



Woodbine Area Regional Drainage Improvement Project - Presentation to Village Board

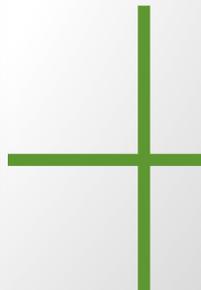
Village of Homer Glen

November 24th, 2015

Project Scope



- Develop a regional drainage improvement plan to address drainage problems for the area surrounding the property at 14240 W. 151st Street, previously know as the Woodbine Golf Course.
- The project limits include the Saddle Brook Run, Stadtler Ridge, Woodbine, and Woodbine West and portions of the Pebble Creek subdivisions, as well as the adjacent roadways.



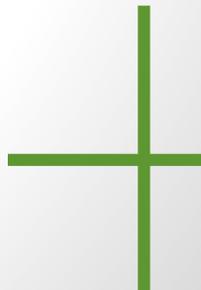
Project Location



Determining Flooding Issues



- Meetings with Village and Homer Highway Department staff
- Photos of past events
- Review of topographic data
- Resident Questionnaire
- Public Meeting
- Hydrologic & Hydraulic (H&H) Modeling



Past Events



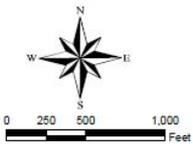
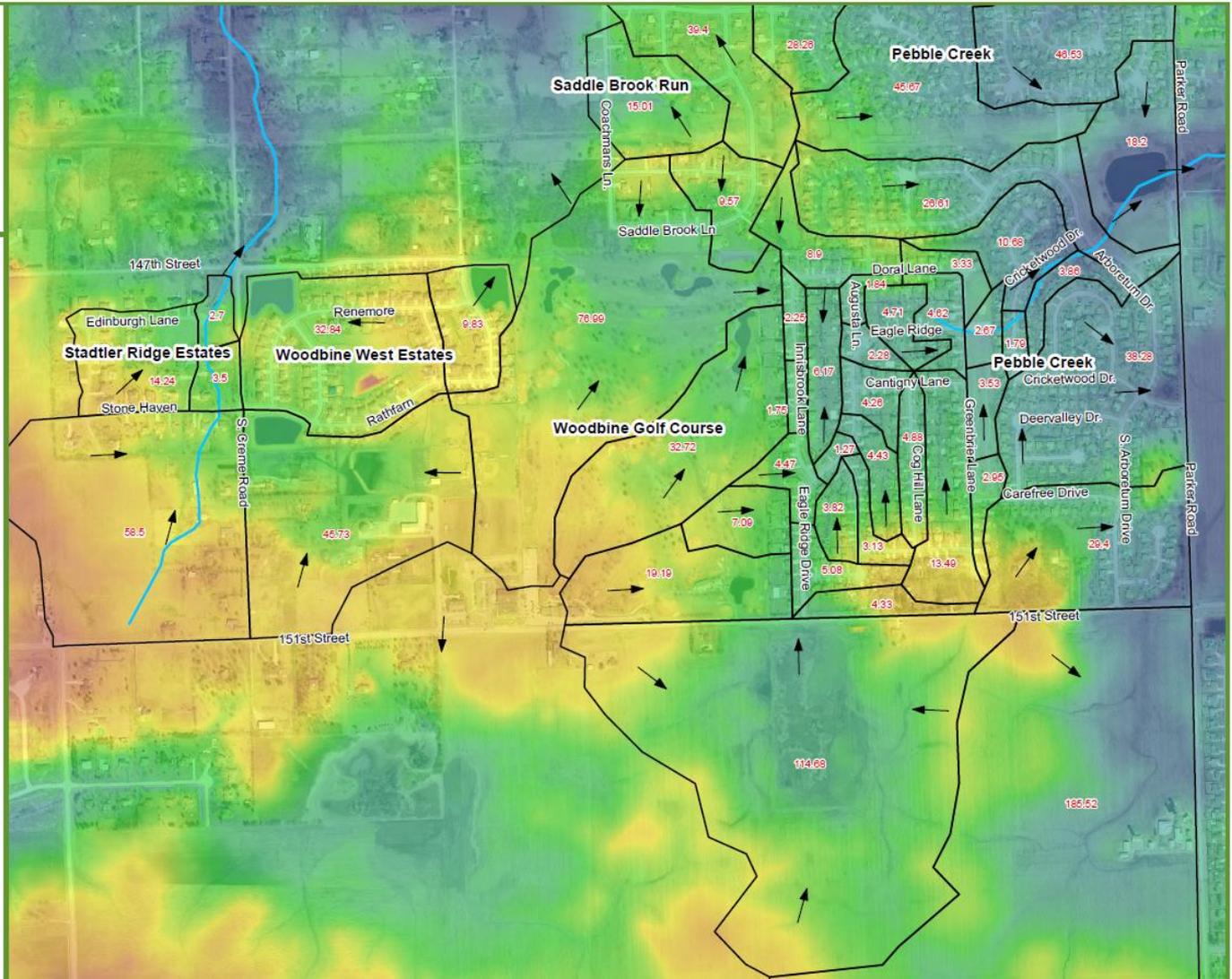
Topographic Information

Village of Homer Glen

Drainage Patterns and Watersheds

Legend

-  Watershed Divides
-  Illinois Streams



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Resident Survey

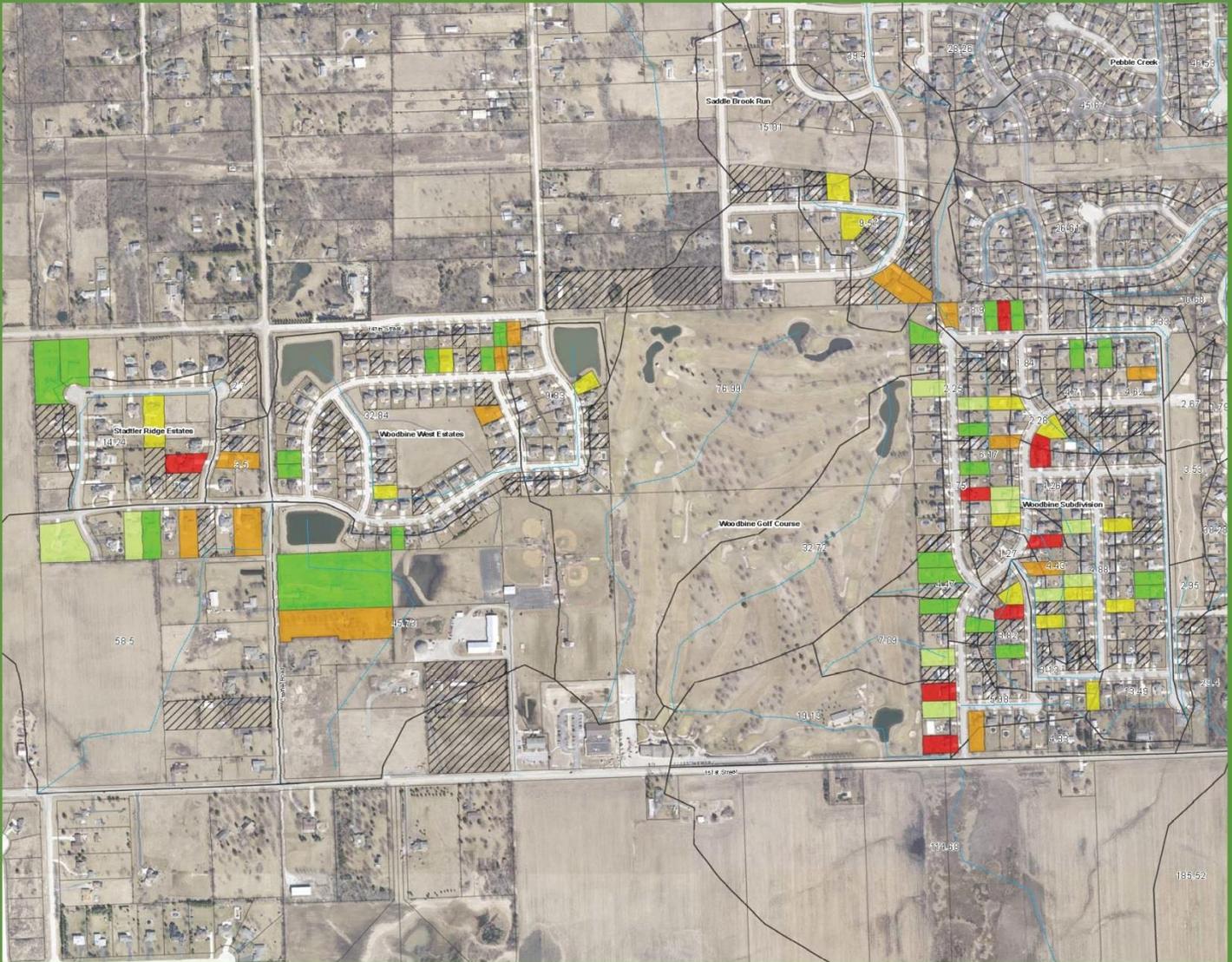


Village of Homer Glen

Woodbine Drainage Project
Resident Survey Results

Legend

- Flow Path
- Parcels
- Reported No Flooding
- Yard
- Yard, Street
- Basement
- Basement, Yard
- Basement, Yard, Street
- Watershed Divides

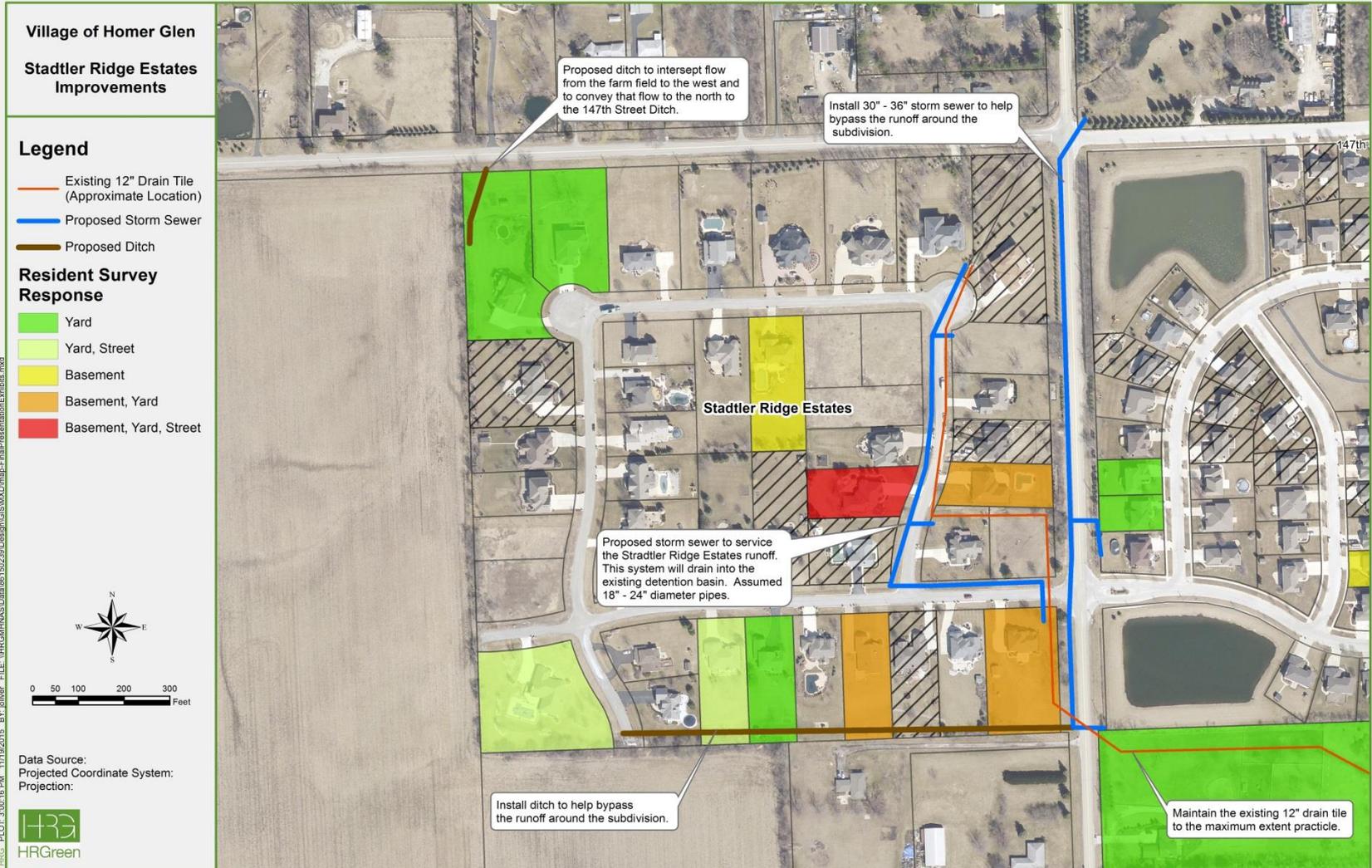


Managing Stormwater

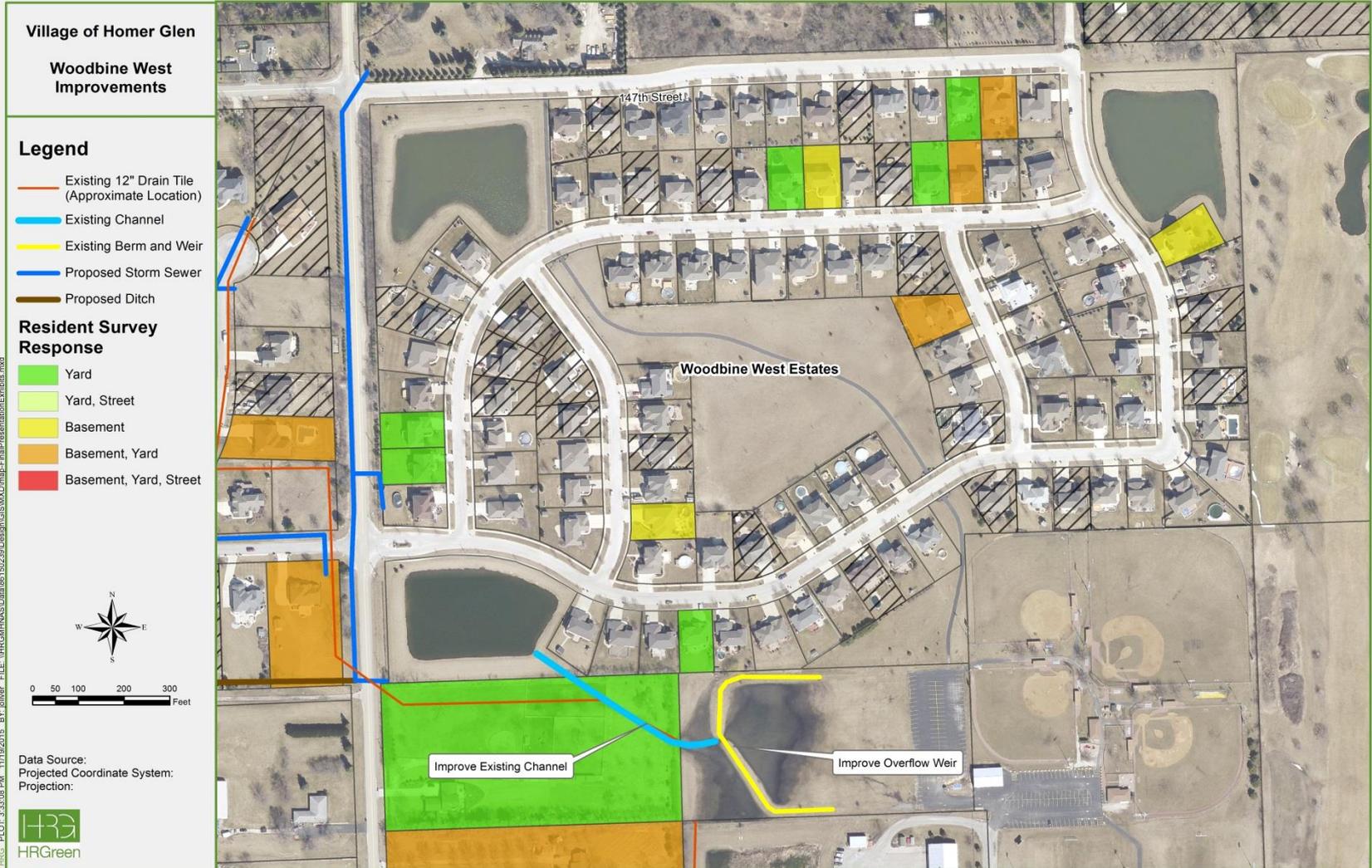


- **Conveyance** - this means installing large storm sewers and opening up ditches to allow stormwater runoff to drain away as quickly as possible
- **Detention** - this incorporates detention basins which hold water for a period of time and slowly drain it down over a set timeline.
- **Infiltration** - Infiltrate the water into the ground. This can be done through naturalized detention basins, rain gardens, bio-swales or many other methods. The soils in the area of the study are not well suited for infiltration, so the effects of this on major flood causing storms is minor and was not specifically accounted for as a stormwater outlet.

Stadtler Ridge Estates Improvements

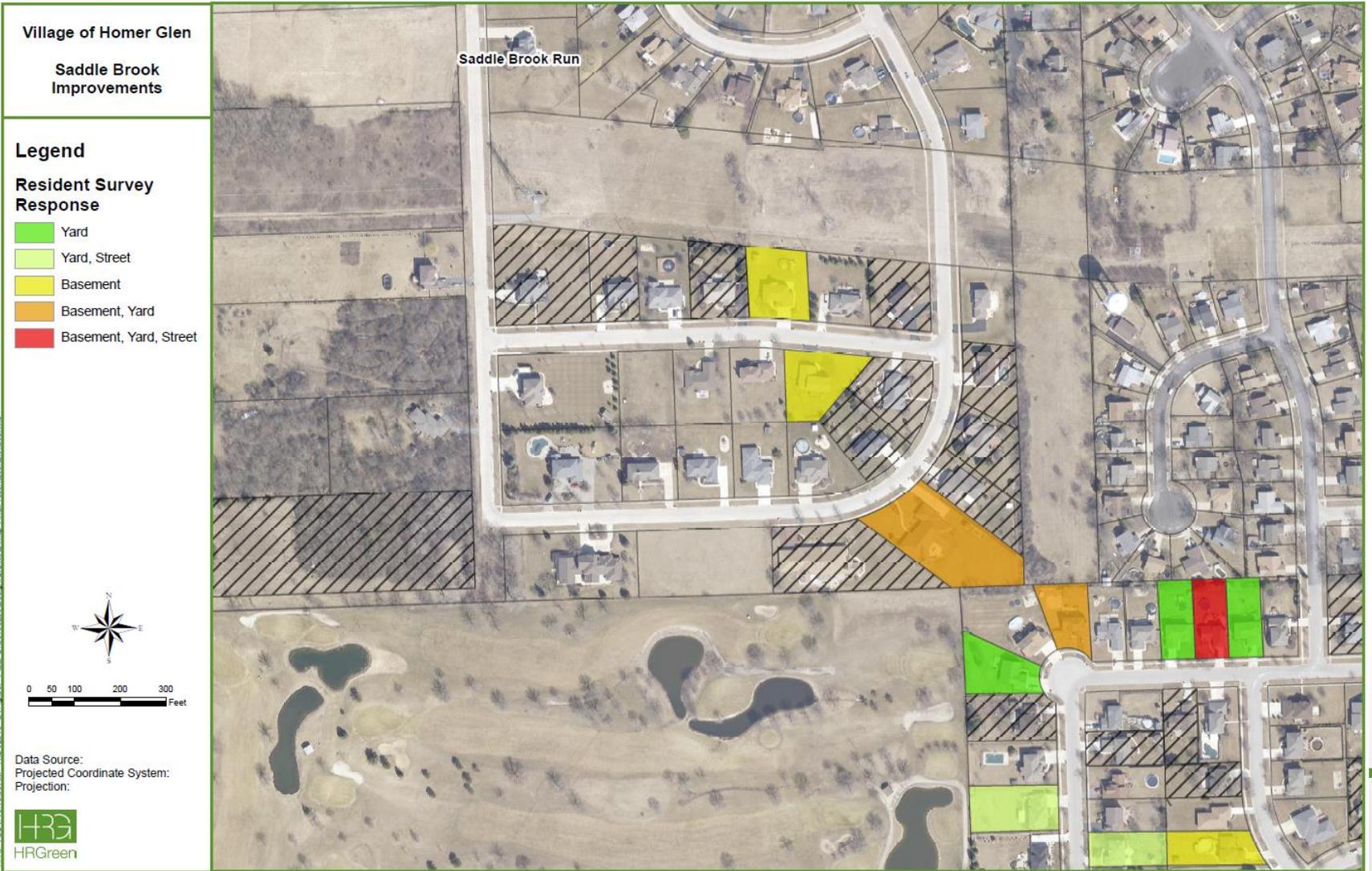


Woodbine West Improvements



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Saddle Brook Improvements



Village of Homer Glen

Saddle Brook
Improvements

Legend

Resident Survey Response

- Yard
- Yard, Street
- Basement
- Basement, Yard
- Basement, Yard, Street



0 50 100 200 300
Feet

Data Source:
Projected Coordinate System:
Projection:



Woodbine Subdivision Improvement



- In addition to determining flooding issues using data gathered as previously mentioned the Woodbine subdivision and portions of Saddle Brook Run and Pebble Creek were modeled using the hydraulic analysis software *XP SWMM 2014*
- XP SWMM Models
 - Existing conditions calibrated to reflect flooding reports
 - Multiple storms modeled to determine the extents of flooding
 - 2D modeling used in Woodbine

Existing Conditions 10 Year Storm

Village of Homer Glen

Existing Inundation Map (10-Year)

Legend

— Existing Storm Sewers

10Yr Existing Flood Depth (feet)

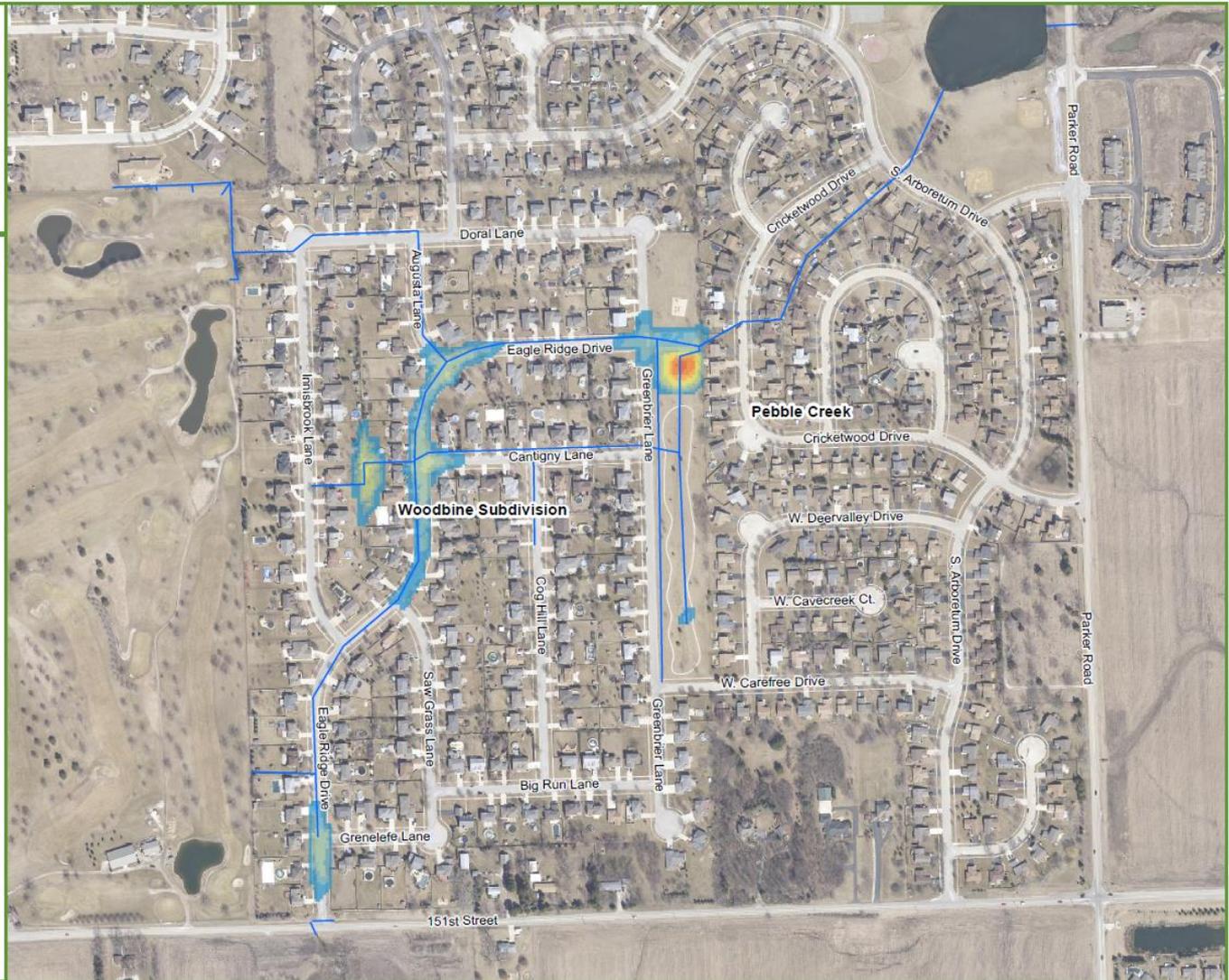
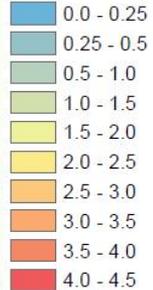
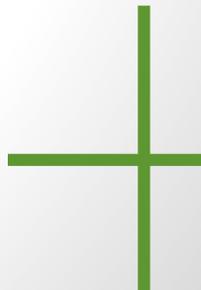


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Woodbine Solutions



- Conveyance – storm sewers, ditches and swales
 - Improvements to the storm sewer system within Woodbine have been identified.
 - Ditch/Bio-swale along the eastern edge of the former Woodbine golf course conveying flows into the proposed detention basin.



Woodbine Solutions



- Detention – storing storm water and releasing it slowly
 - Two locations on the Woodbine property could have naturalized detention basins constructed.
 - These locations have been identified in the Long Run Creek Watershed Based Plan as being locations that could be used to improve water quality. This increases the odds of receiving grants to help fund this project.
 - These basins will be visually appealing and serve as an amenity to residents.

Woodbine Solutions

Village of Homer Glen

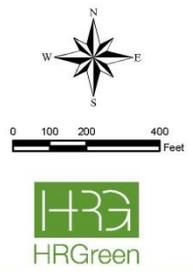
Woodbine Proposed Improvements

Legend

- Phase 1 - Fix Storm Sewer
- Phase 2 - Add Detention
- Phase 3 - Upsize Storm Sewer
- Existing Storm Sewers



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Woodbine Solutions

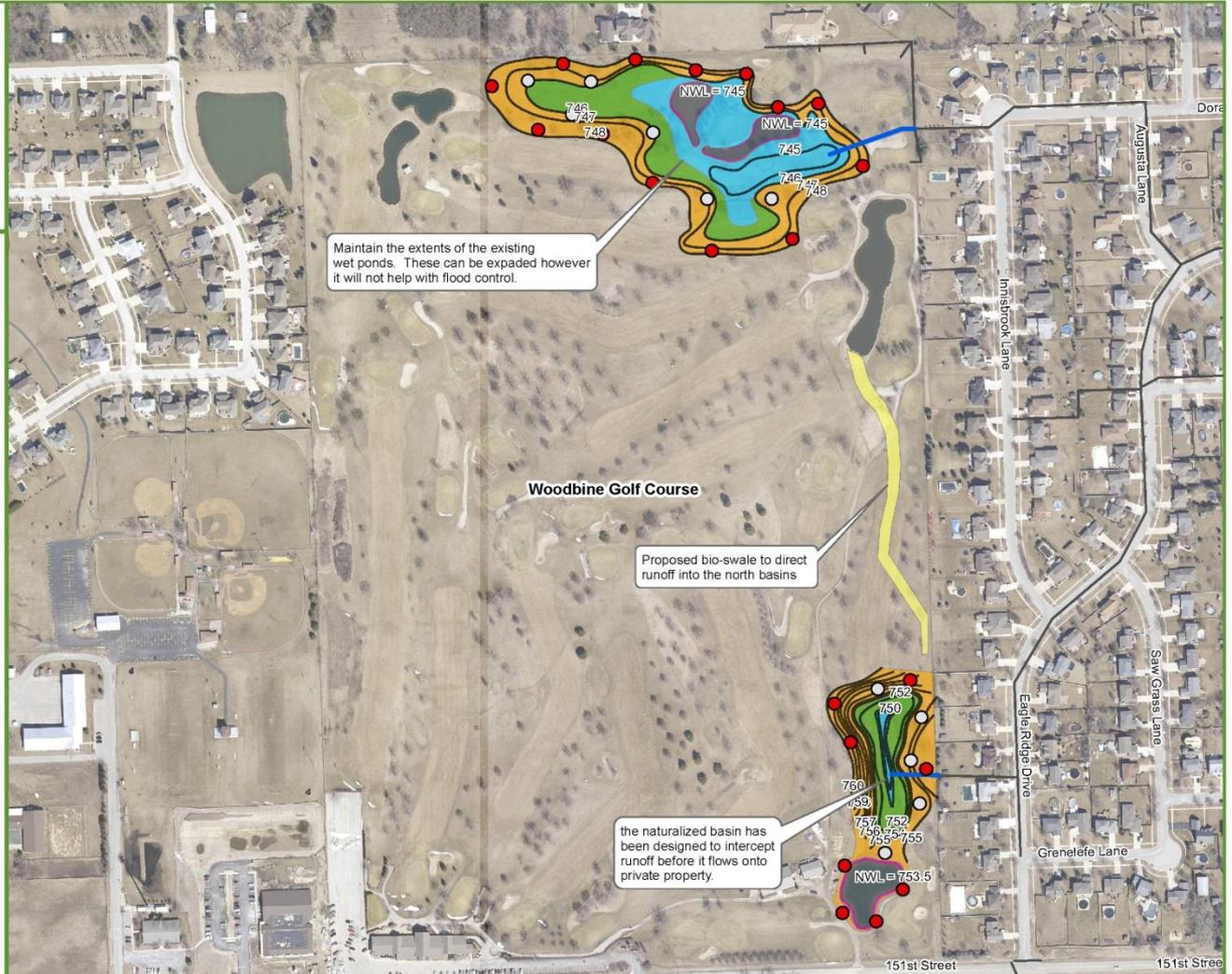
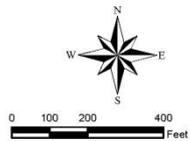
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Woodbine Property Improvements

Legend

- Red Oak
- Swamp White Oak
- Proposed Storm Sewer
- Proposed Grading
- Existing Storm Sewers
- BioSwale - Native Prairie
- Mesic Prairie
- Wet-Mesic Prairie
- Wet Prairie
- Emergent

*Erosion blanket used over all areas except open water and emergent zone





Naturalized Detention Basin Example



Wetland Example

Proposed Conditions 10 Year Storm



Applied Ecological Services, Inc.

Village of Homer Glen

Proposed Improvements Phase 3

Legend

— Existing Storm Sewers

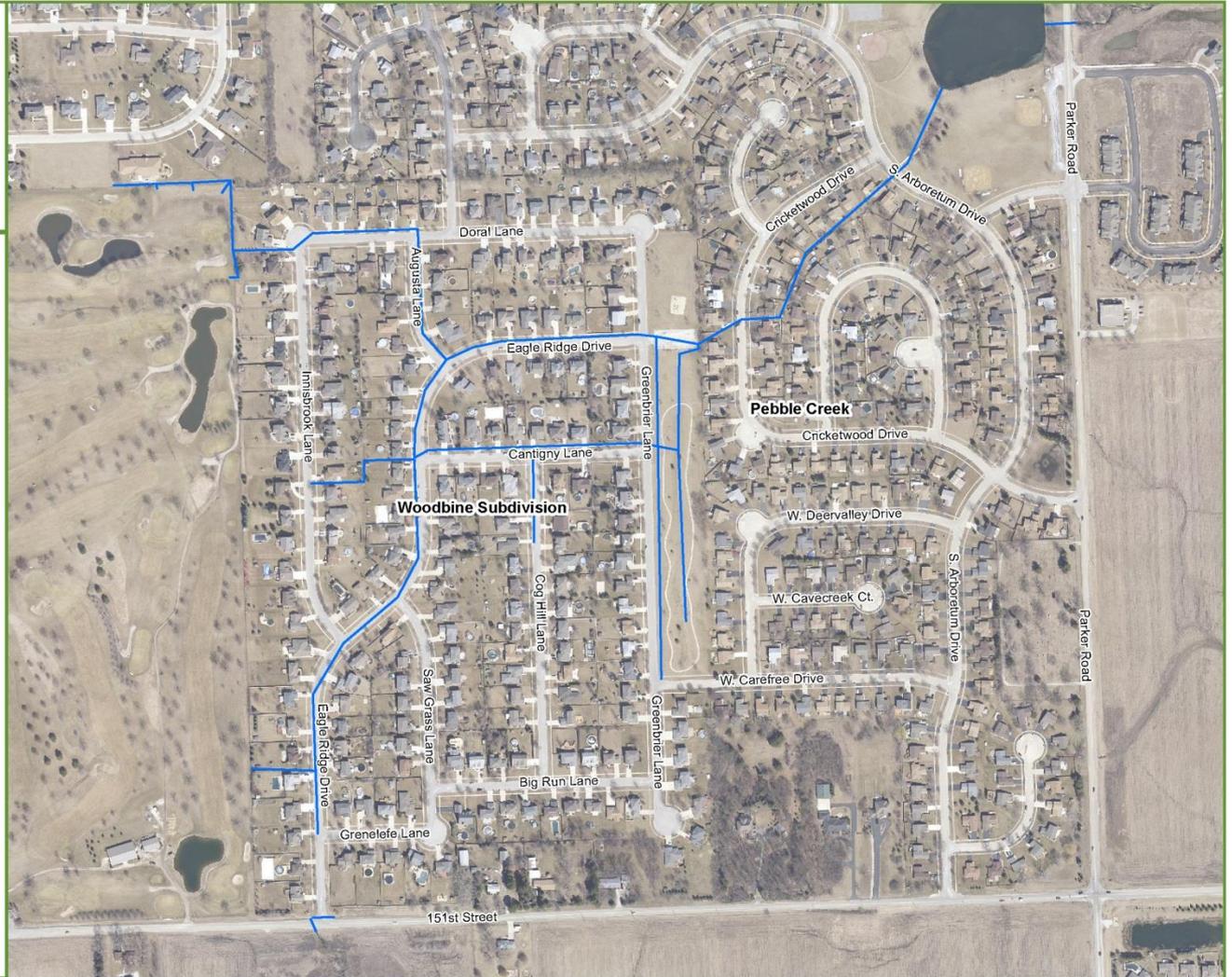
10 Yr Inundation - NONE



0 150 300 600 Feet



Village of HOMER GLEN
Community and Nature... in Harmony



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Next Steps



- HR Green has completed and submitted the Final Report to the Village of Homer Glen.
- The Village will review the recommendations.
- Final design and construction document preparation will need to be completed prior to any implementation.
- Construction on select projects may begin in the near future depending on the availability of funding.
- Questions?



THANK YOU

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Existing Conditions 1 Year Storm

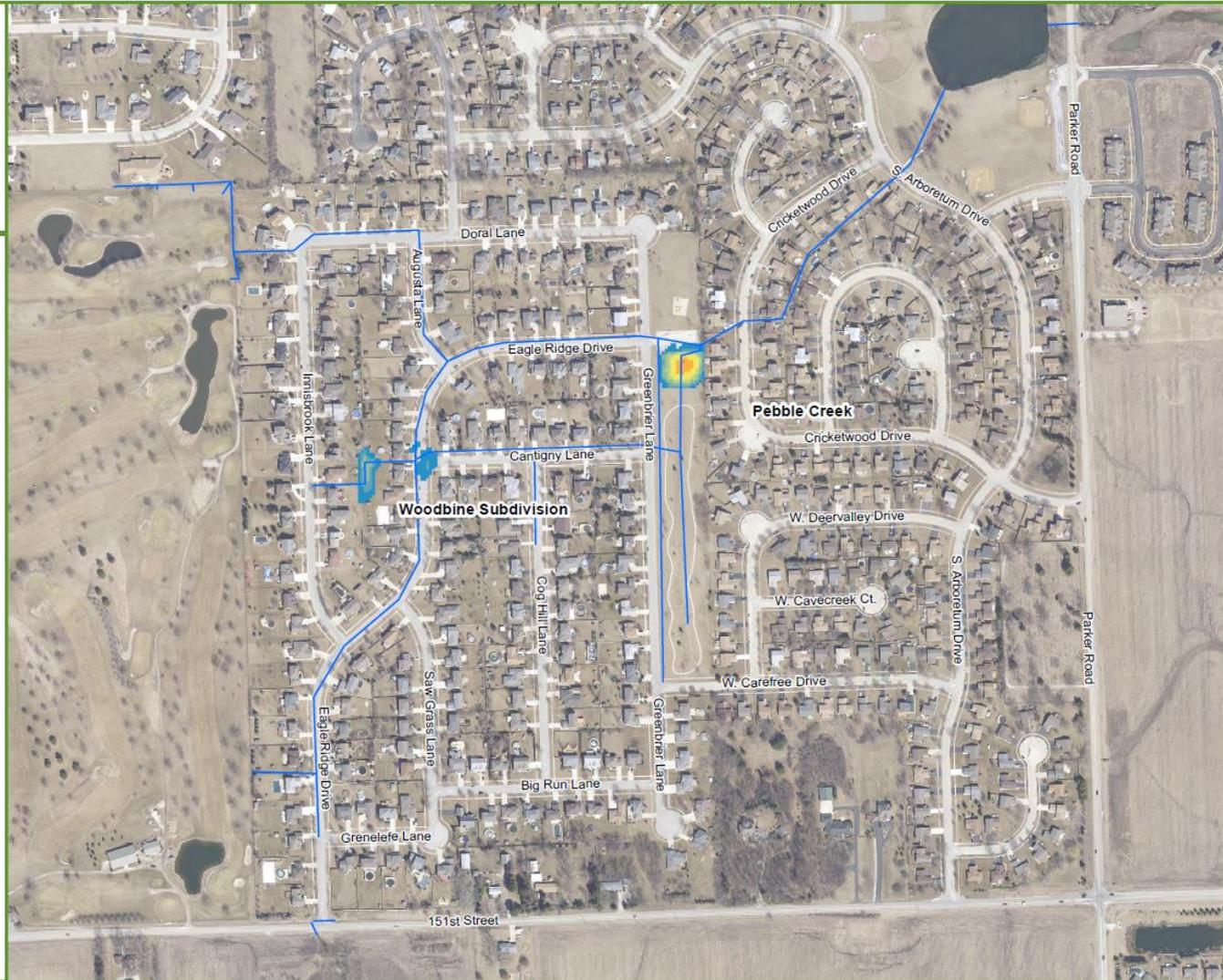
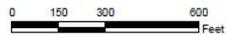
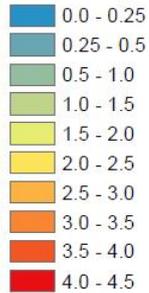
Village of Homer Glen

Existing Inundation Map (1-Year)

Legend

— Existing Storm Sewers

1Yr Existing Flood Depth (feet)



Existing Conditions 2 Year Storm

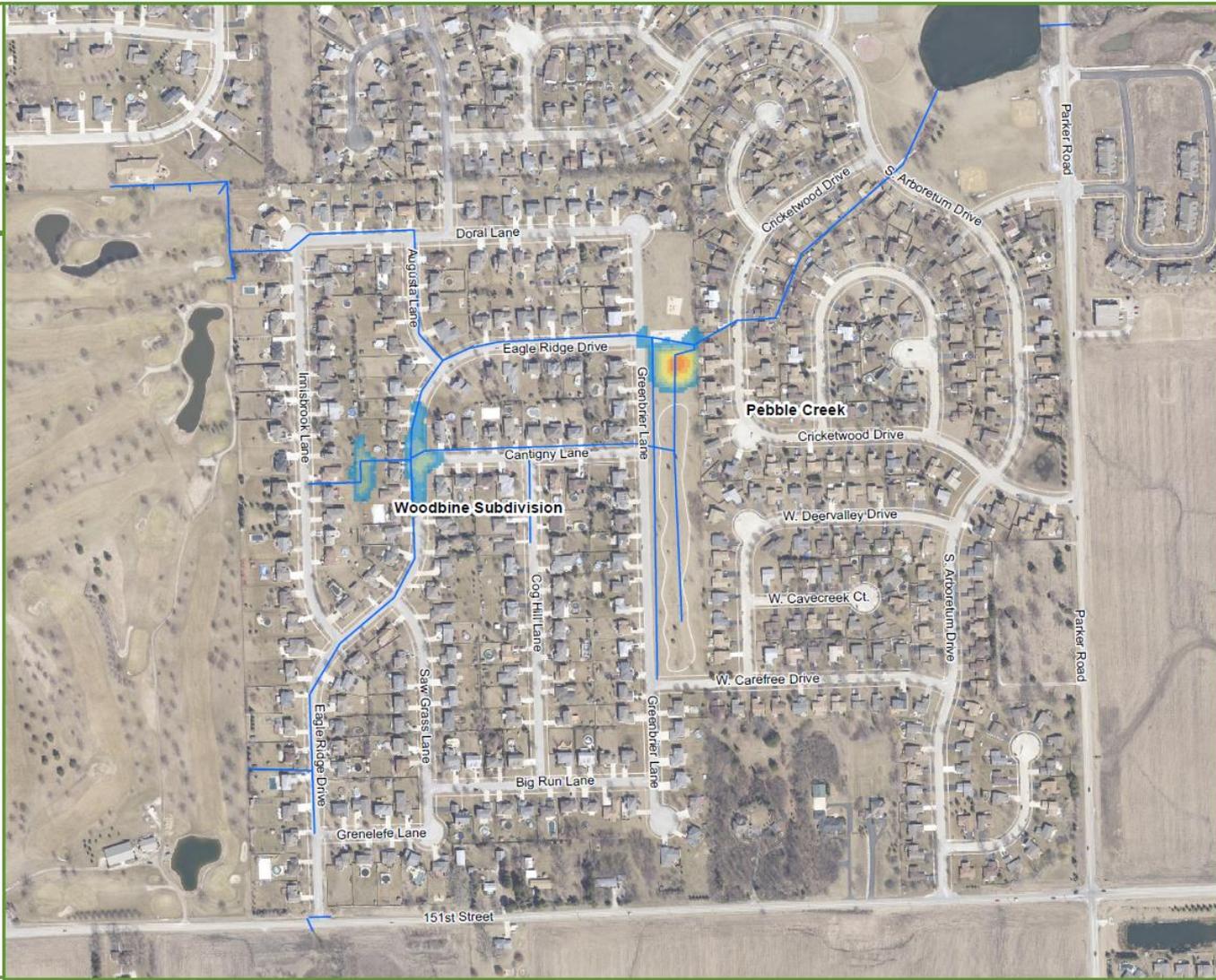
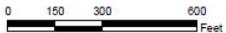
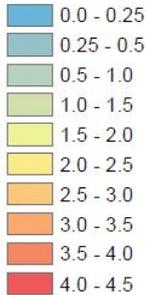
Village of Homer Glen

Existing Inundation Map (2-Year)

Legend

— Existing Storm Sewers

2Yr Existing Flood Depth (feet)



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Existing Conditions 5 Year Storm

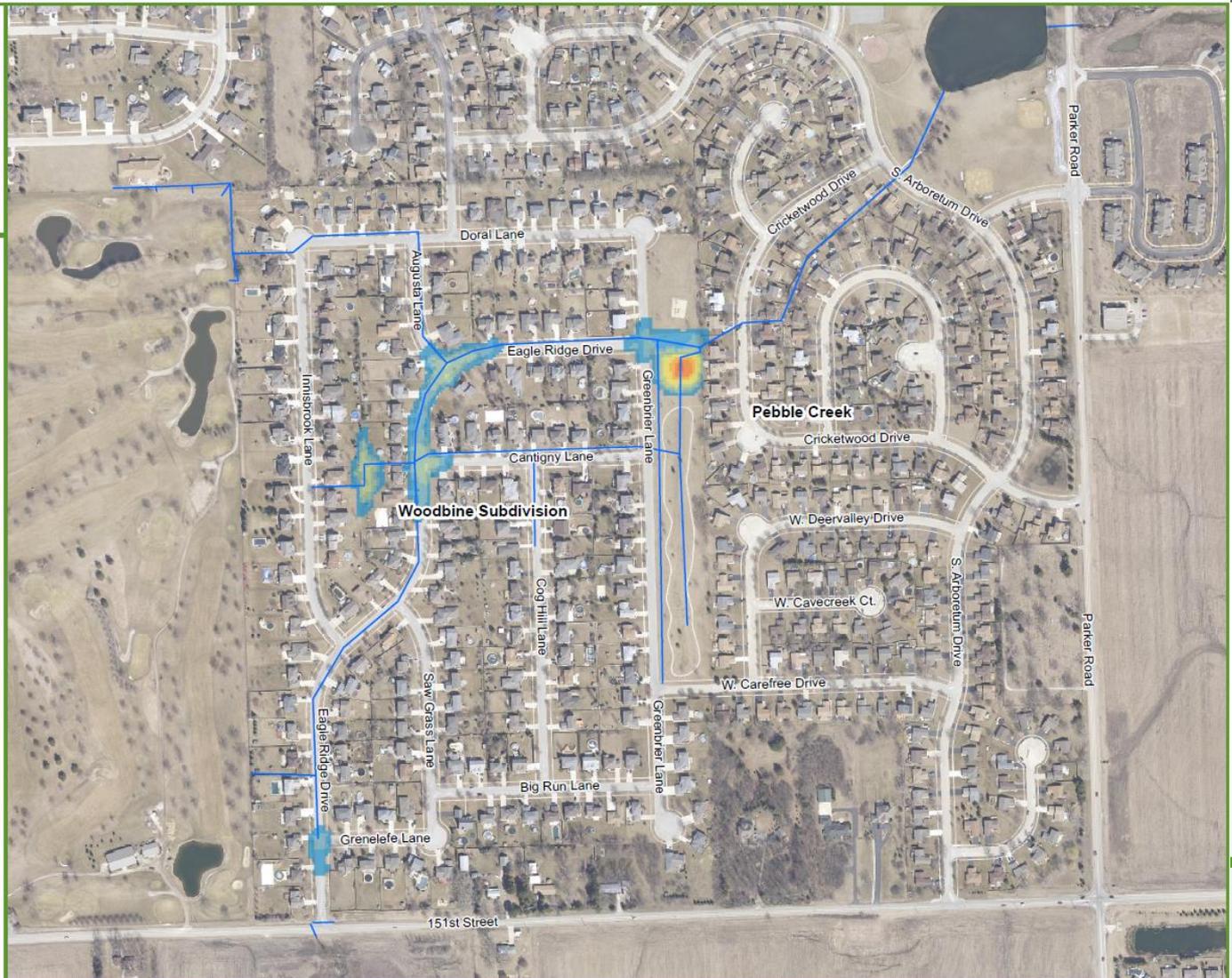
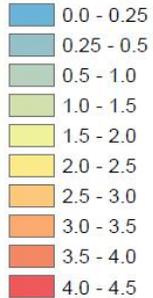
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Existing Inundation Map (5-Year)

Legend

— Existing Storm Sewers

5Yr Existing Flood Depth (feet)



Existing Conditions 50 Year Storm

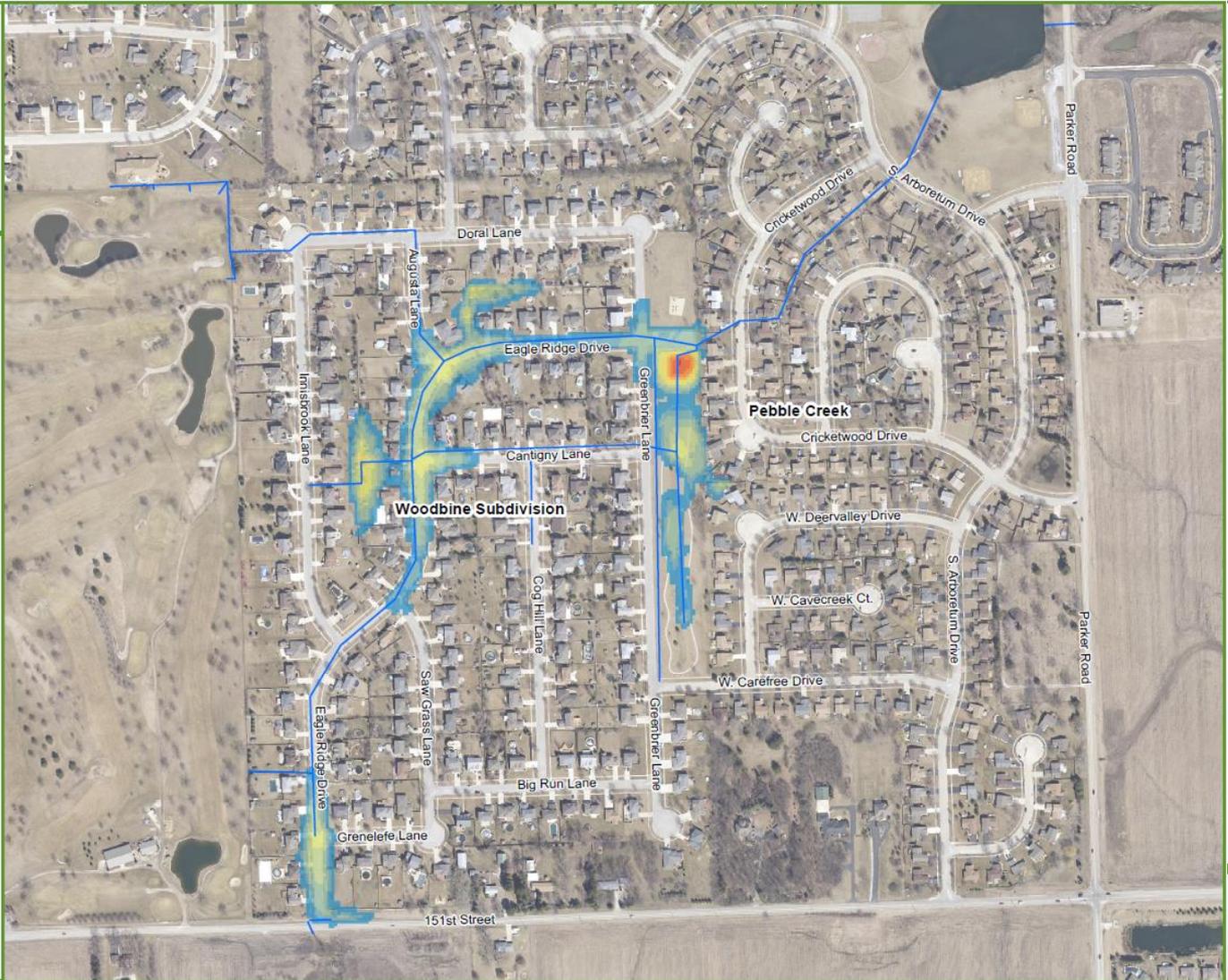
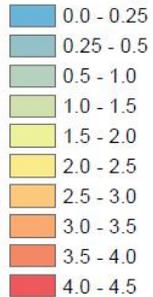
Village of Homer Glen

Existing Inundation Map (50-Year)

Legend

— Existing Storm Sewers

50Yr Existing Flood Depth (feet)



Existing Conditions 100 Year Storm



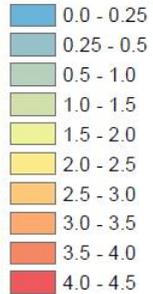
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Existing Inundation Map (100-Year)

Legend

— Existing Storm Sewers

100Yr Existing Flood Depth (feet)



Community and Nature... in Harmony



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