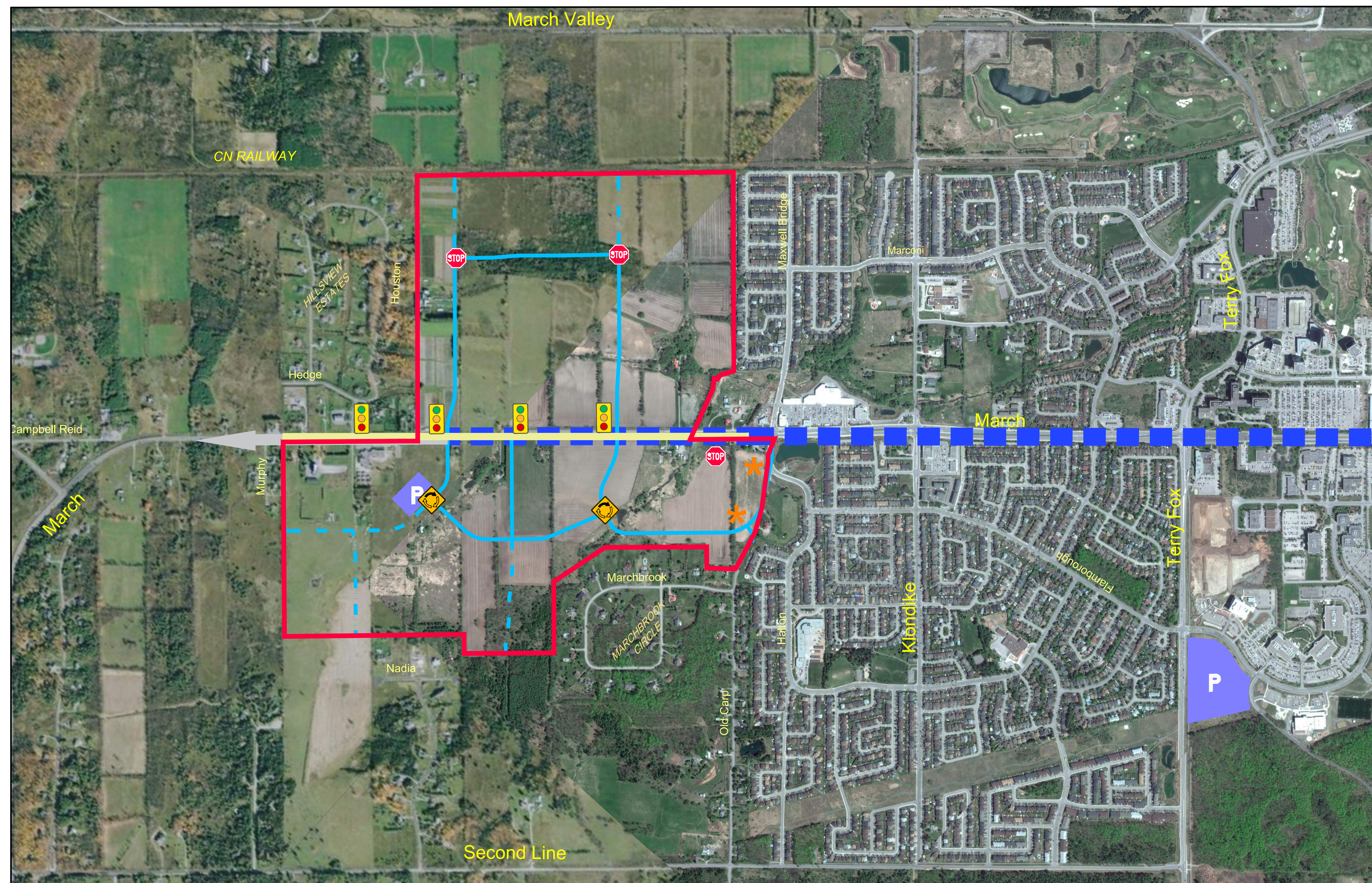




# RECOMMENDED TRANSPORTATION DESIGN



## LEGEND

- KNUEA
- March Road Widening  
(Timing to be determined by City of Ottawa)
- New Signals
- New Stop Control
- Potential Roundabout
- Planned Park & Ride
- Ultimate Bus Rapid Transit Extension  
(Timing to be determined by City of Ottawa)
- Conceptual Future Transit Corridor
- New Collectors
- Future Collectors
- Local Road Modifications

## Note:

New Collectors will be designed as possible transit routes.



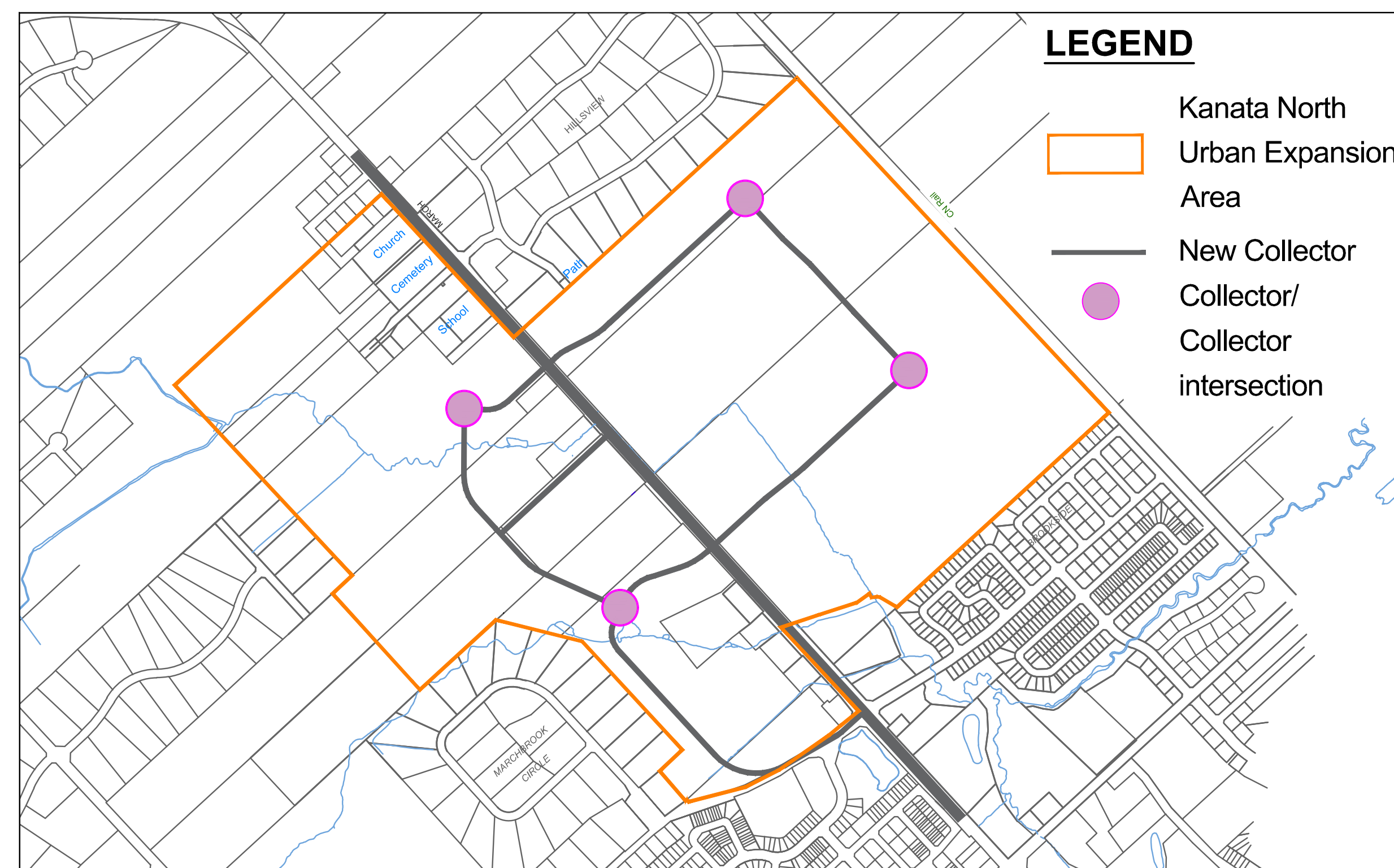
## INTERNAL COLLECTOR INTERSECTIONS

Feasibility analysis was completed to determine appropriate intersection control at the four internal collector/collector intersections.

- Alternative forms of control included stop control and single-lane roundabout;
- Each control type was assigned a score based on the following criteria;
  - Cost
  - Safety
  - Capacity
  - Pedestrians and Cyclists
  - Environmental Impacts
  - Access Management
  - Transit
  - Property Impacts
- The criteria were assigned a weight based on relative importance;

Results of the analysis are as follows:

- The intersections in the northwest and southwest quadrants could be considered as possible candidates for roundabout control
- The intersections in the northeast and southeast quadrants could be considered as possible candidates for stop control/mini roundabout.



## MARCH ROAD ACCESSSES

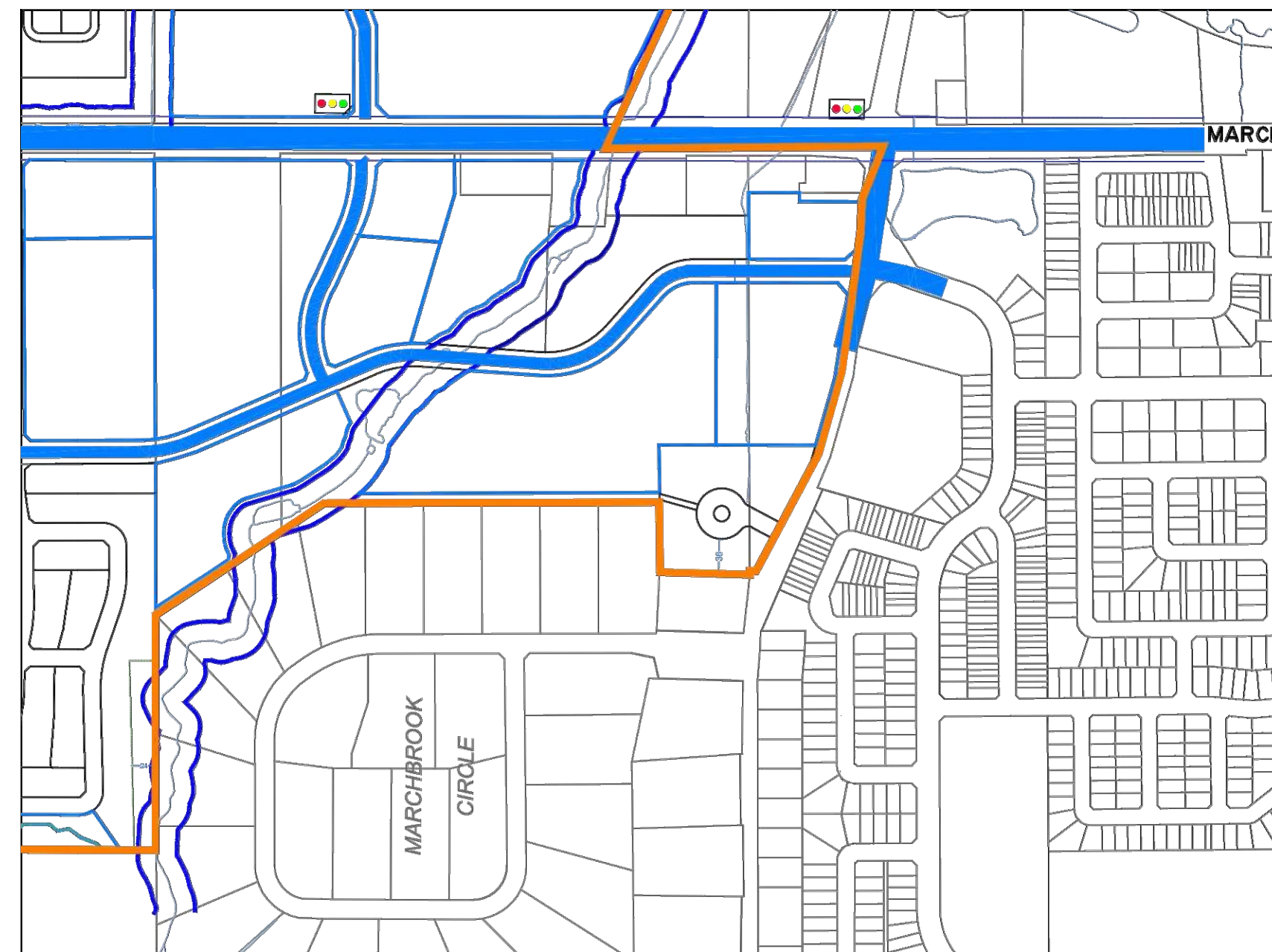
Traffic signals are recommended as the preferred type of intersection control at the KNUFA access intersections for the following reasons:

- The constraints of the 44.5m ROW corridor;
- The need to give greater priority to March Road traffic;



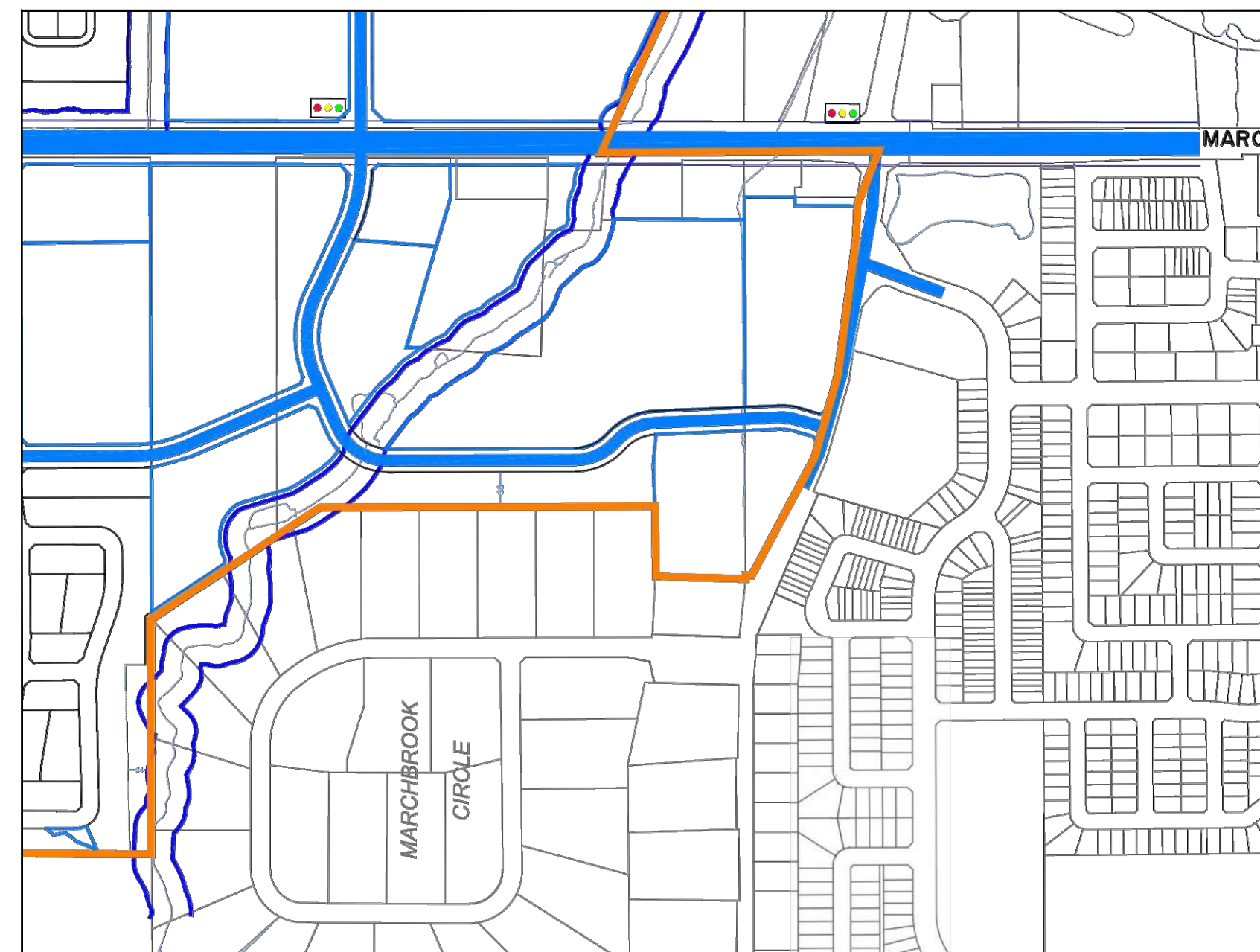


## OLD CARP ROAD ACCESS ALIGNMENTS



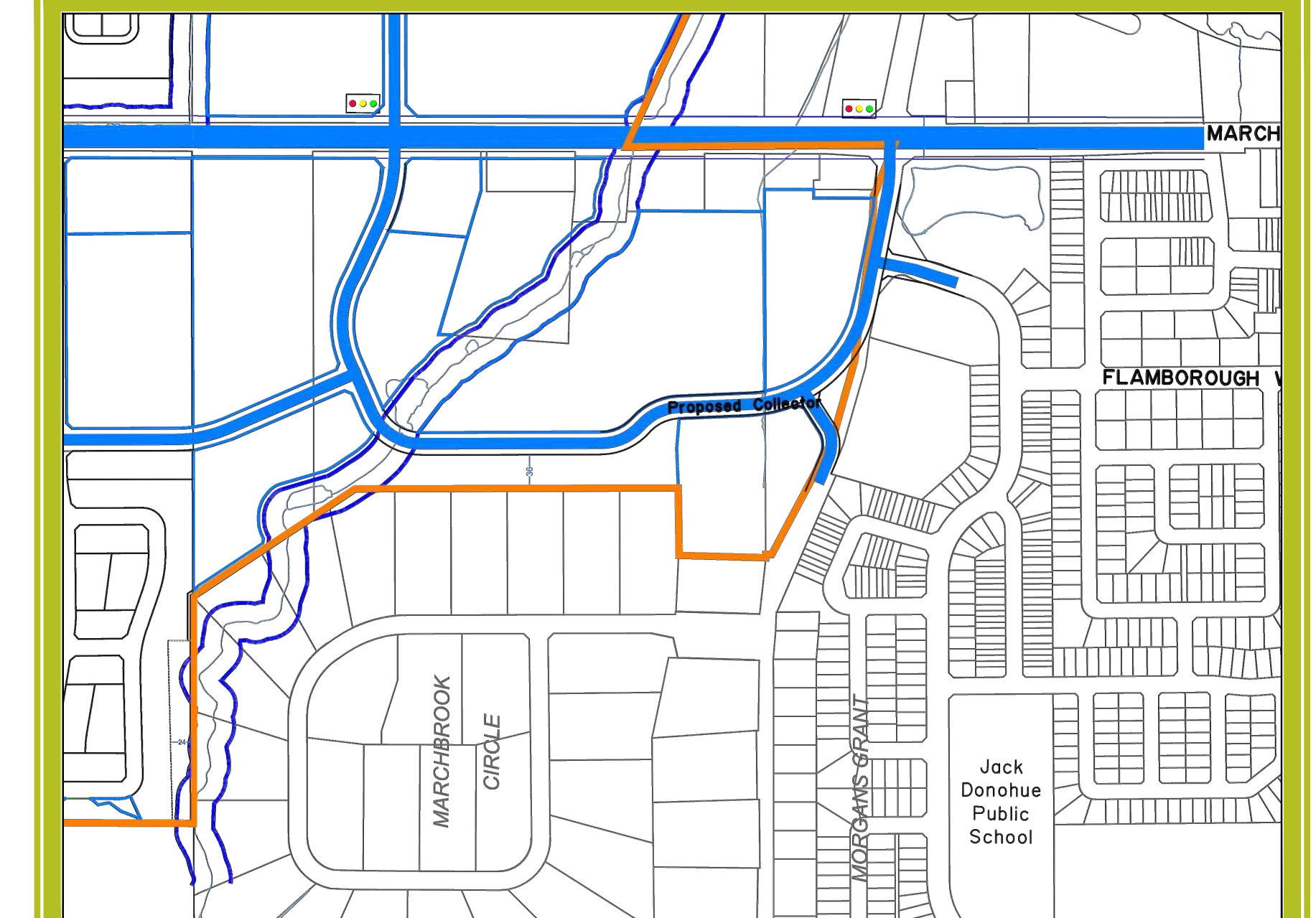
### Four-Leg Intersection at Halton Terrace

- Requirement for new Westbound left turn lane to Halton Terrace
- Adequate spacing for back-to-back lefts between March & Halton Terrace
- All-way stop in proximity of March Road



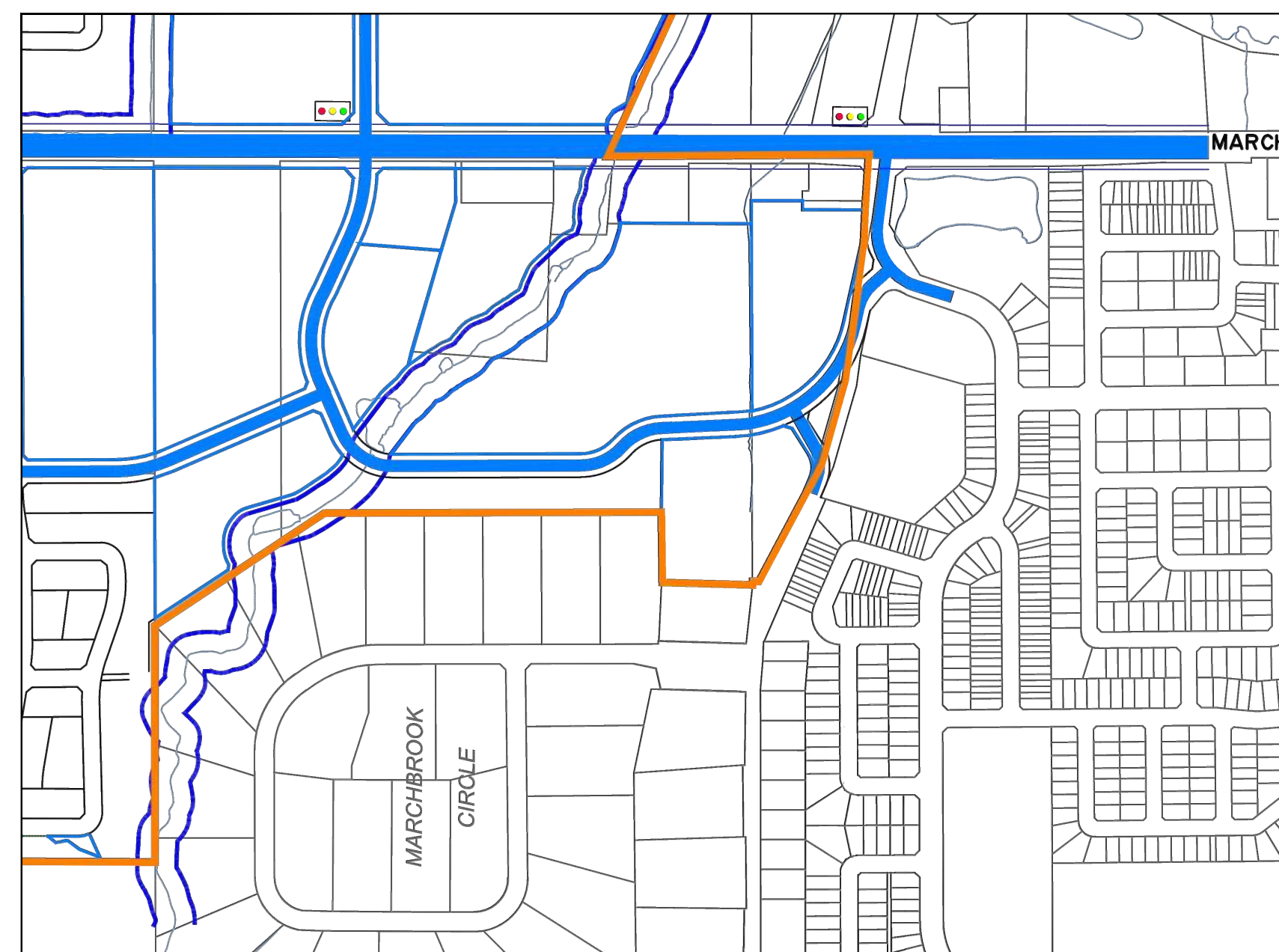
### Tee Intersection West of Halton Terrace

- Adequate intersection spacing
- Free flow desired in and out of Study Area
- Alignment not conducive to desired control type



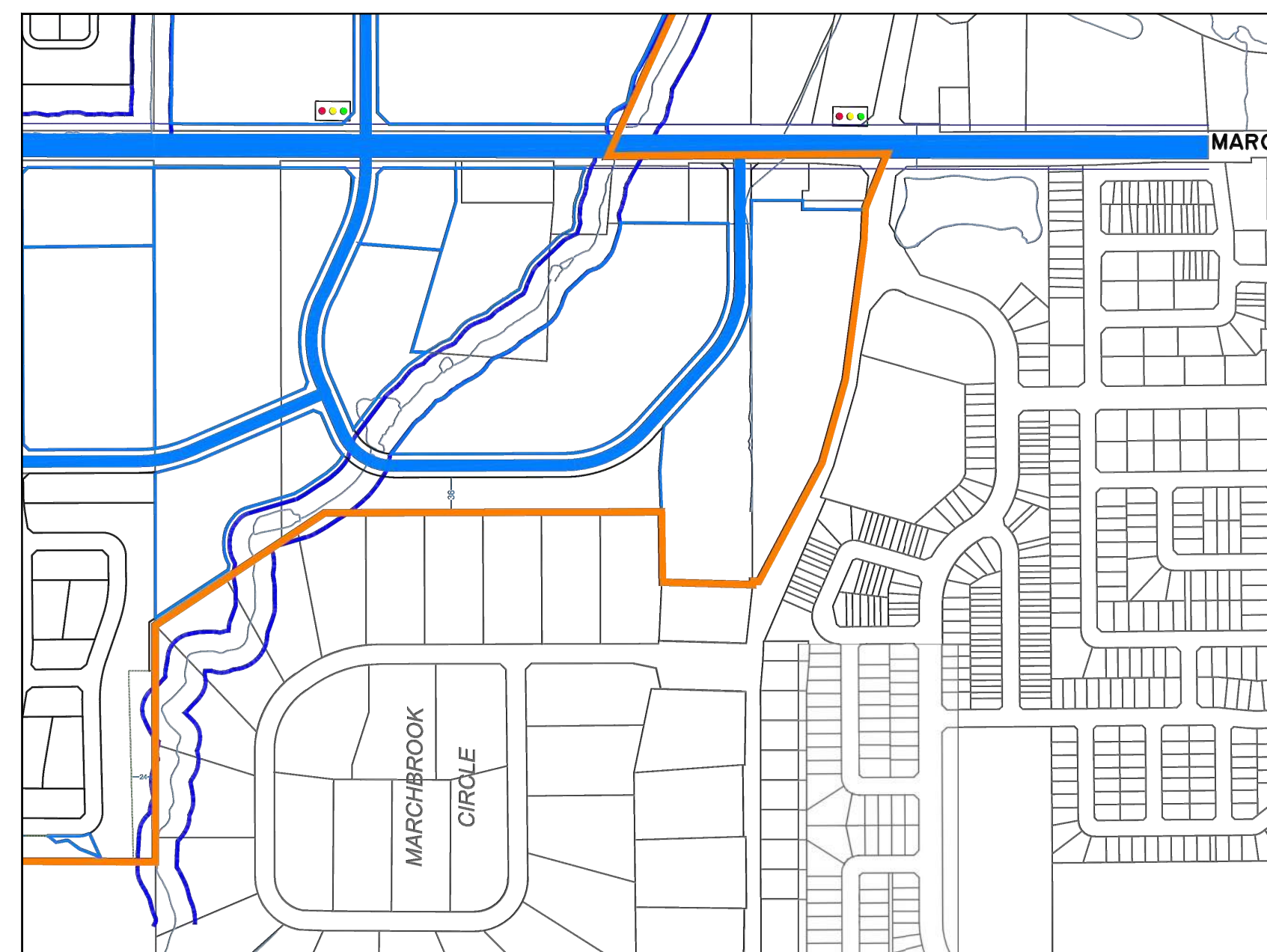
### Old Carp Road & Halton Terrace Realignments

- Accommodates dominant traffic flow
- Facilitates traffic movement to/from March Road
- **Technically preferred**



### Old Carp Road Realignment

- Westbound right turn lane required at Old Carp/Halton Terrace
- Indirect connection to March Road
- Additional stop and horizontal curve for Eastbound Traffic



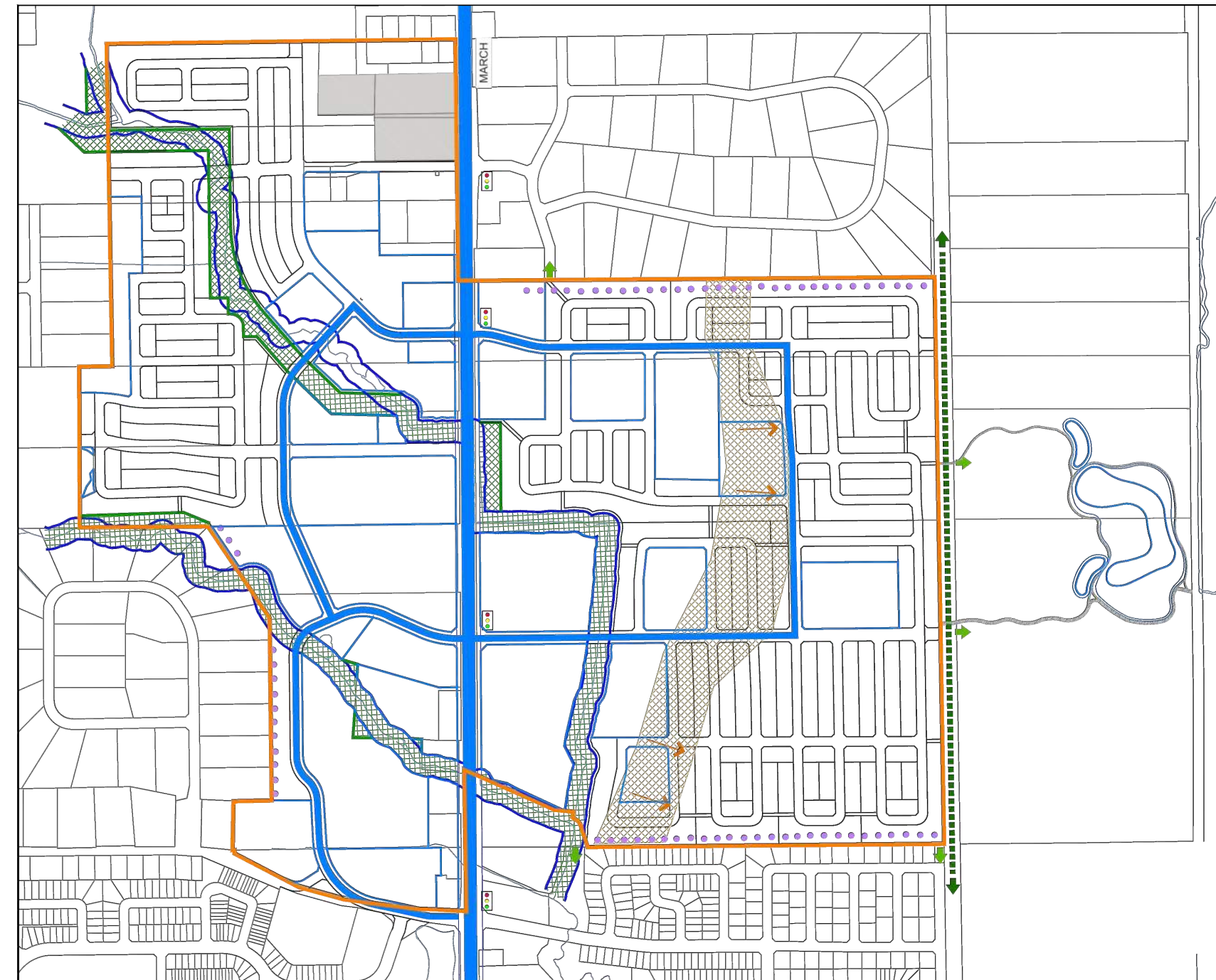
### No Connection to Old Carp Road

- Dual Northbound left turn lanes required on March Road
- No linkage to Morgan's Grant Community
- Indirect access for Northbound emergency vehicles



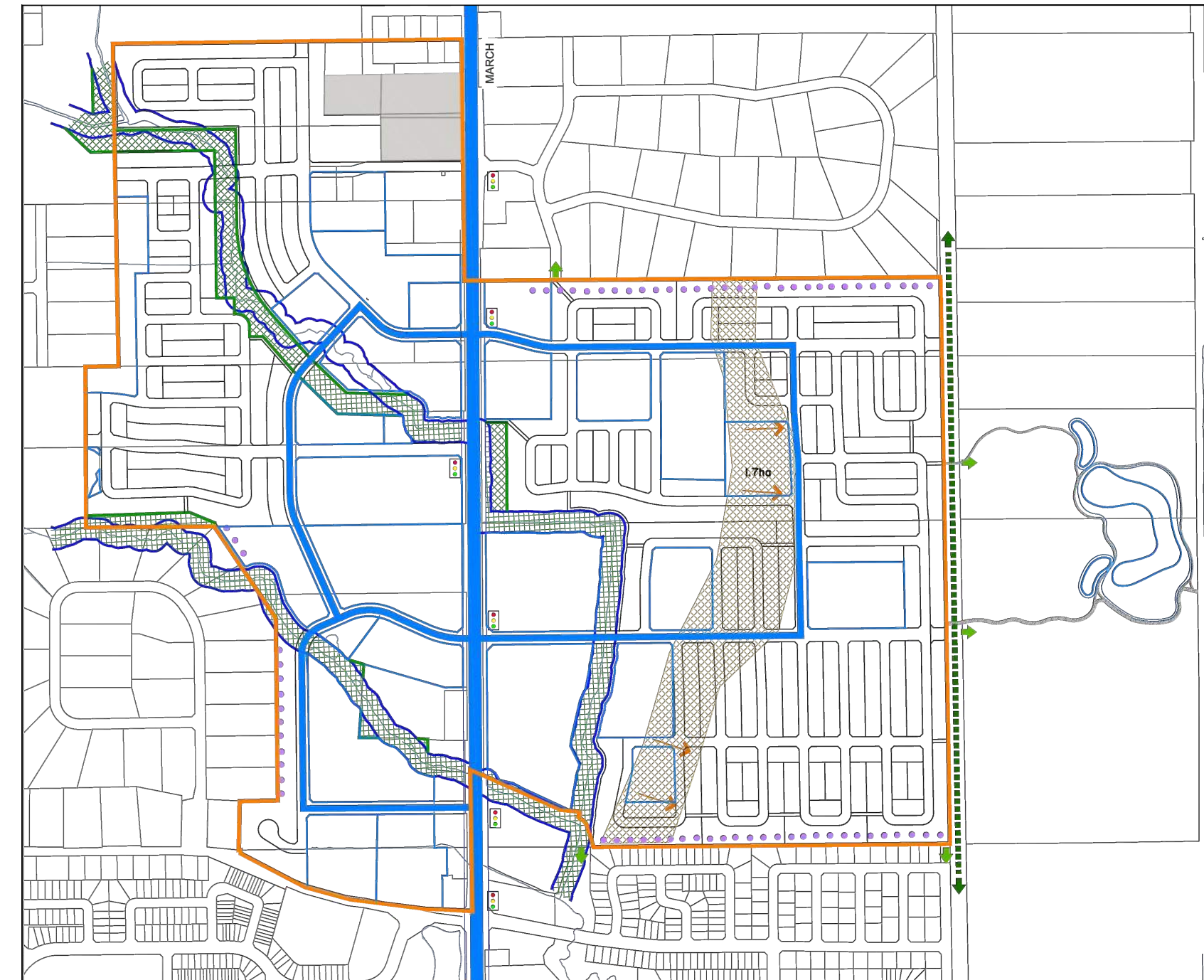


## MARCH ROAD ACCESS CONNECTIONS



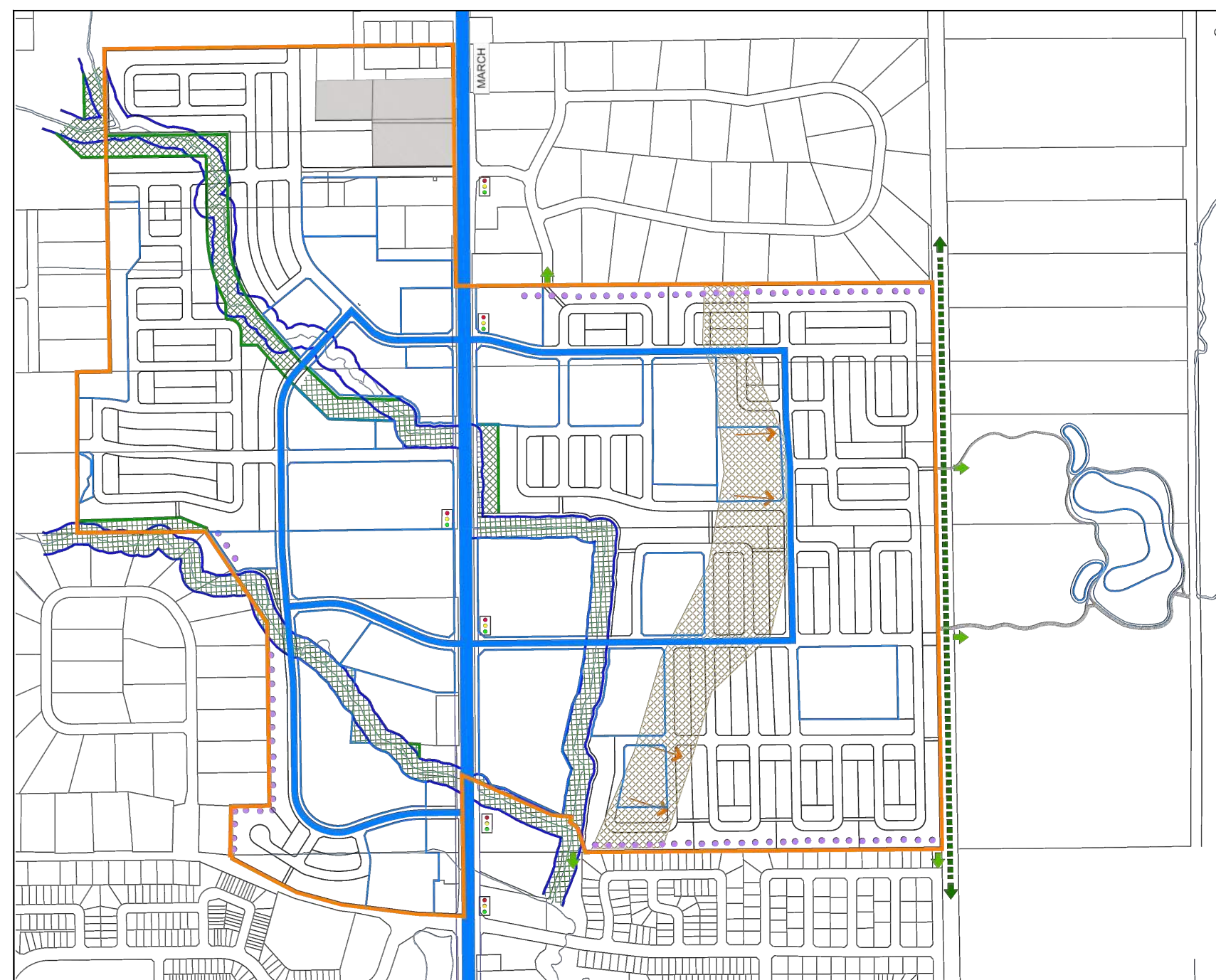
### 3 Signals & Old Carp Road Connection

- Technically Feasible



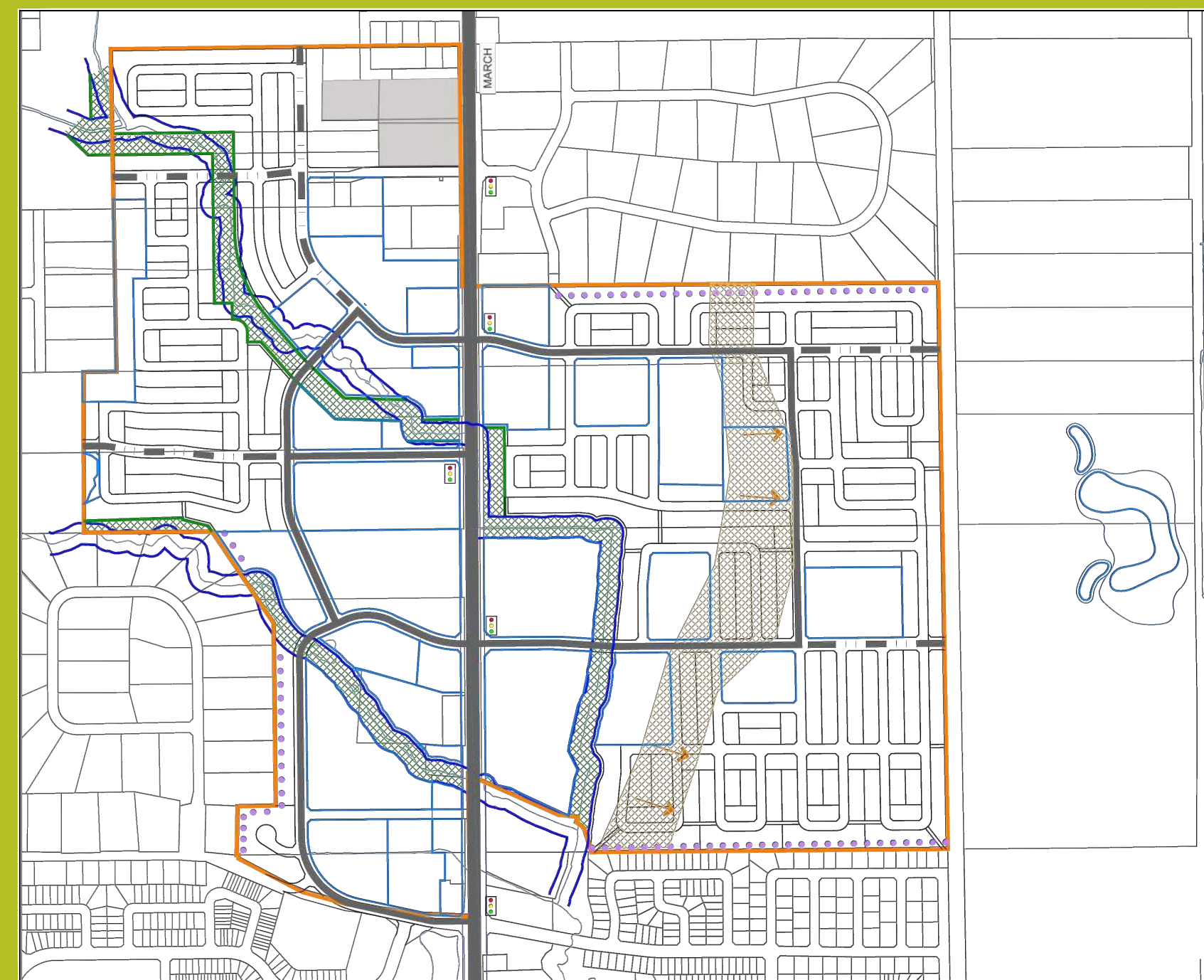
### 5 Signals & No Old Carp Road Connection

- No Vehicular Connection to Morgan's Grant
- Reduced Speed on March Road
- Technically Feasible
- Increased Travel Time for Future Bus Rapid Transit



### 4 Full Signals, Mid-block Pedestrian Signal & No Old Carp Road Connection

- Requires Bridge Connection to Community
- Mid-Block Pedestrian Signal Not Warranted
- No Vehicular Connection to Morgan's Grant
- Increased Travel Time for Future Bus Rapid Transit



### 4 Signals, Old Carp Road Connection & Right-in Right-out Connection to March Road

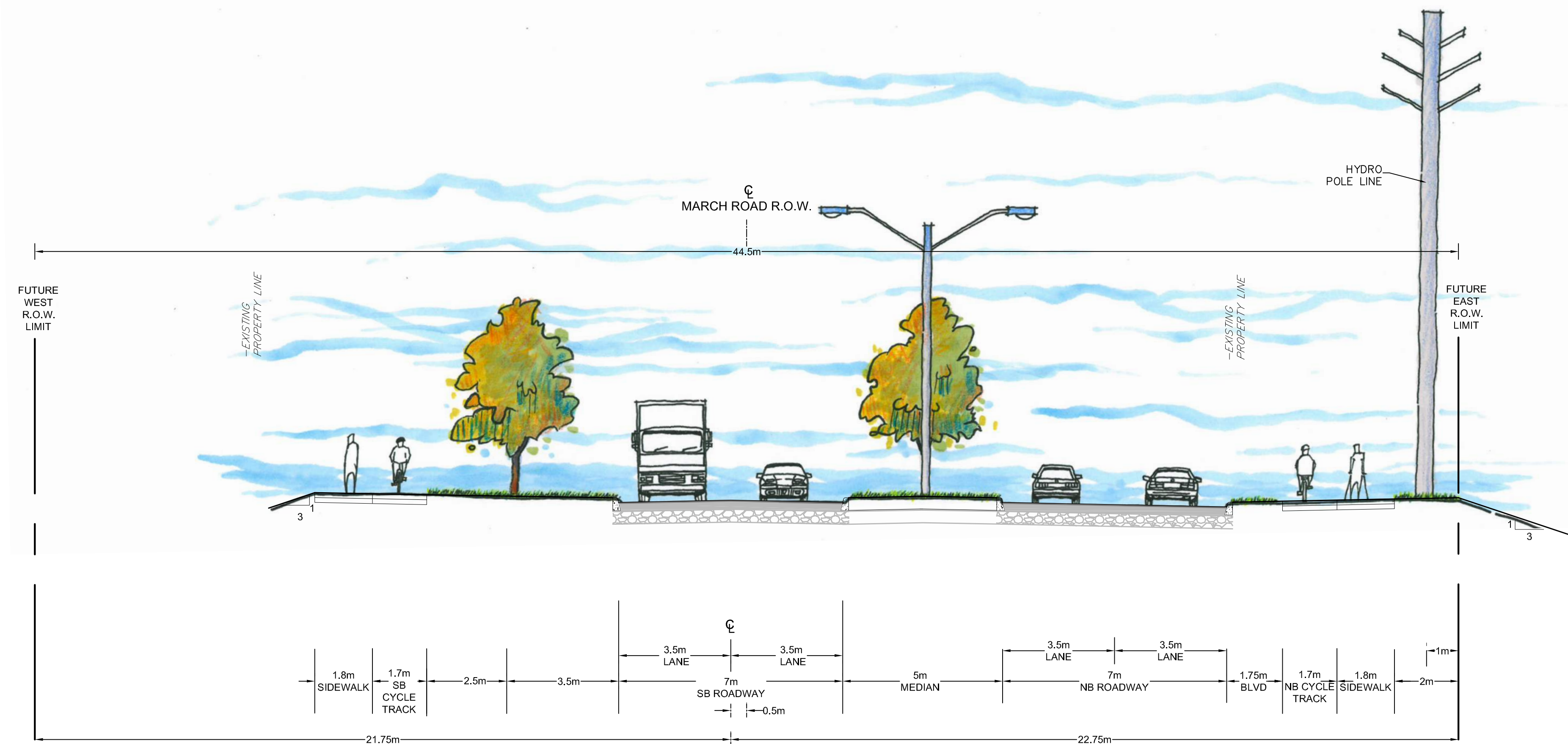
- Balances Access and Impact on Future Bus Rapid Transit
- Vehicular Connectivity to Morgan's Grant
- Improved Pedestrian Connectivity Across March Road
- **Preferred**



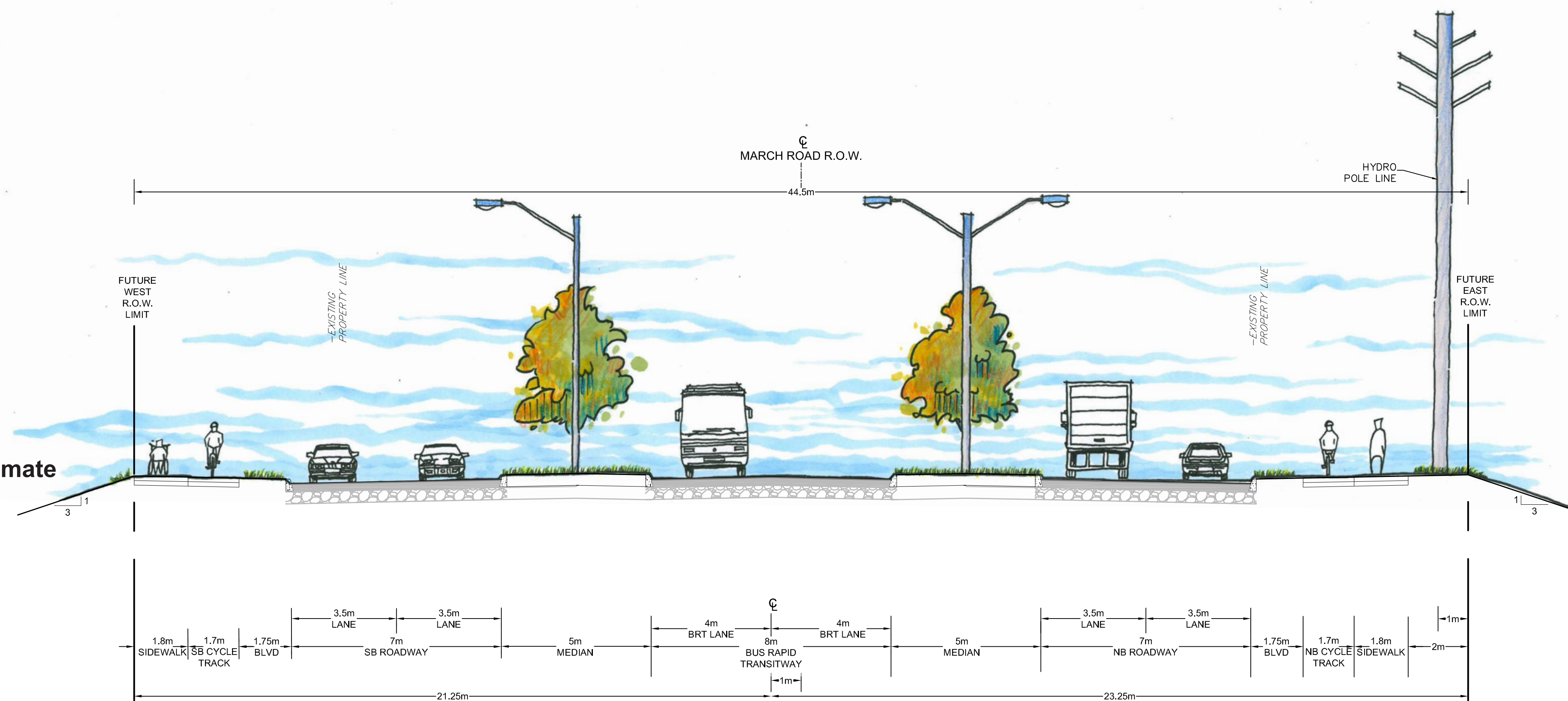


# MARCH ROAD CROSS-SECTIONS

**Interim**



**Ultimate**



## Complete Streets

Complete streets incorporate physical elements that offer safety, comfort, and mobility for all users.

The following complete streets design elements have been incorporated in the recommended cross sections for the future March Road widening.

- Buffer between sidewalk and vehicular traffic
- Sidewalks on both sides
- Raised cycle tracks on both sides
- Accessible transit stops
- Future median BRT
- Street lighting
- Landscaping in boulevards and medians

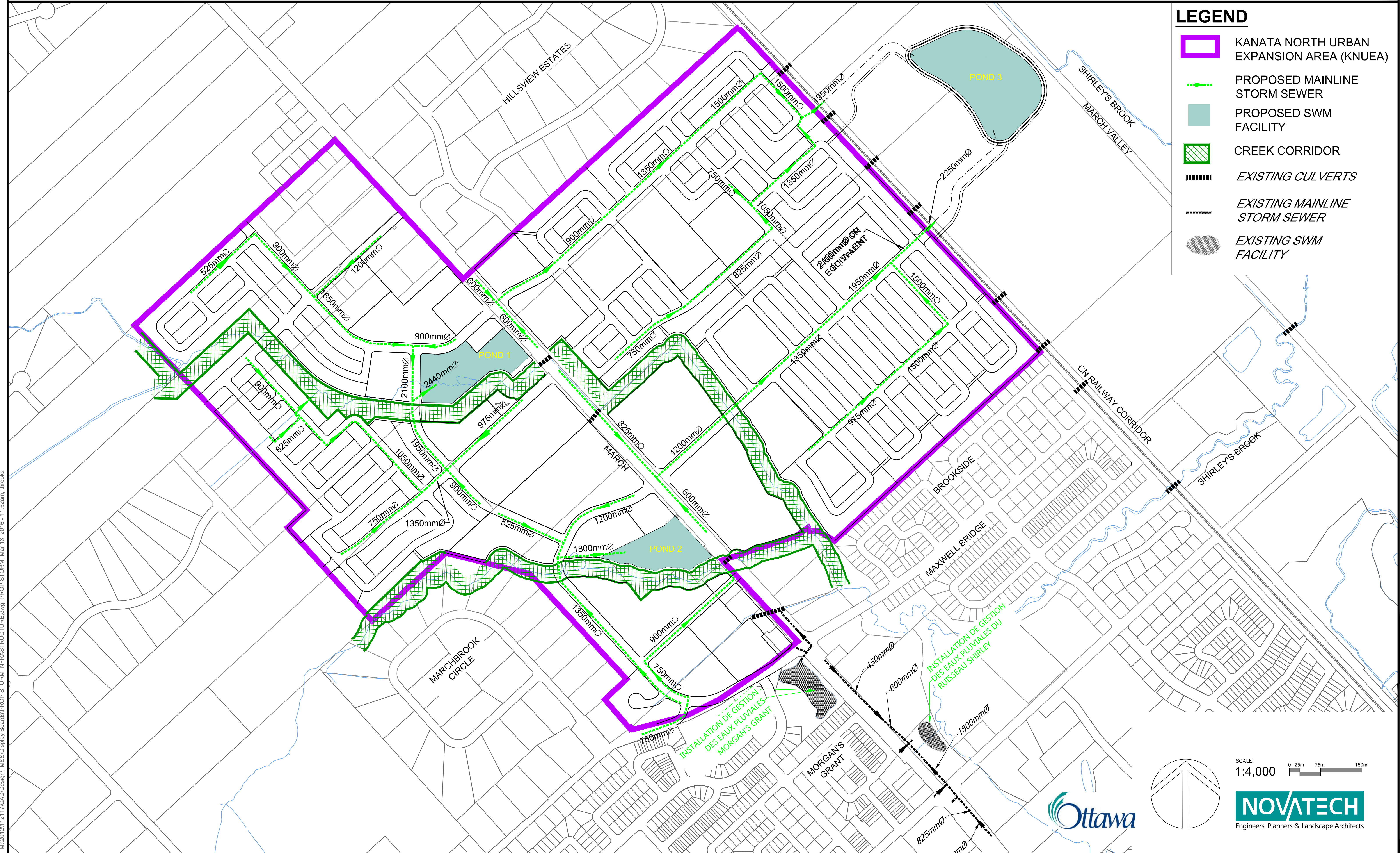




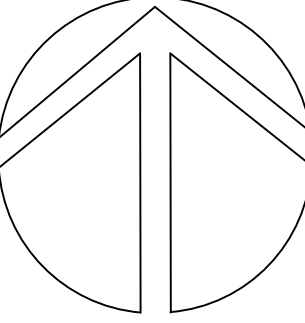
# PREFERRED STORM INFRASTRUCTURE

## LEGEND

- KANATA NORTH URBAN EXPANSION AREA (KNUEA)
- PROPOSED MAINLINE STORM SEWER
- PROPOSED SWM FACILITY
- CREEK CORRIDOR
- EXISTING CULVERTS
- EXISTING MAINLINE STORM SEWER
- EXISTING SWM FACILITY



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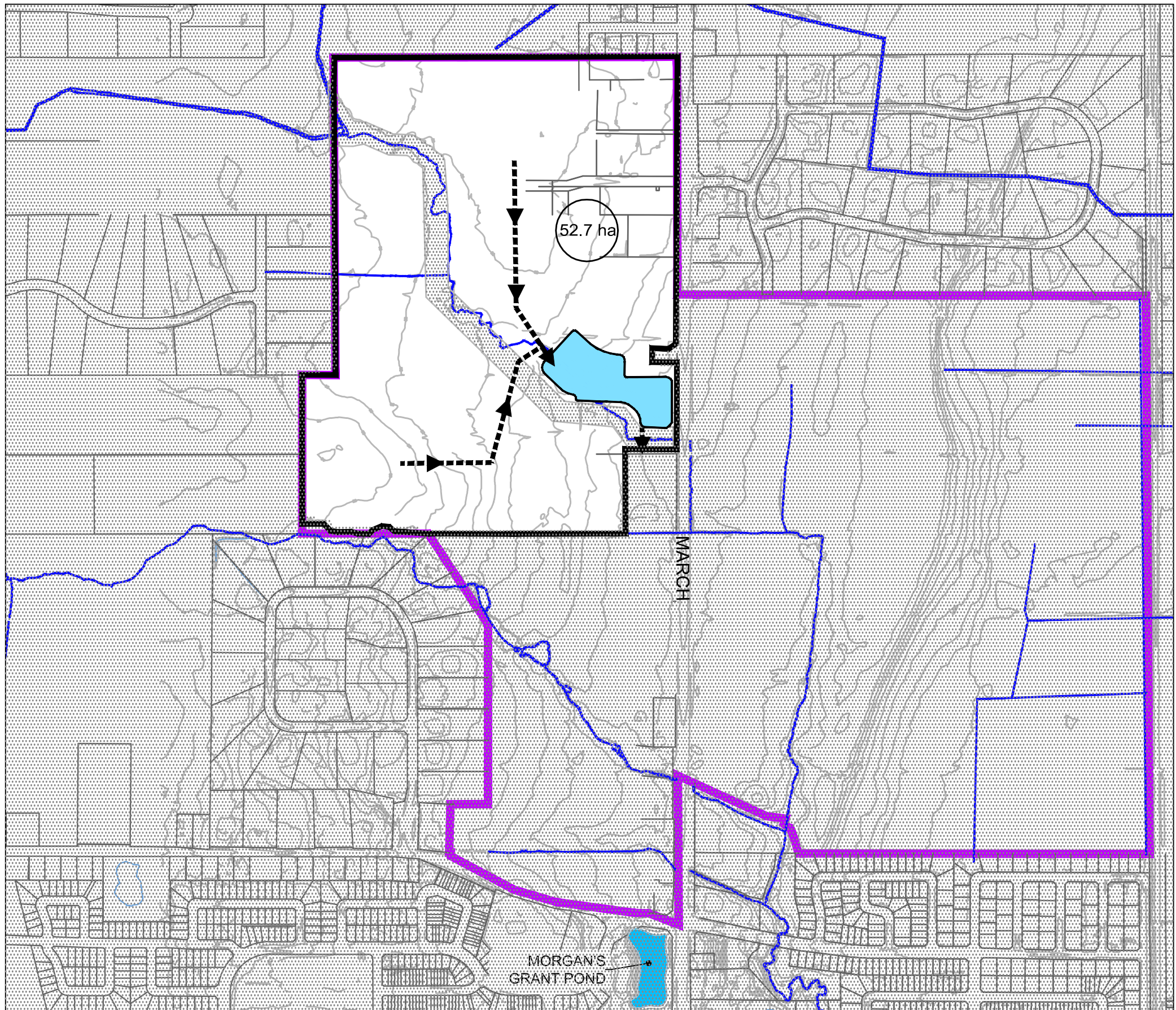




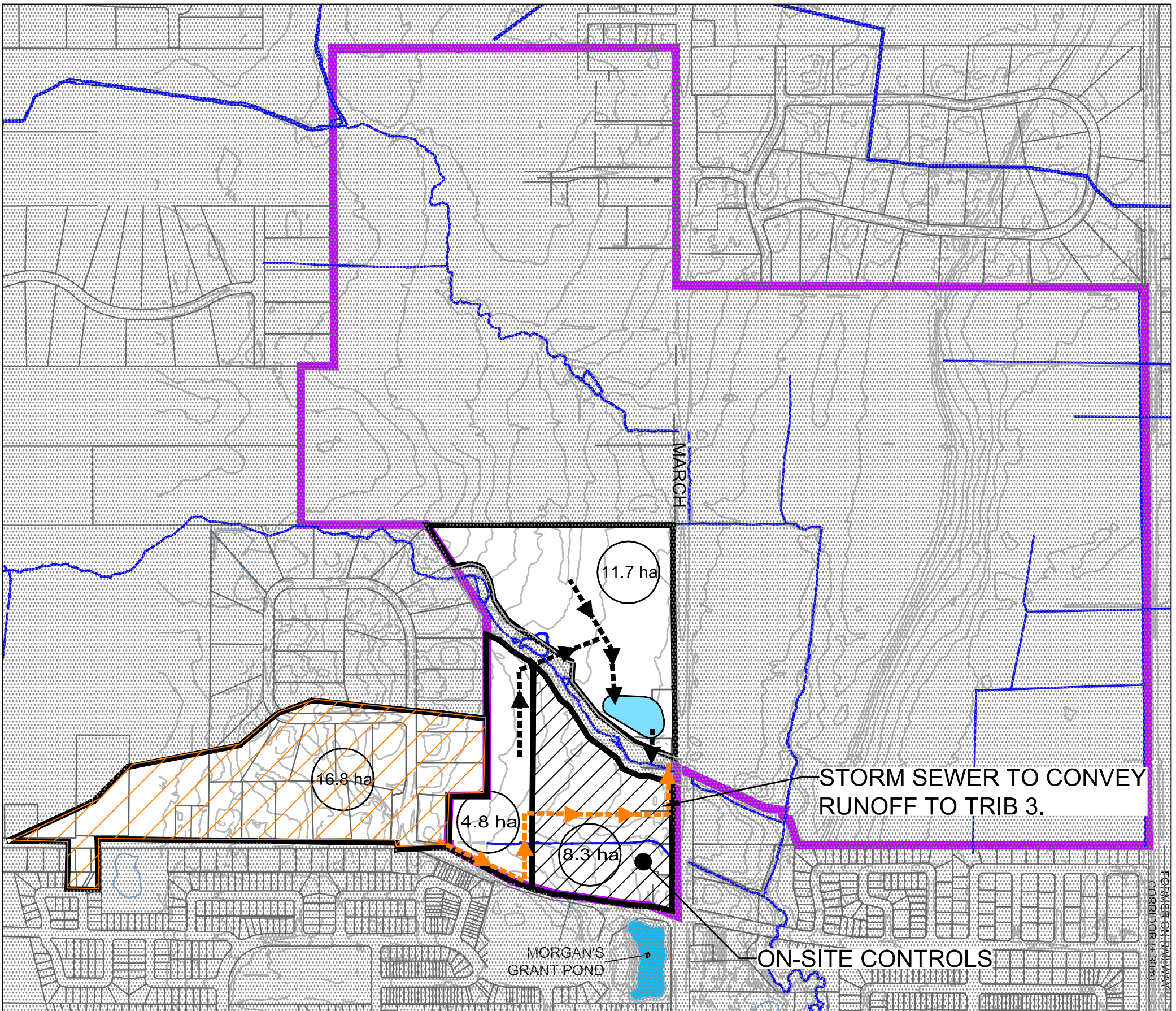
# PREFERRED SWM FACILITY LOCATIONS

**LEGEND**

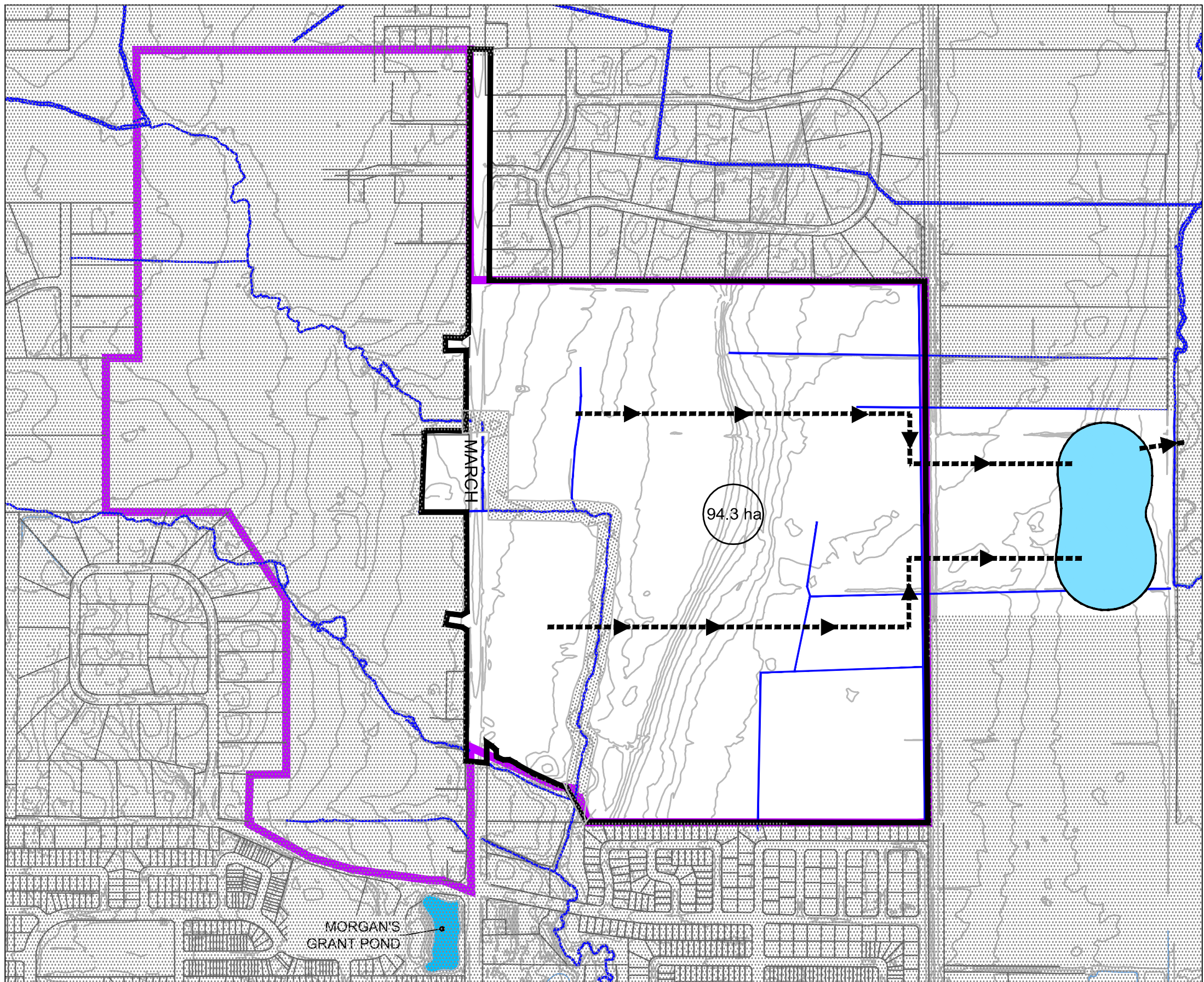
- KANATA NORTH URBAN EXPANSION AREA (KNUEA)
- DRAINAGE CHANNEL
- LANDS SERVICED BY SWM OPTION
- LANDS NOT SERVICED BY SWM OPTION
- LANDS SERVICED BY SWM OPTION
- LANDS NOT SERVICED BY SWM OPTION
- ON-SITE STORAGE REQUIRED
- RUNOFF FROM AREA DIRECTED TO TRIBUTARY 3
- AREA (HECTARES)
- STORM SEWER
- STORM SEWER TO TRIBUTARY 3



NORTHWEST QUADRANT: ONE SWM FACILITY NORTH OF TRIBUTARY 2, CROSSING OF TRIBUTARY 2



SOUTHWEST QUADRANT: ONE SWM FACILITY NORTH OF TRIBUTARY 3, TRIBUTARY CROSSING, ON-SITE CONTROLS, MARCHBROOK RUNOFF TO TRIBUTARY 3



EAST OF MARCH ROAD: SWM FACILITY OUTSIDE URBAN BOUNDARY, INTEGRATED WITHIN WOODED AREA





TRANSPORTATION NETWORK

The Alternative Concept Plans from Community Meeting 3 were evaluated using the following criteria:

- Technical
- Land Use
- Natural
- Social
- Economic

The evaluation resulted in the identification of desirable design elements to be incorporated in the recommended design. The evaluation results and desirable design elements are identified in the table below. Desirable elements (in bold) were carried forward for the preferred alternative.

TRANSPORTATION NETWORK

Criteria	Concept A	Concept B	Concept C	Concept D
Transportation	<div>✓ <b>Modified grid road pattern</b></div> <div>• Three accesses to March Road</div> <div>✓ <b>One access to Old Carp Road</b></div> <div>• Central PNR; doesn't keep core active</div>	<div>• Curvilinear road pattern</div> <div>• Three accesses to March Road</div> <div>✓ <b>One access to Old Carp Road</b></div> <div>✓ <b>PNR at north end, users from north don't traverse core</b></div>	<div>• Loop road with unique identity</div> <div>• Three accesses to March Road</div> <div>✓ <b>One access to Old Carp Road</b></div> <div>• PNR north of CDP lands; users from north don't traverse core</div>	<div>• Collector road on top of ridge</div> <div>• Three accesses to March Road</div> <div>✓ <b>One access to Old Carp Road</b></div> <div>• PNR at south end; users from north traverse core</div>
Land Use	<div>✓ <b>Walkable neighbourhoods</b></div> <div>✓ <b>Transit supportive</b></div>	<div>✓ <b>Walkable neighbourhoods</b></div> <div>✓ <b>Transit supportive</b></div>	<div>✓ <b>Walkable neighbourhoods</b></div> <div>✓ <b>Transit supportive</b></div>	<div>✓ <b>Walkable neighbourhoods</b></div> <div>✓ <b>Transit supportive</b></div>
Natural	<div>✓ <b>Four new water crossings</b></div> <div>• No retained Woodlot feature</div>	<div>• Three new water crossings</div> <div>✓ <b>Retained Woodlot Feature</b></div>	<div>✓ <b>Four new water crossings</b></div> <div>• No retained Woodlot Feature</div>	<div>✓ <b>Four new water crossings</b></div> <div>• No retained Woodlot Feature</div>
Social	<div>✓ <b>Existing church, school, cemetery accesses maintained</b></div> <div>✓ <b>Pedestrian/ cycling pathways</b></div> <div>• Some residential exposure to March Rd noise</div>	<div>✓ <b>Existing church, school, cemetery accesses maintained</b></div> <div>✓ <b>Pedestrian/ cycling pathways</b></div> <div>• Some residential exposure to March Rd noise</div>	<div>✓ <b>Existing church, school, cemetery accesses maintained</b></div> <div>✓ <b>Pedestrian/ cycling pathways</b></div> <div>✓ <b>Limited residential exposure to March Rd noise</b></div>	<div>✓ <b>Existing church, school, cemetery accesses maintained</b></div> <div>✓ <b>Pedestrian/ cycling pathways</b></div> <div>• Some residential exposure to March Rd noise</div>
Economic	<div>• Four internal RABs (higher capital cost)</div> <div>✓ <b>Signals on March (higher operating cost)</b></div>	<div>✓ <b>Two internal RABs (medium capital cost)</b></div> <div>• RABs on March (lower operating cost)</div>	<div>• One internal RAB (lower capital cost)</div> <div>✓ <b>Signals on March (higher operating cost)</b></div>	<div>• One internal RAB (lower capital cost)</div> <div>• RABs on March (lower operating cost)</div>

\* PNR denotes Park and Ride  
\*\* RAB denotes roundabout

STORMWATER MANAGEMENT FACILITIES

The evaluation of the four (4) concept plans resulted in the identification of desirable design elements to be incorporated in the recommended design. The evaluation results and desirable design elements are identified in the table below. Desirable elements (in bold) were carried forward for the preferred alternative, as shown on the Land Use Plan and Preferred SWM Facility Locations boards.

EAST OF MARCH ROAD

Criteria	Concept A	Concept B	Concept C	Concept D
Stormwater Management (SWM)	<div>✓ <b>Provides SWM servicing for entire area east of March Road</b></div> <div>✓ <b>Single SWM facility</b></div> <div>• One inlet forebay</div> <div>• One inlet storm trunk for entire area</div> <div>✓ <b>One outlet to Shirley's Brook Main Branch</b></div> <div>• Does not allow for independent development by separate landowners</div>	<div>✓ <b>Provides SWM servicing for entire area east of March Road</b></div> <div>• Two separate SWM facilities, one for each landowner</div> <div>✓ <b>Allows for independent development by each landowner</b></div> <div>✓ <b>Two inlet storm trunks</b></div> <div>✓ <b>Two inlet forebays</b></div> <div>• Two outlets to Shirley's Brook</div>	<div>✓ <b>Provides SWM servicing for entire area east of March Road</b></div> <div>✓ <b>Allows for independent development by each landowner</b></div> <div>✓ <b>Two inlet forebays</b></div> <div>✓ <b>Two inlet storm trunks</b></div> <div>✓ <b>Single SWM facility</b></div>	<div>✓ <b>Provides SWM servicing for entire area east of March Road</b></div> <div>✓ <b>Allows for independent development by each landowner</b></div> <div>✓ <b>Two inlet forebays</b></div> <div>✓ <b>Two inlet storm trunks</b></div> <div>✓ <b>Single SWM facility</b></div>
Land Use	<div>✓ <b>SWM pond located outside of the urban boundary</b></div>	<div>✓ <b>SWM ponds located outside of the urban boundary</b></div>	<div>✓ <b>SWM pond located outside of the urban boundary</b></div>	<div>• SWM pond located inside the urban boundary</div>
Natural	<div>✓ <b>Retained wooded area</b></div> <div>✓ <b>Pond located within old agricultural area</b></div>	<div>• Majority of wooded area retained</div> <div>✓ <b>Ponds integrated within wooded area</b></div> <div>✓ <b>Wooded area gifted to City</b></div>	<div>✓ <b>Retained wooded area</b></div> <div>✓ <b>Pond located within old agricultural area</b></div>	<div>✓ <b>Retained wooded area</b></div> <div>✓ <b>Pond located within old agricultural area</b></div>
Social	<div>✓ <b>Pedestrian/ cycling pathways surrounding pond</b></div> <div>• Pathways through open fields, no tree cover</div> <div>• Possible connection to March Valley Road</div>	<div>✓ <b>Pedestrian/ cycling pathways surrounding ponds</b></div> <div>✓ <b>Pedestrian/ cycling pathways through existing wooded area</b></div> <div>✓ <b>Easy connections to March Valley Road</b></div>	<div>✓ <b>Pedestrian/ cycling pathways surrounding pond</b></div> <div>• Pathways through open fields, no tree cover</div> <div>• Possible connection to March Valley Road</div>	<div>✓ <b>Pedestrian/ cycling pathways surrounding pond</b></div> <div>• Large, deep depression within residential area</div> <div>• No connection to March Valley Road</div>
Economic	<div>✓ <b>Does not occupy developable area</b></div> <div>• Rock excavation required</div>	<div>✓ <b>Does not occupy developable area</b></div> <div>✓ <b>Minimal rock excavation required</b></div>	<div>✓ <b>Does not occupy developable area</b></div> <div>• Deep, large footprint required</div> <div>• Rock excavation required</div>	<div>• Occupies developable area, within urban boundary</div> <div>• Deeper, and larger pond footprint than all other options</div> <div>• Extensive rock excavation required</div>

WEST OF MARCH ROAD

Criteria	Concept A	Concept B	Concept C	Concept D
Stormwater Management (SWM)	<div>✓ <b>Provides SWM servicing for KNUEA west of March Road</b></div> <div>• Drainage areas defined by stream corridors</div> <div>✓ <b>North pond does not require Tributary crossing</b></div> <div>✓ <b>Requires storm crossing of Tributary 3 only</b></div> <div>• Drainage areas will require coordination of development between landowner</div>	<div>✓ <b>Provides SWM servicing for majority of KNUEA west of March Road</b></div> <div>✓ <b>Drainage areas approximate existing conditions</b></div> <div>✓ <b>Requires on-site controls for majority of area south of Tributary 3</b></div> <div>• Requires storm crossing of both Tributary 2 and 3</div>	<div>✓ <b>Provides SWM servicing for majority of KNUEA west of March Road</b></div> <div>✓ <b>Drainage areas approximate existing conditions</b></div> <div>✓ <b>Requires on-site controls for majority of area south of Tributary 3</b></div> <div>• Requires storm crossing of both Tributary 2 and 3</div>	<div>✓ <b>Provides SWM servicing for majority of KNUEA west of March Road</b></div> <div>✓ <b>Drainage areas approximate existing conditions</b></div> <div>✓ <b>Requires on-site controls for majority of area south of Tributary 3</b></div> <div>• Requires storm crossing of both Tributary 2 and 3</div>
Land Use	<div><b>All concepts for Ponds 1 &amp; 2 have equivalent land use impacts</b></div> <div>• Portion of pond 1 located on un-owned property</div> <div>• Portion of pond 2 located on un-owned property</div>			
Natural	<div>✓ <b>Realignment/ rehabilitation of Tributary 2 required upstream of Pond 1</b></div> <div>✓ <b>Pond 1 located in agricultural area, small loss of wooded area</b></div> <div>✓ <b>Pond 2 located in agricultural area</b></div>	<div>✓ <b>Realignment/ rehabilitation of Tributary 2 required upstream of Pond 1 and east of March Road</b></div> <div>✓ <b>Pond 1 located in agricultural area, small loss of wooded area</b></div> <div>✓ <b>Pond 2 located in agricultural area</b></div>	<div>✓ <b>Realignment/ rehabilitation of Tributary 2 required upstream and adjacent to Pond 1</b></div> <div>✓ <b>Pond 1 located in agricultural area, small loss of wooded area</b></div> <div>✓ <b>Pond 2 located in agricultural area</b></div>	<div>✓ <b>Realignment/ rehabilitation of Tributary 2 required east of March Road</b></div> <div>✓ <b>Pond 1 located in agricultural area, small loss of wooded area</b></div> <div>✓ <b>Pond 2 located in agricultural area</b></div>
Social	<div><b>All concepts for Ponds 1 &amp; 2 have equivalent social constraints</b></div> <div>✓ <b>Pedestrian/ cycling pathways surrounding pond</b></div> <div>✓ <b>Connection to March Road &amp; Tributary corridor pathways</b></div>			
Economic	<div><b>All concepts for Ponds 1 &amp; 2 have equivalent economic constraints</b></div> <div>• Property acquisition required for proposed location of both ponds</div>			