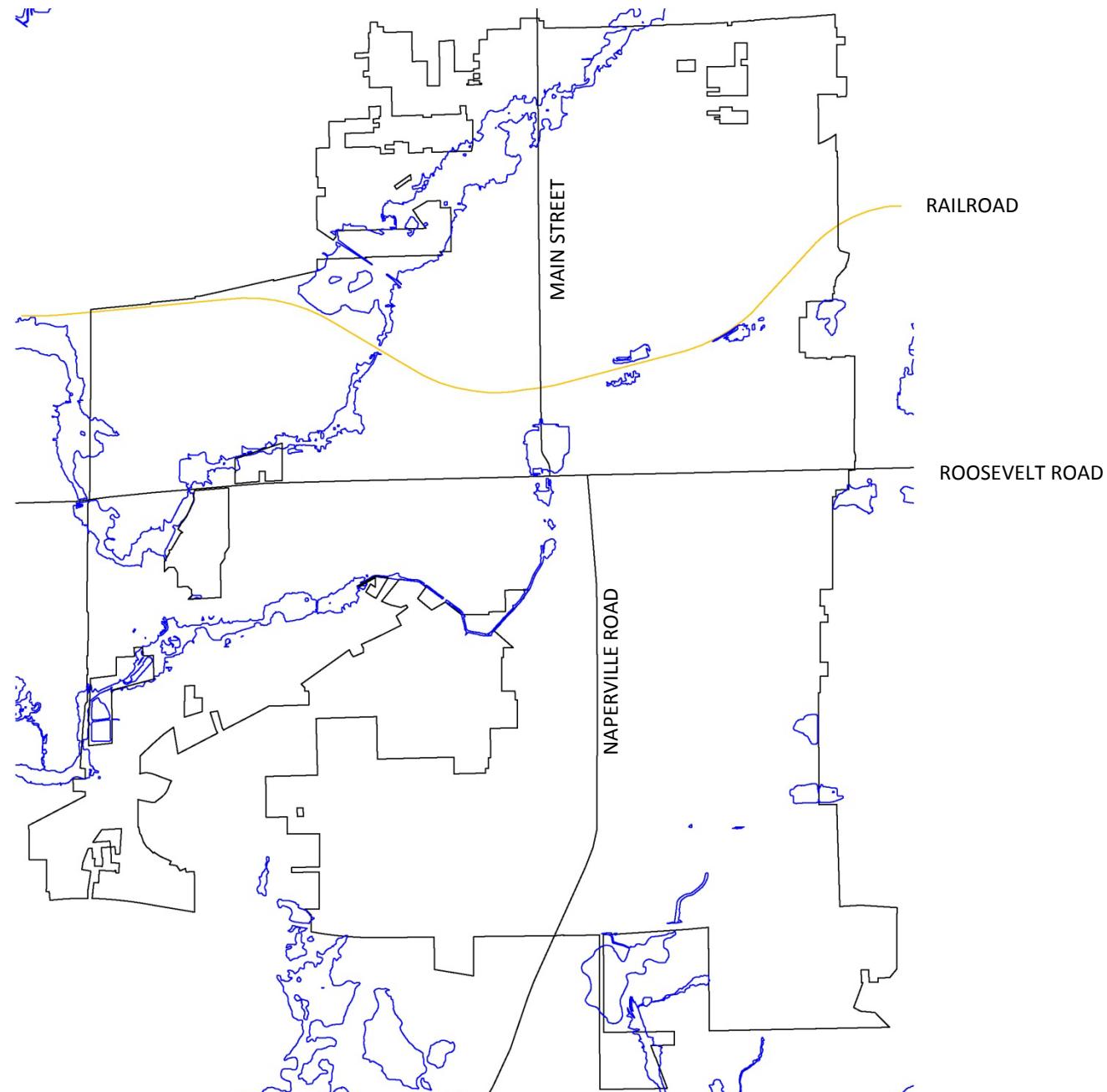
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WHY IS IT DEFICIENT WHEN COMPARED TO TODAY'S STANDARD?

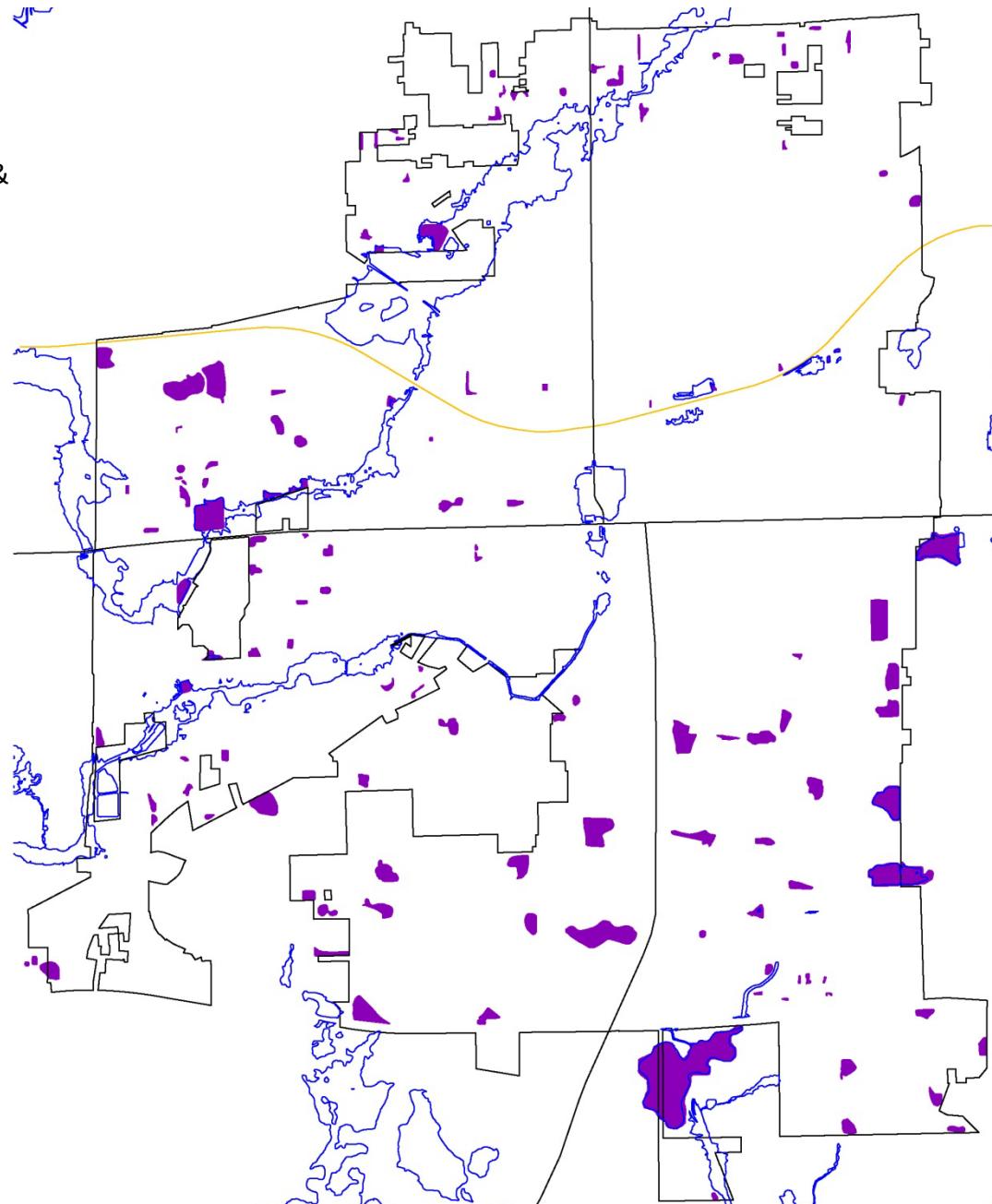
- DETENTION DOES NOT EXIST IN AREAS THAT WERE DEVELOPED BEFORE IT BECAME COMMON PRACTICE (LATE 70'S TO EARLY 80'S)

WHEATON CITY LIMITS AND 100 YEAR FLOODPLAIN

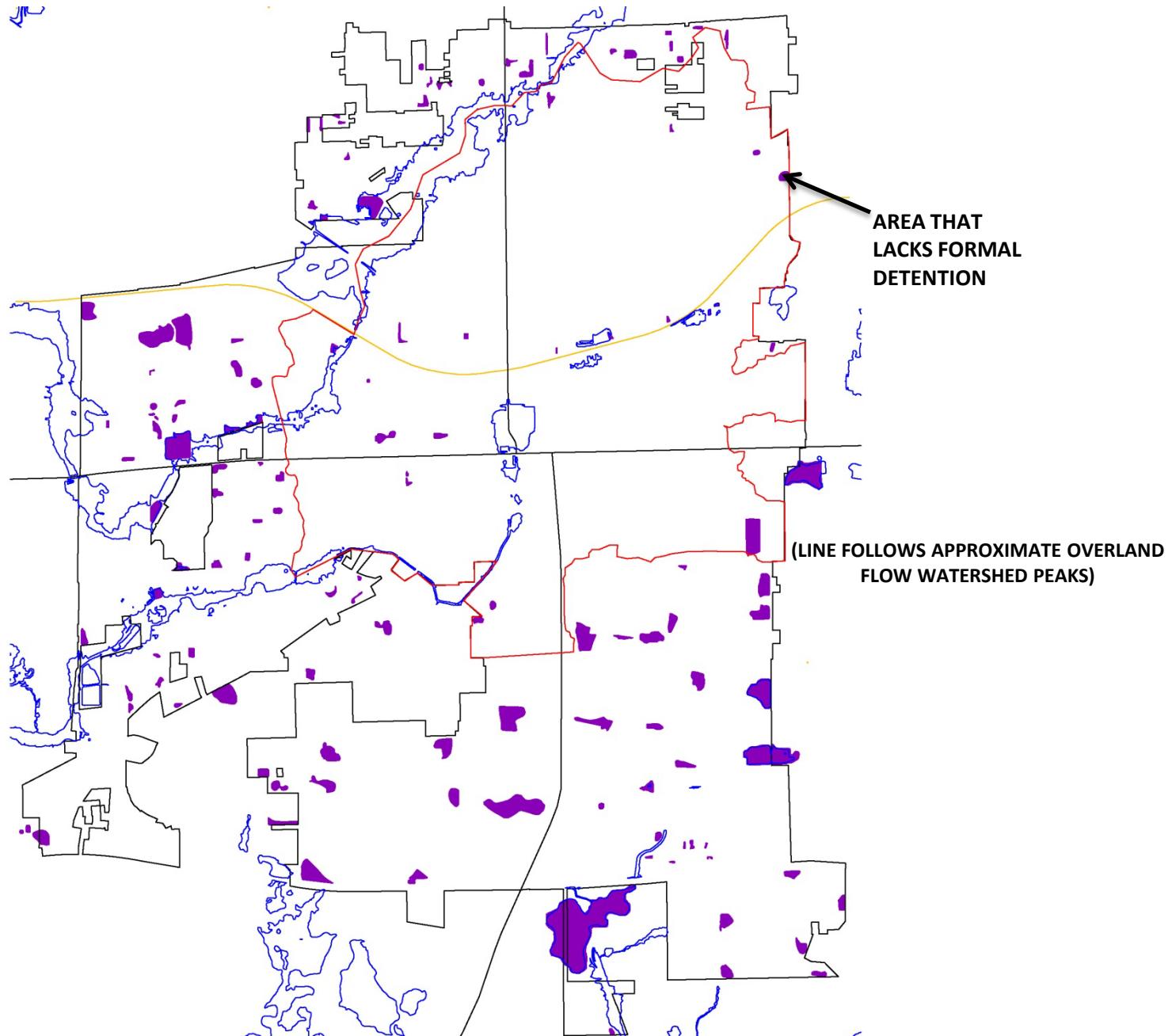


CITY OF WHEATON EXISTING STORMWATER DETENTION

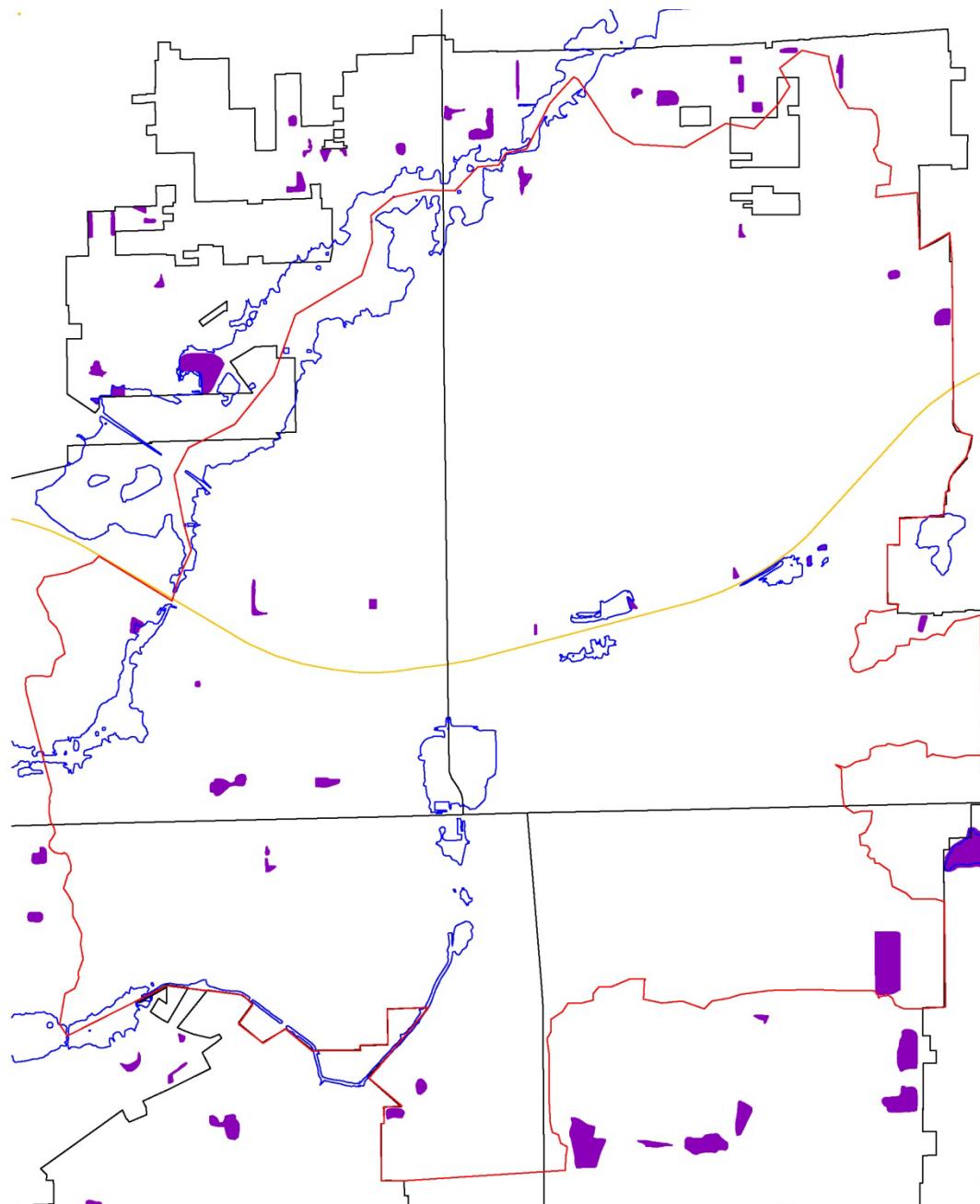
Detention delineated by
1991 aerial topography &
2006 aerial photography



CITY OF WHEATON EXISTING STORMWATER DETENTION



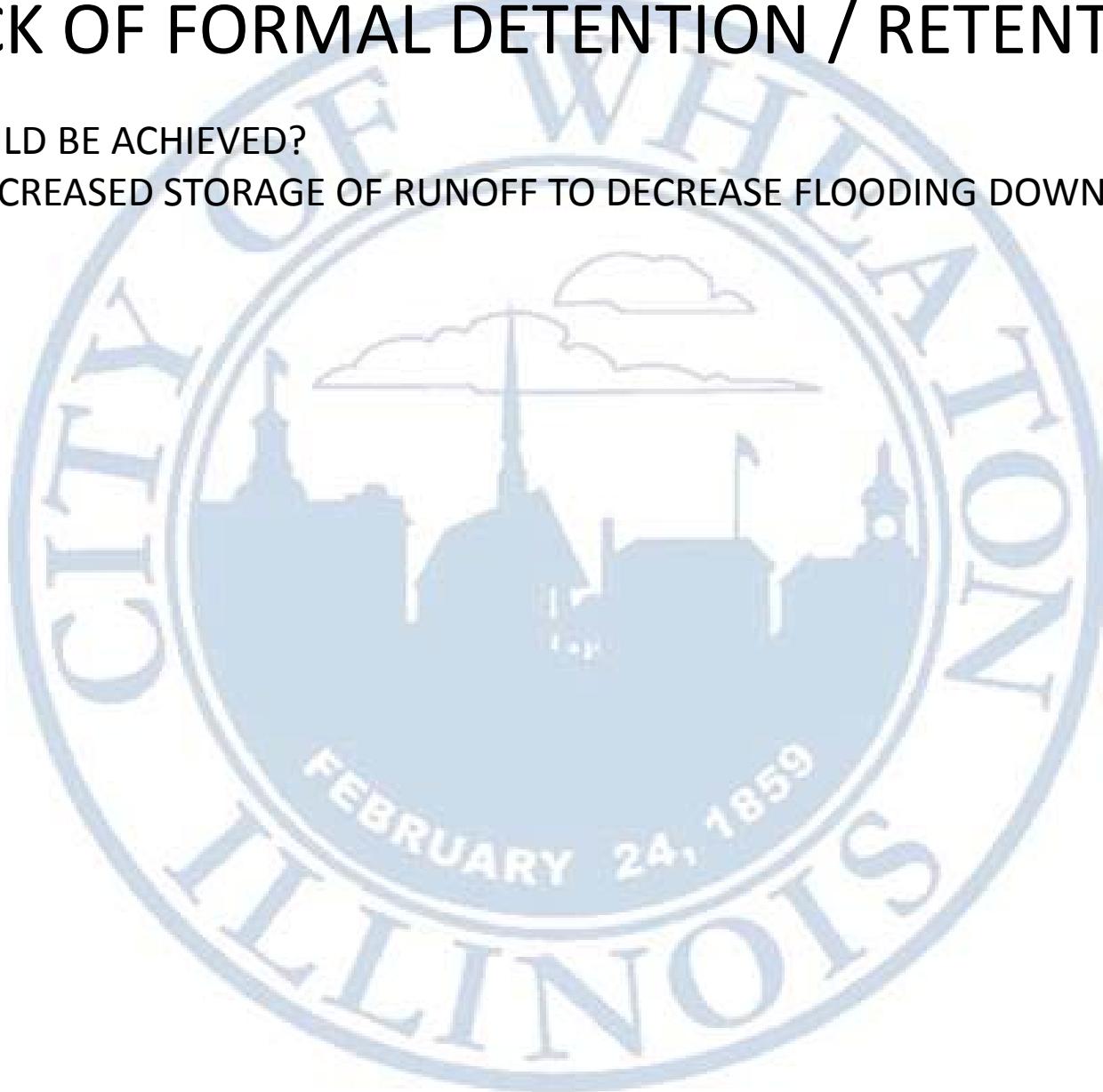
CITY OF WHEATON EXISTING STORMWATER DETENTION (ZOOMED VIEW)

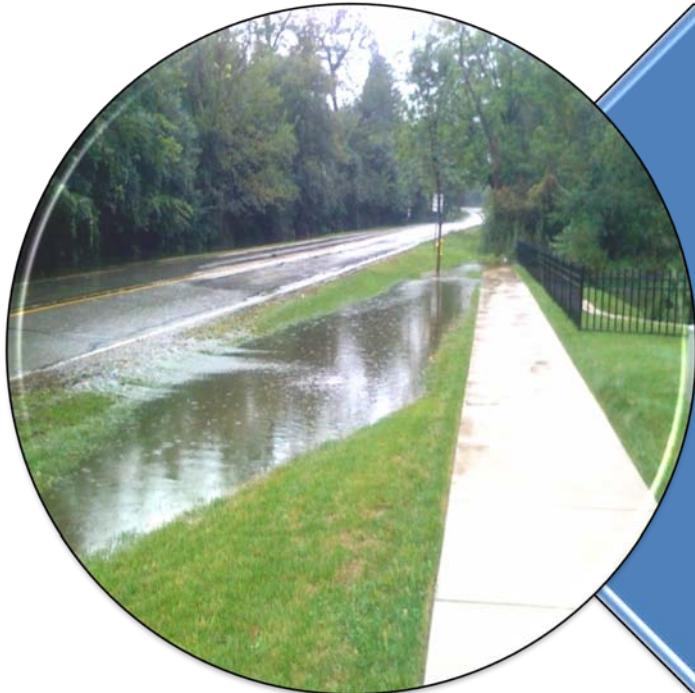


LACK OF FORMAL DETENTION / RETENTION

WHAT COULD BE ACHIEVED?

- INCREASED STORAGE OF RUNOFF TO DECREASE FLOODING DOWNSTREAM



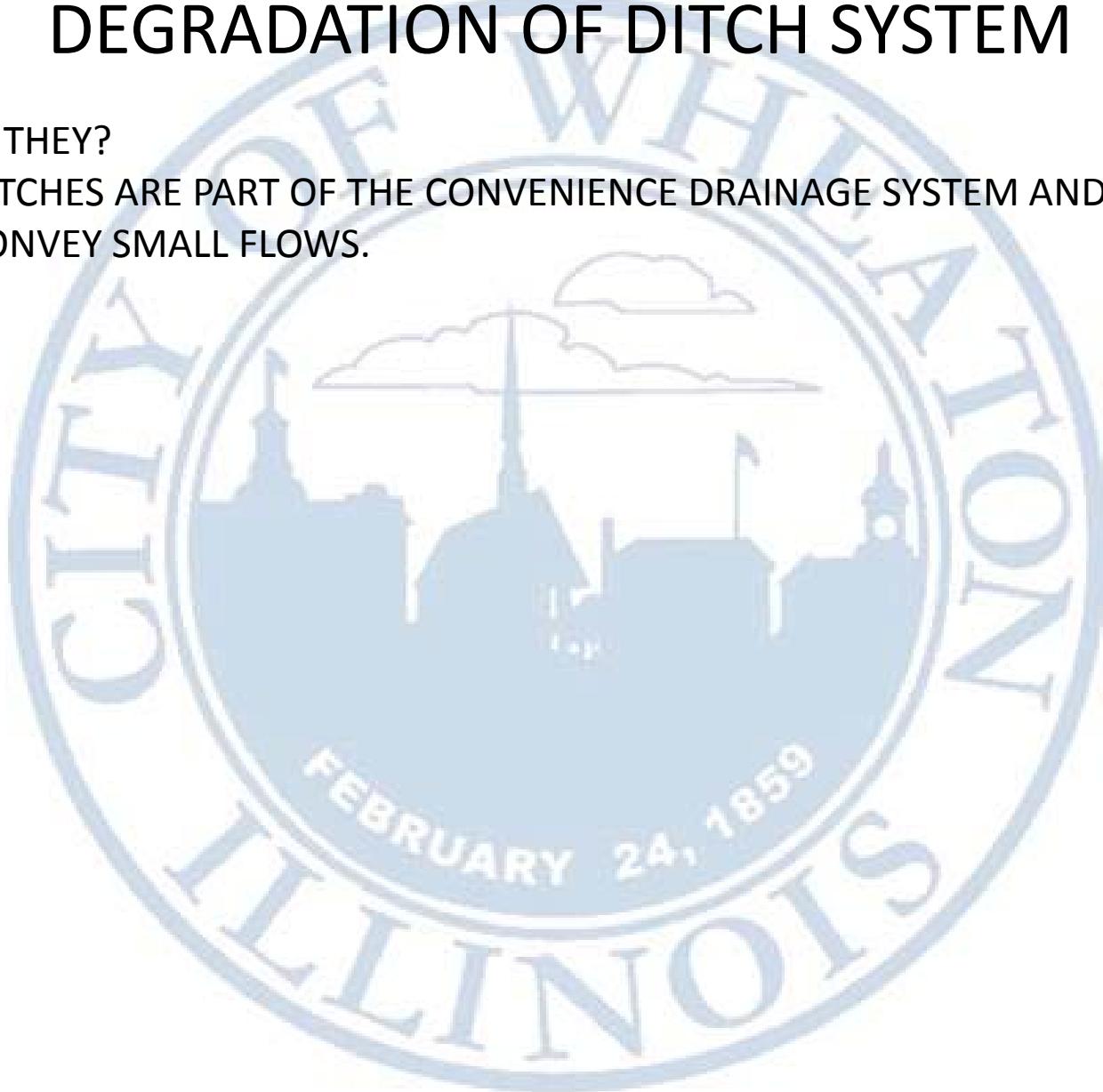


DEGRADATION OF DITCH SYSTEM

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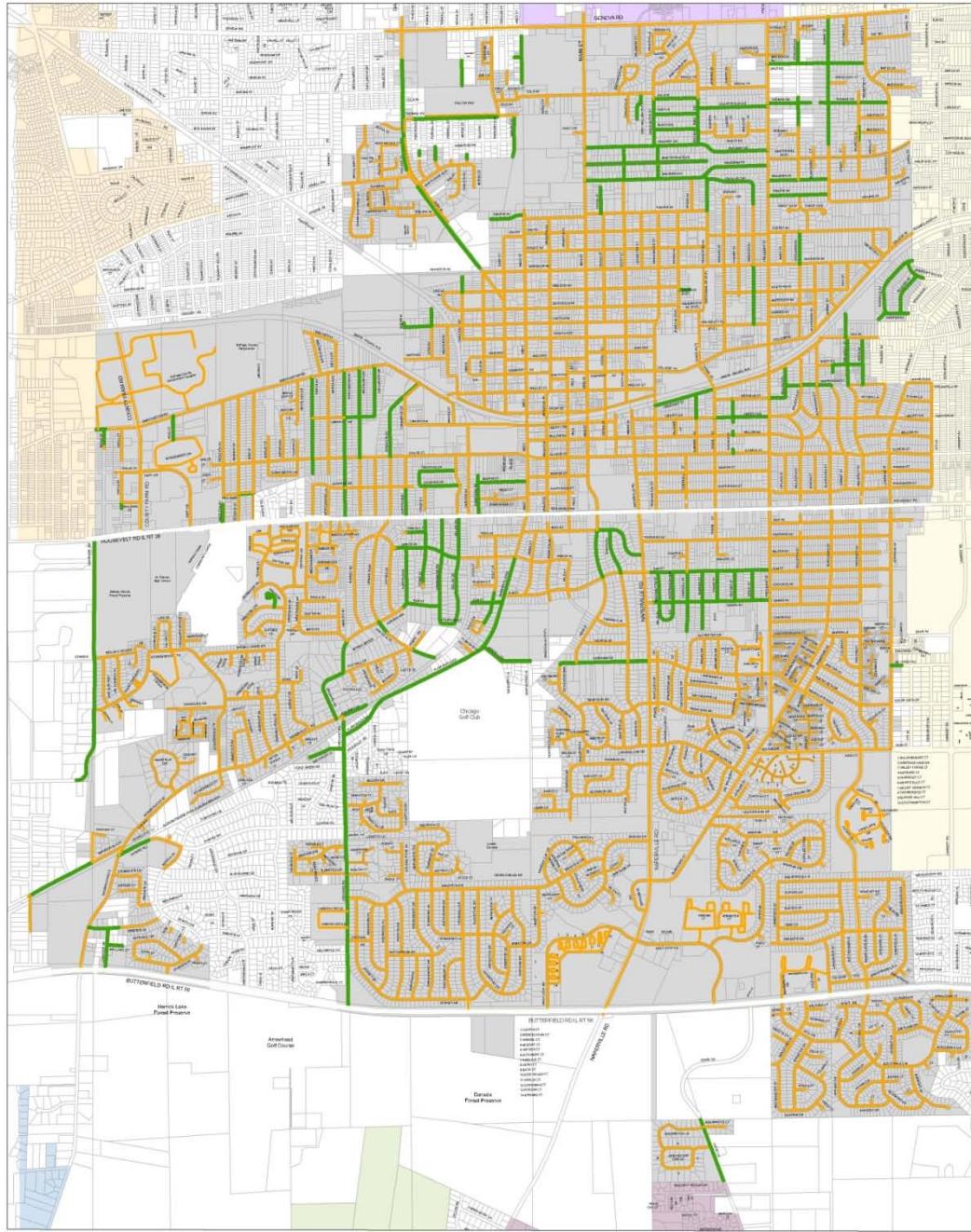
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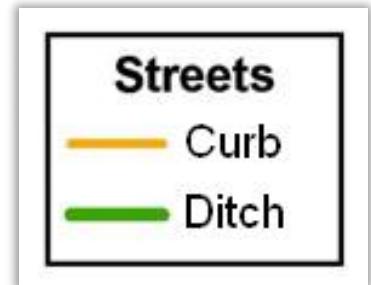
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- IN MANY AREAS THE DITCHES WERE NOT DESIGNED AND AS SUCH DO NOT FUNCTION AT TODAY'S STANDARDS
- MANY TO ALL OF THE DITCHES HAVE NOT BEEN MAINTAINED AND AS SUCH EVEN IF DESIGNED ARE NOT FUNCTIONING AT TODAY'S STANDARDS

CITY OF WHEATON STREETS



86.6% CURB AND GUTTER
13.4% DITCH



DEGRADATION OF DITCH SYSTEM

DITCHES HAVE THE NATURAL TENDENCY TO DEGRADE OVER TIME JUST LIKE ALL OTHER INFRASTRUCTURE AND REQUIRE MAINTENANCE. STORM WATER CARRIES SMALL PARTICULATE MATTER AND DITCHES NATURALLY CREATE UNDULATING FLOW VELOCITIES THAT CREATE AREAS FOR PARTICULATE MATTER TO SETTLE OUT.





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BASED ON DISCUSSIONS WITH RESIDENTS, IT IS UNKNOWN TO THEM THAT THEY ARE RESPONSIBLE FOR KEEPING THEIR CULVERT CLEAN AND/OR DITCH CLEANED. FURTHER IF DITCH GETS HARD TO MOW BECAUSE OF UNEVENNESS, THEN IT IS LIKELY THAT RESIDENTS WILL ADD DIRT RATHER THAN REMOVE IT.



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AS DITCHES HAVE DEGRADED DRIVEWAYS HAVE BEEN REPLACED CAUSING NEW DRIVEWAY CULVERTS TO BE INSTALLED AT ELEVATIONS THAT DO NOT CONFORM WITH THE ORIGINAL DESIGN OF THE DITCH AND FURTHER DEGRADING THE SYSTEM.



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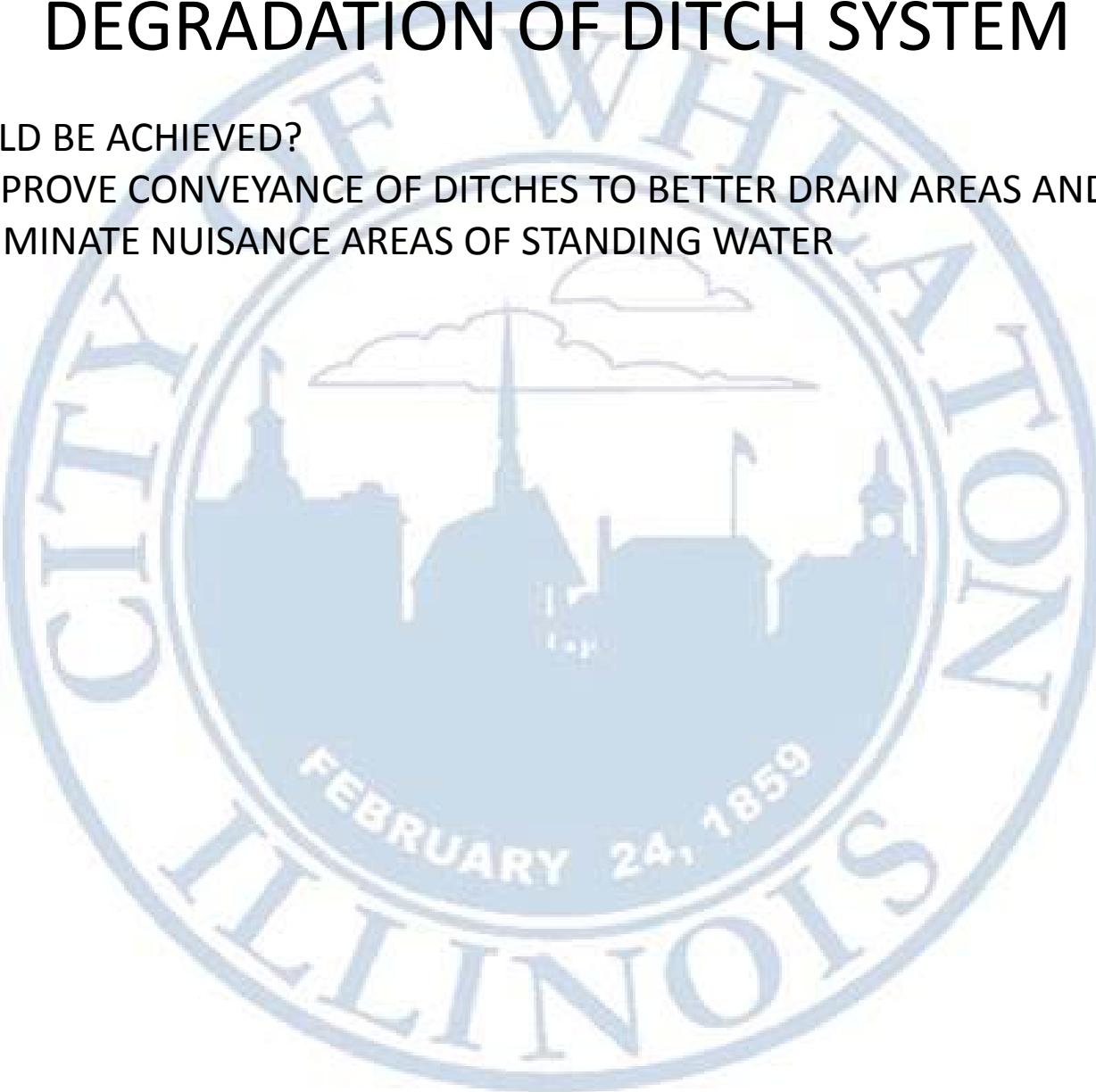
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AT THIS POINT MANY TO NEARLY ALL RESIDENTS CANNOT RESTORE THEIR PORTION OF THE DITCH BECAUSE THE DOWNSTREAM DITCH PREVENTS THE NEWLY REPAIRED DITCH FROM WORKING PROPERLY. AS SUCH THE DEGRADATION HAS EXCEEDED THE POINT WHERE RESIDENTS CAN TYPICALLY REMEDIATE THE PROBLEM.

DEGRADATION OF DITCH SYSTEM

WHAT COULD BE ACHIEVED?

- IMPROVE CONVEYANCE OF DITCHES TO BETTER DRAIN AREAS AND HELP ELIMINATE NUISANCE AREAS OF STANDING WATER



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