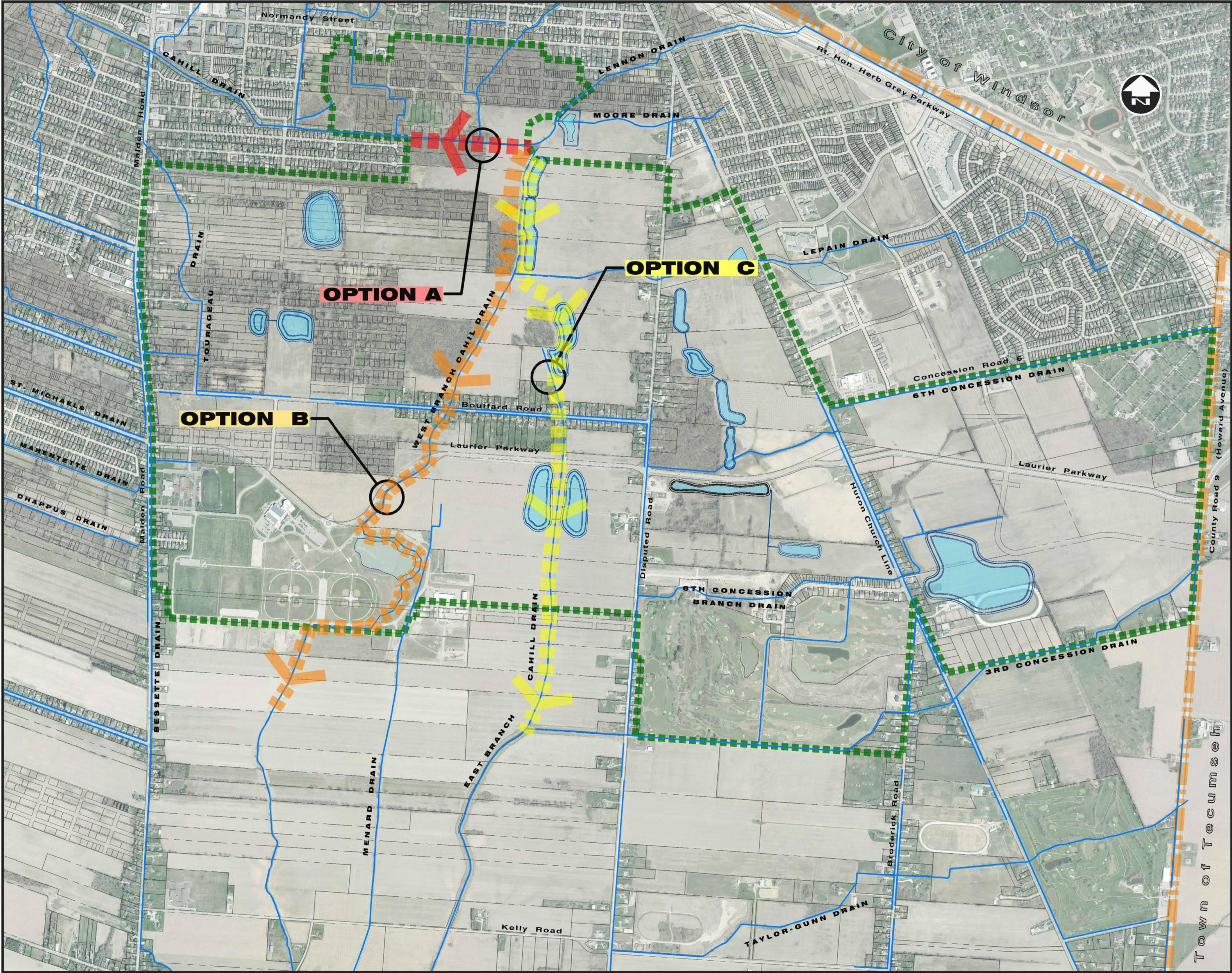


High Level / Preliminary Alternative Stormwater Management Options Considered



HOWARD BOUFFARD PLANNING AREA

Master Drainage Study

LEGEND

- MUNICIPAL BOUNDARY
- HOWARD BOUFFARD STUDY AREA
- OPTION A**
• UTILIZE CAHILL DRAIN
- OPTION B**
• UTILIZE WEST BRANCH CAHILL DRAIN
- OPTION C**
• UTILIZE EAST BRANCH CAHILL DRAIN (PREFERRED OPTION)
- Pond Locations Identified in 2017 E.A. Addendum
- Existing Municipal Drains

High Level / Preliminary Alternative Stormwater Management Options Considered

- OPTION A** - Raise banks of Cahill Drain to prevent spill and direct flow westerly.
Pros: Least costly solution
Cons: Homes along Cahill and Turkey Creek susceptible to flooding.
 - OPTION B** - Utilize the West Branch Cahill Drain.
Pros: Utilize existing flow path
Cons: Long, circuitous route. Brings flow by Vollmer Centre. Cost.
 - OPTION C*** - Redirect West Branch Cahill and utilize the East Branch Drain.
Pros: Direct route to Canard River. Direct flow away from Vollmer Centre.
Opportunity for improvements to Sixth Concession Drain. Balance flows between drains.
Cons: Cost.
 - OPTION D** - Do Nothing
This option is not recommended as it would not allow for development to proceed. The Town of LaSalle has invested heavily in planning and other infrastructure to date. Addressing the flood inundation is the remaining hurdle to unlocking development in the area.
- * Preferred Solution moved forward for further analysis.
Options B and C require regional SWM facility with pump station.

SCALE: N.T.S.

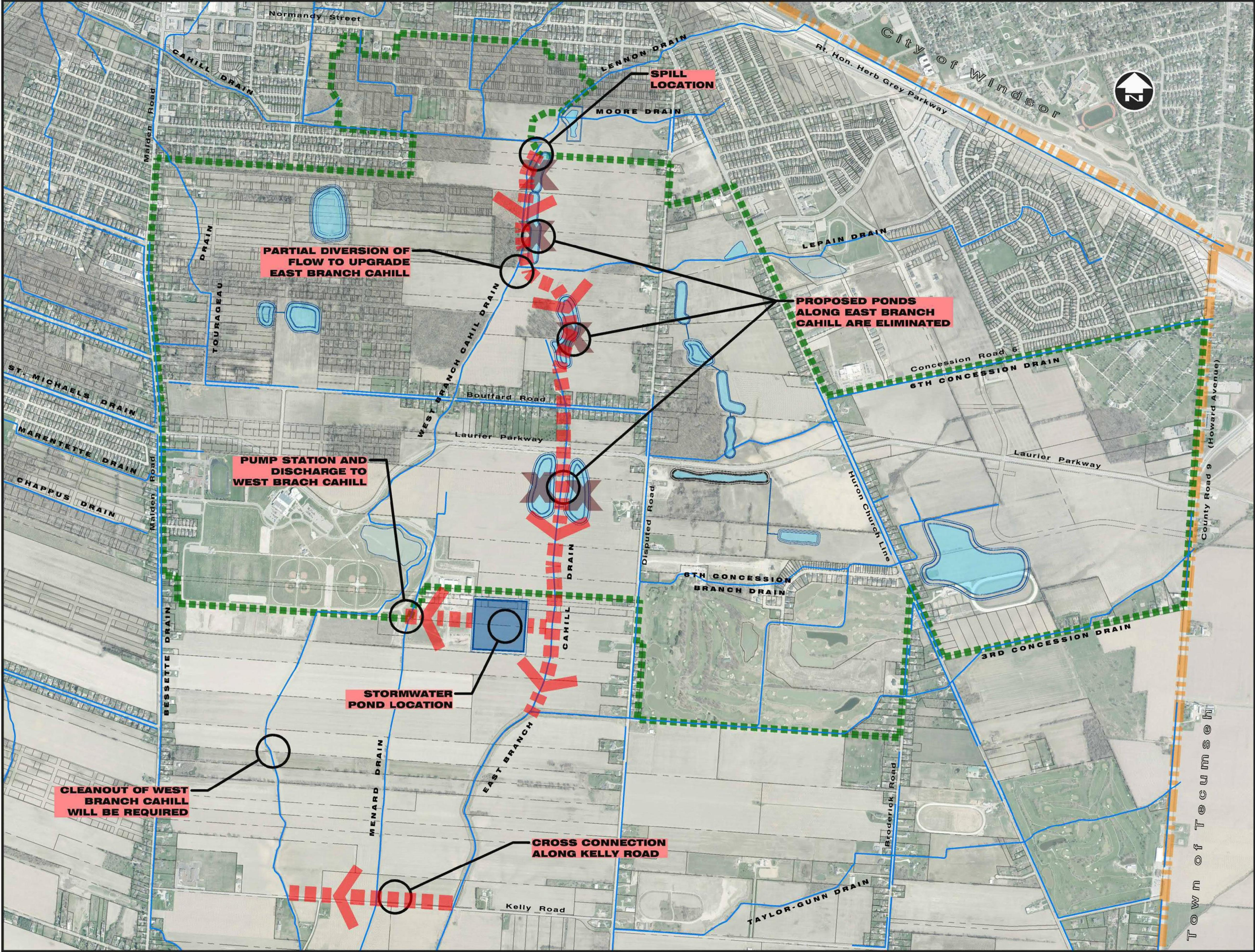
HIGH LEVEL OPTIONS CONSIDERED

DATE: JUNE 2019
Dillon Proj.No. 18-8169-1000



Alternative 1A

Eliminate Ponds Along East Branch Cahill



HOWARD BOUFFARD PLANNING AREA

Master Drainage Study

LEGEND

- MUNICIPAL BOUNDARY
- HOWARD BOUFFARD STUDY AREA
- OPTION 1 - UTILIZE CAHILL DRAIN
- Pond Locations Identified in 2017 E.A. Addendum
- Existing Municipal Drains

- Option 1A Description**
- Improve West Branch Cahill and reroute to East Branch Cahill
 - Improve East Branch Cahill from Lepain Drain to 3rd Concession Drain
 - Eliminate proposed Ponds along East Branch Cahill
 - New stormwater management pond and pump station south of Howard / Bouffard area
 - Pump Flows to West Branch Cahill Drain
 - Interconnect East Branch Cahill Drain and West Branch Cahill Drain along Kelly Road.

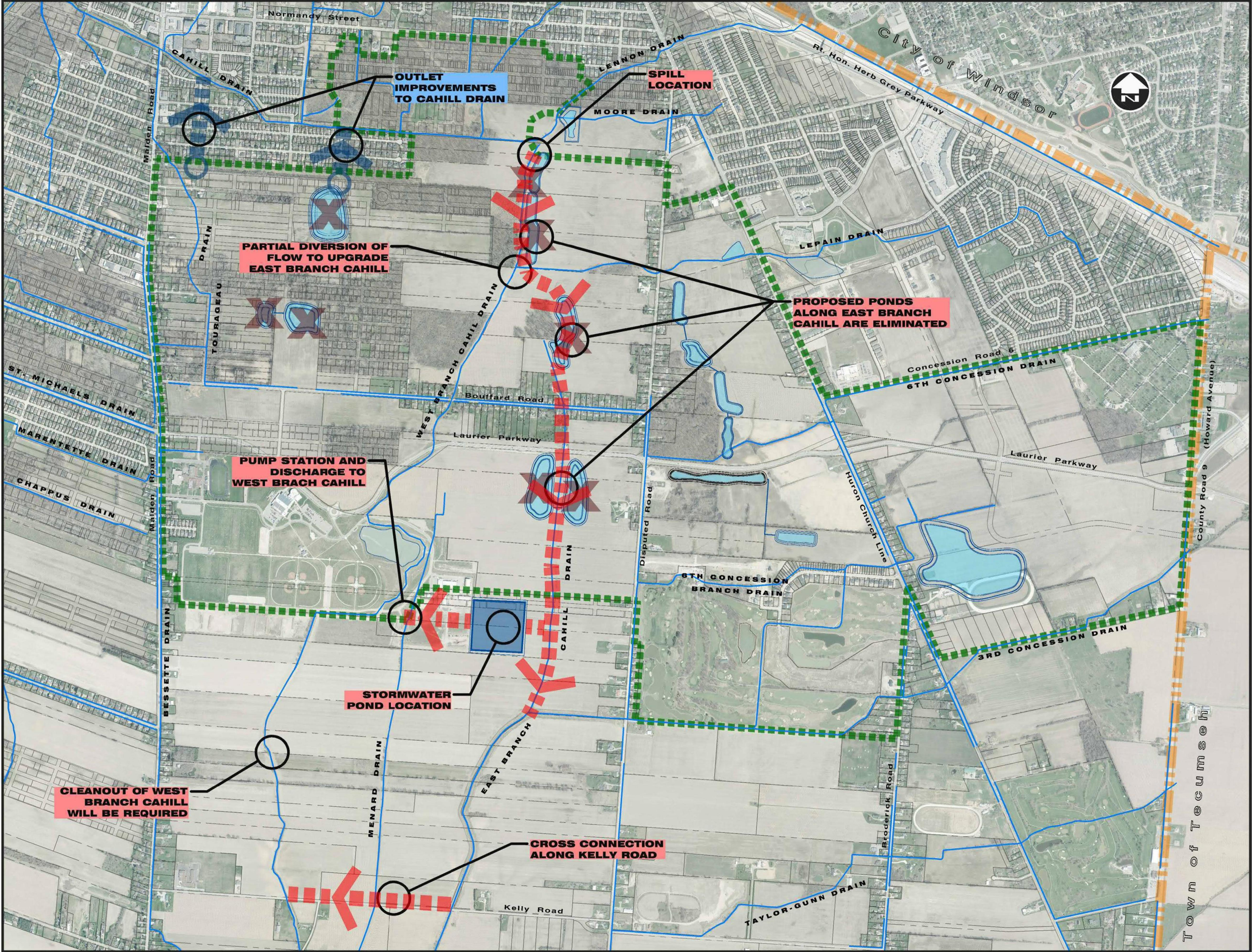
SCALE: N.T.S.

PROPOSED CHANNELS OPTION 1A

DATE: JUNE 2019
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Alternative 1B

1A Plus Eliminate Ponds to Cahill Drain



HOWARD BOUFFARD PLANNING AREA

Master Drainage Study

LEGEND

- MUNICIPAL BOUNDARY
- HOWARD BOUFFARD STUDY AREA
- OPTION 1
 - UTILIZE CAHILL DRAIN
- DRAIN IMPROVEMENTS TO CAHILL DRAIN
- Pond Locations Identified in 2017 E.A. Addendum
- Existing Municipal Drains

- Option 1B Description**
- Same improvements as Option 1A
 - Remove three ponds in northwest corner of planning area
 - Improve storm sewer outlets to Cahill Drain
 - Increase spill at Cahill drain to balance flows
 - Increase regional stormwater pond

SCALE: N.T.S.

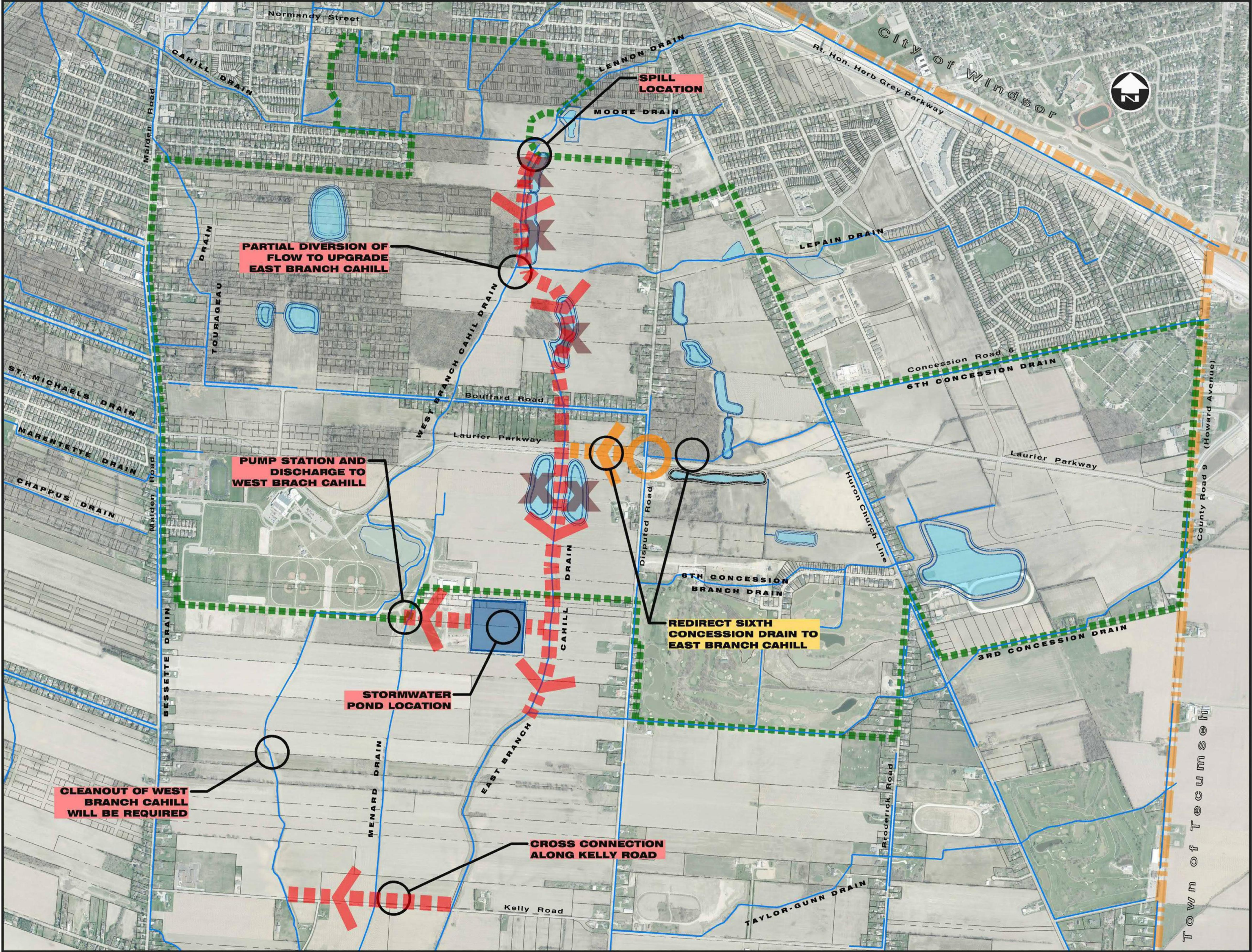
PROPOSED CHANNELS

OPTION 1B

DATE: JUNE 2019
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Alternative 2A

Redirect the Sixth Concession Drain



HOWARD BOUFFARD PLANNING AREA

Master Drainage Study

LEGEND

- MUNICIPAL BOUNDARY
- HOWARD BOUFFARD STUDY AREA
- OPTION 1
- OPTION 2
- Pond Locations Identified in 2017 E.A. Addendum
- Existing Municipal Drains

- Option 2A Description**
- Same improvements as Option 1A
 - Redirect Sixth Concession Drain to East Branch Cahill Drain to improve level of service

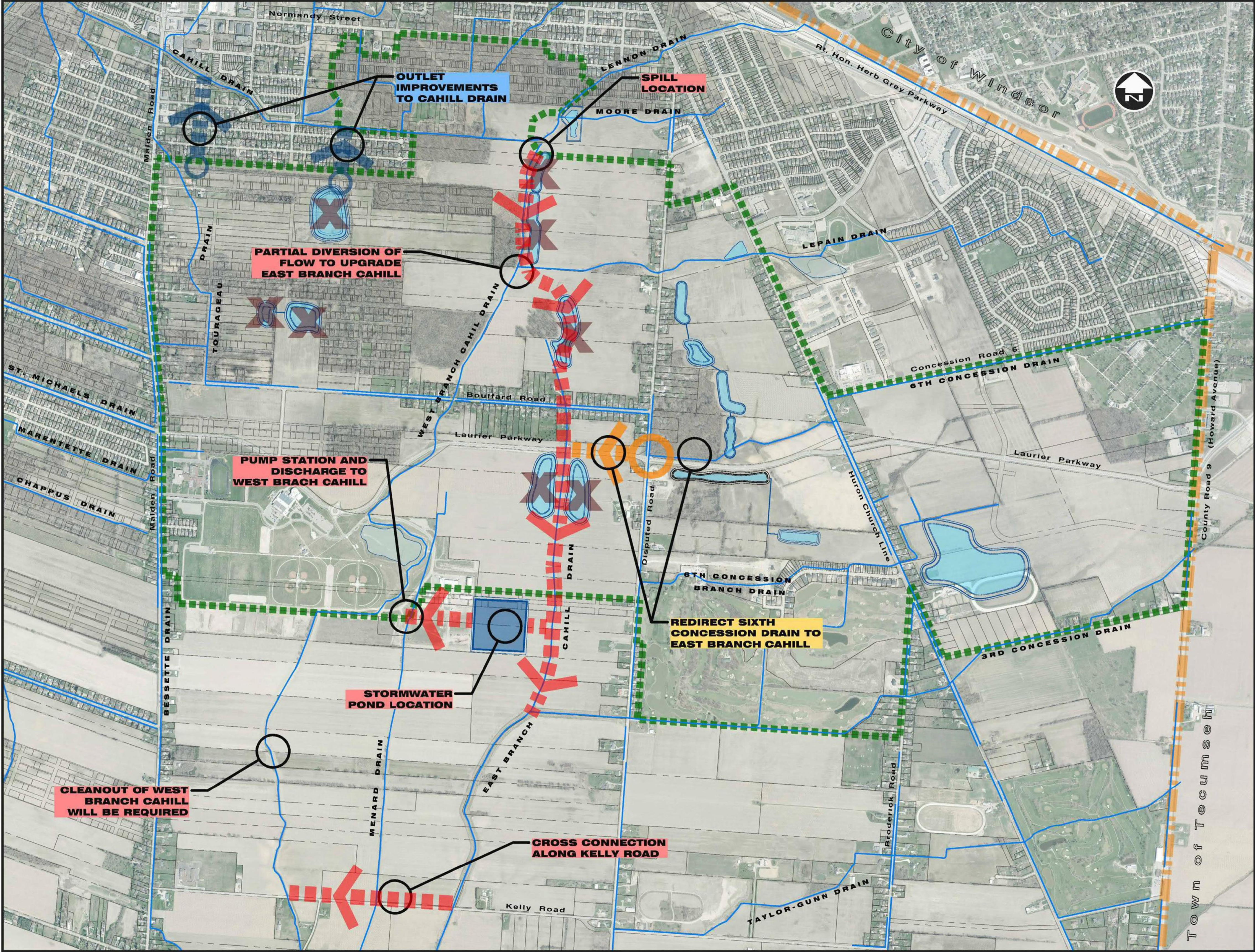
SCALE: N.T.S.

PROPOSED CHANNELS OPTION 2A

DATE: JUNE 2019
Dillon Proj.No. 18-8169-1000

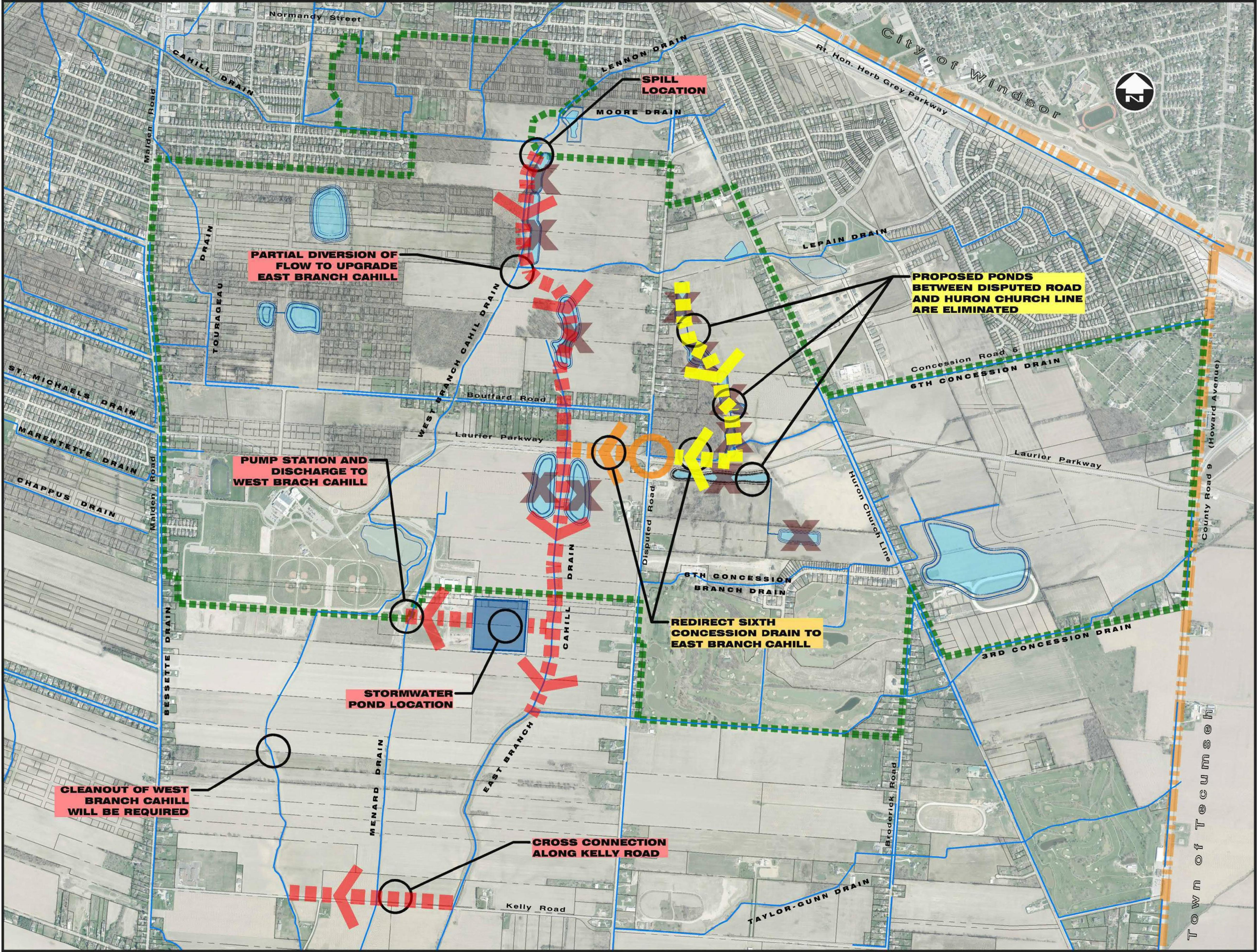
Alternative 2B

2A Plus Eliminate Ponds to Cahill Drain



Alternative 3A

Eliminate Ponds Between Disputed and Huron Church



HOWARD BOUFFARD PLANNING AREA

Master Drainage Study

LEGEND

- MUNICIPAL BOUNDARY
- HOWARD BOUFFARD STUDY AREA
- OPTION 1
- OPTION 2
- OPTION 3
- Pond Locations Identified in 2017 E.A. Addendum
- Existing Municipal Drains

- Option 3A Description**
- Same improvements as Option 2A
 - Eliminate proposed ponds between Huron Church Line and Disputed Road

SCALE: N.T.S.

PROPOSED CHANNELS

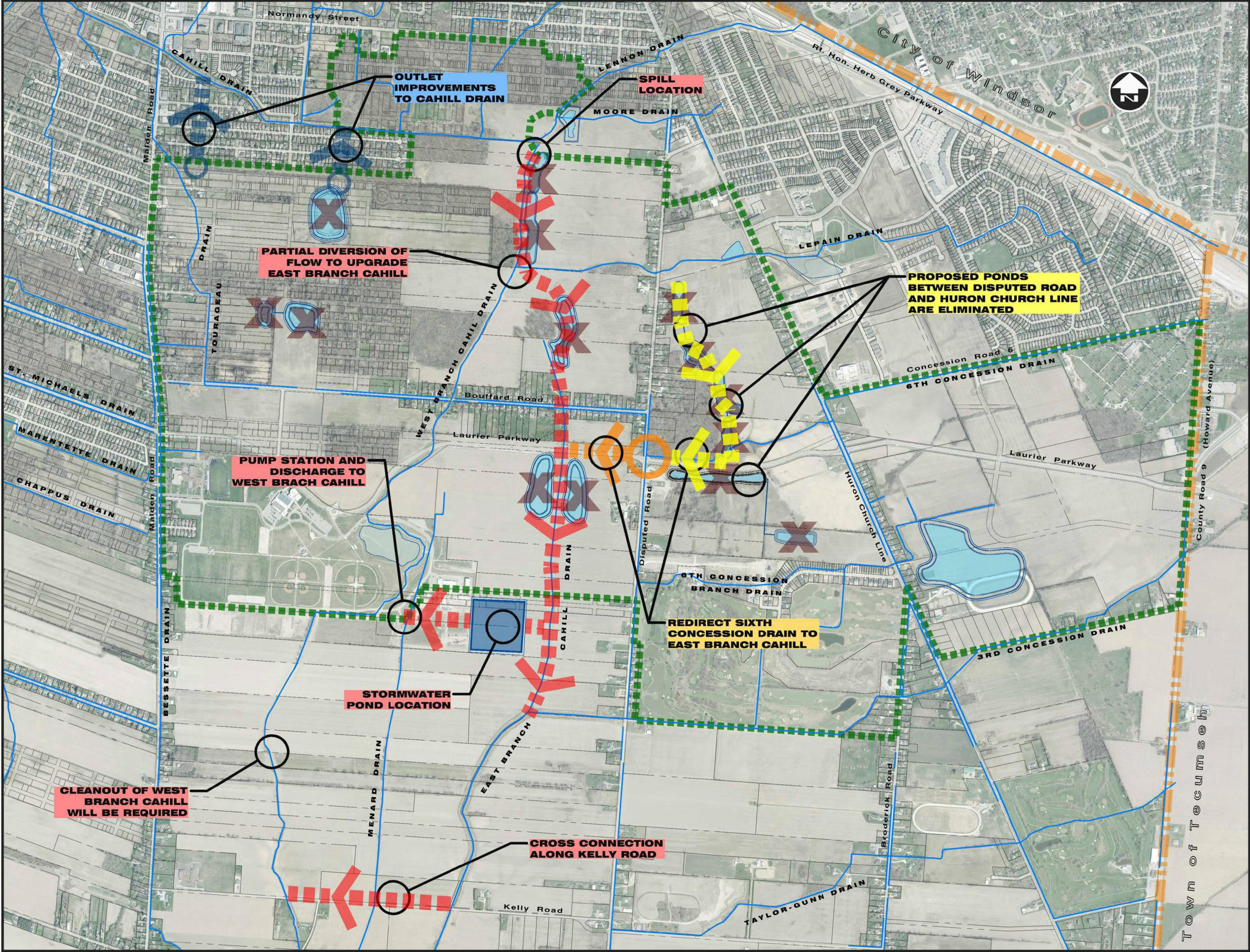
OPTION 3A

DATE: JUNE 2019
Dillon Proj. No. 18-8169-1000

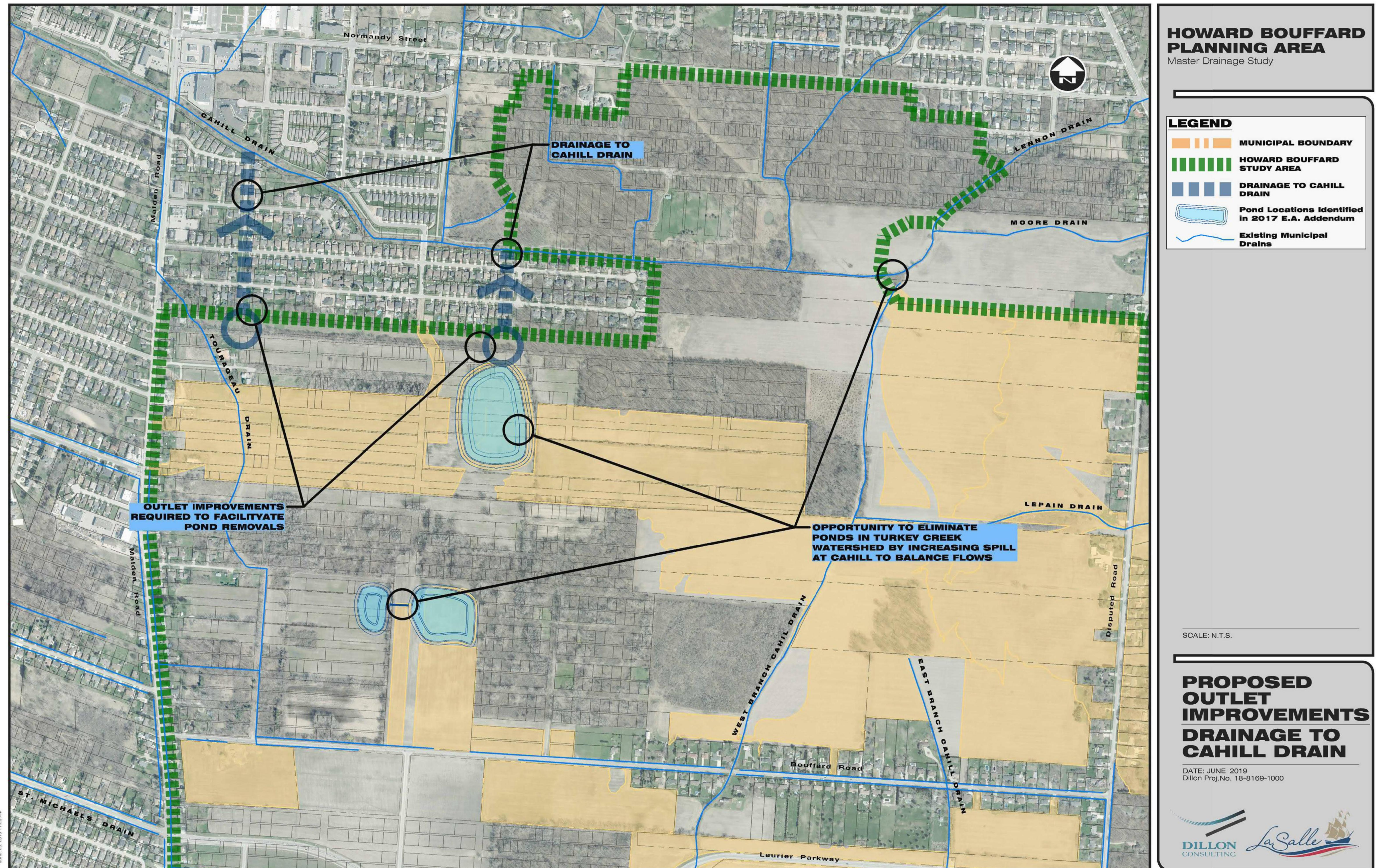


Alternative 3B

3A Plus Eliminate Ponds to Cahill Drain



Alternative 1B, 2B and 3B Outlet Improvements to Cahill Drain



Regional Pond Sizing



Proposed Option	Pond Footprint (m)	Storage Volume Required – 100yr24hr Chicago (m ³)	Pond Depth (m) (Including 0.5m Freeboard)
Option #1A	222 x 222	110,000	3.17
Option #1B	230 x 230	149,000	3.95
Option #2A	224 x 224	119,000	3.35
Option #2B	232 x 232	157,000	4.12
Option #3A	228 x 228	139,000	3.75
Option #3B	277 x 277	212,000	3.72

§ 190m x 190m Pond Bottom For Options 1A to 3A

§ 240m x 240m Pond Bottom for Option 3B

§ 5:1 Side Slopes

Input received today will be used to finalize and evaluate the design options.

The EA process requires alternatives be developed and evaluated based on potential impacts to the environment, as well as engineering considerations and costs.

The following criteria were considered in the evaluation of alternatives.



Recommended Alternative 3B