

Project Methodology

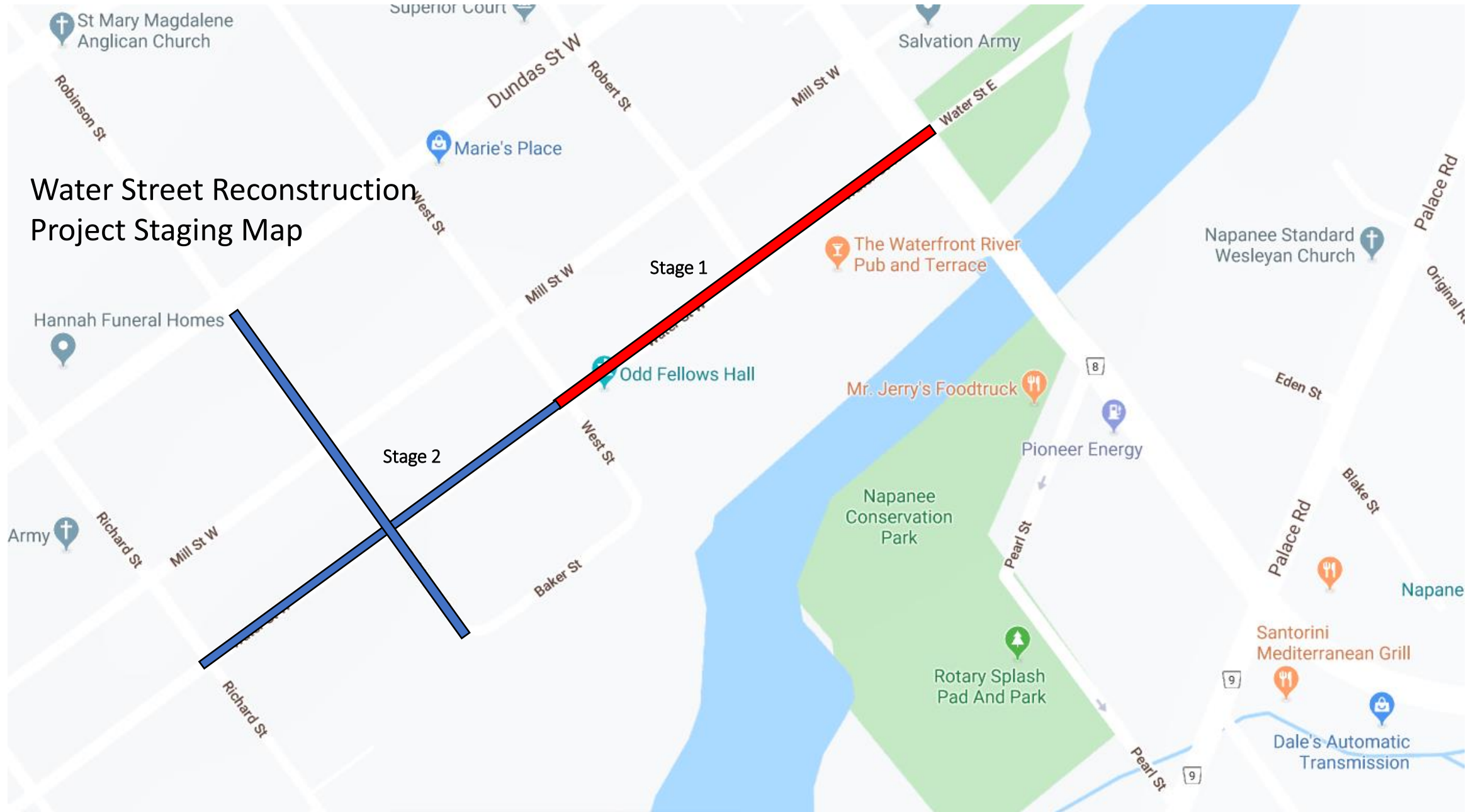
Water Street Reconstruction Town of Greater Napanee

Contract 190-4652

Gordon Barr Limited



Water Street Reconstruction Project Staging Map



Water Street Reconstruction – Stage Descriptions:

- Stage 1 – Water Street from Centre St. to West Street (Length: ~245m) including intersections at Centre St., Robert St. & West St.
- Stage 2 – Water Street from West Street to Richard Street (Length: ~255m) including intersections at Robinson St. and Richard St., and Robinson Street from Mill Street to Baker Street (Length: ~140m)
- Final Stage – Surface Hot Mix Asphalt on Water Street and Robinson Street.




Methodology - Common to all stages:

- All residences and businesses in the construction zone will be provided with temporary water services prior to the commencement of work on the existing water distribution system. Temporary pipes will be shallow-buried, ramped or bridged over at all required locations in order to maintain vehicular and pedestrian access.
- Localized pumping from service excavations will be carried out on an as-required basis with discharge to either suitable downstream receiving structures fitted with siltation control measures such as silt sacks and/or to adjacent vegetated areas with filter bags
- Existing utilities will be located prior to commencement of construction, with daylighting of critical utilities crossing service trenches
- All existing utilities encountered in trenches will be suitably supported and otherwise protected from damage using best construction practices.
- The generation of dust will be kept to a minimum via the use of water / dust suppression during all saw-cutting activities, all granular placement and compaction activities, as well as on an as-required basis where granular topped temporary driving surfaces are present
- Traffic control personnel will be utilized under the provisions of MTO Book 7.

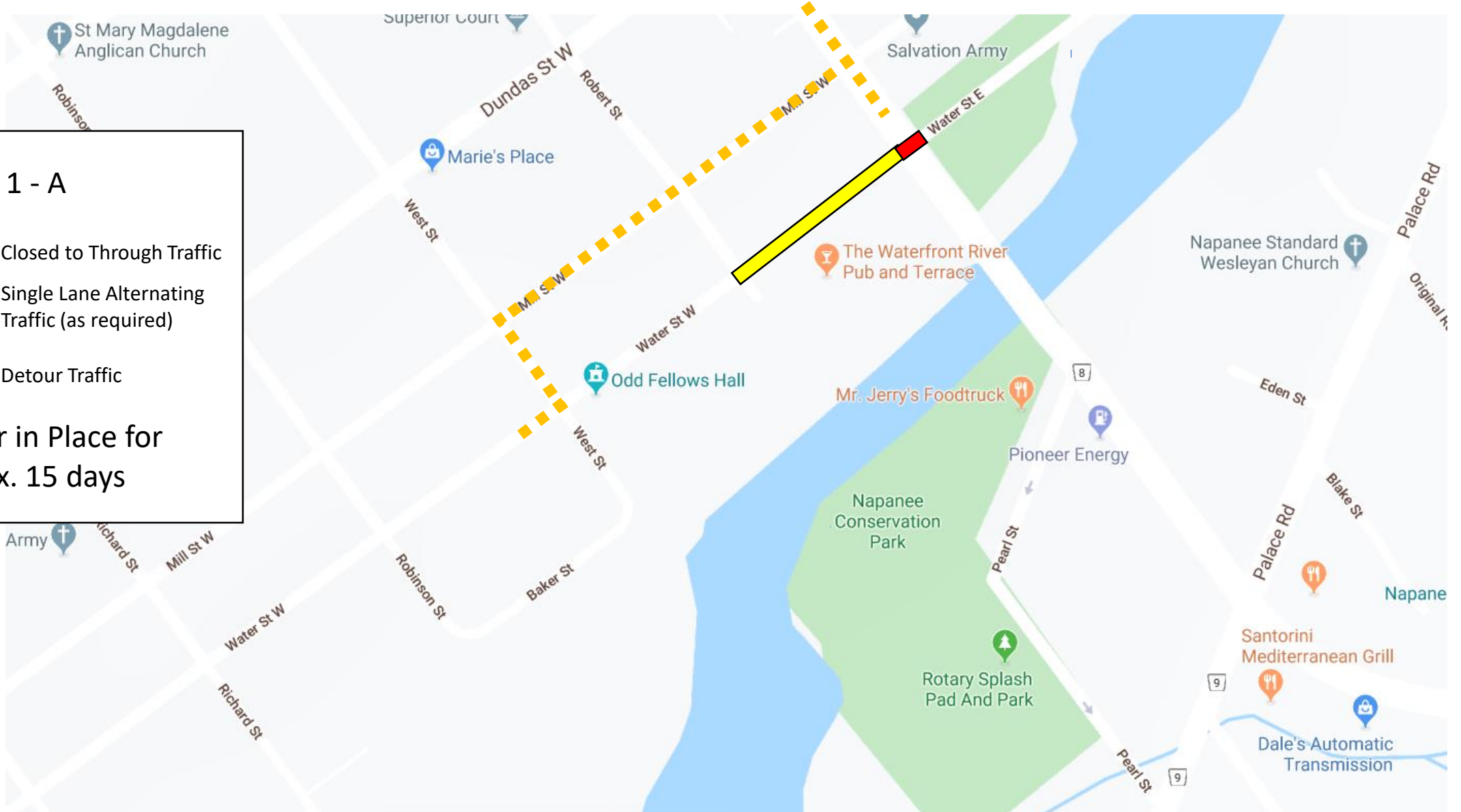
Methodology - Common to all stages: (Cont'd)

- All existing signage will be maintained. Where not possible to do so, signage will be removed, safely stored and reinstated at the earliest possible opportunity. Visible stop signs shall be present over the course of construction at all intersection locations when they are open to traffic.
- At locations outside the single-block road closures, a minimum of one alternating lane of 2-way traffic will be provided at all times.
- Where road closures are required, alternate garbage pick-up and mail arrangements will be made with residents and businesses
- Pedestrian access will be maintained to all residences and businesses. Where driveways / entrances are not accessible due to open trenches, alternate parking / access arrangements will be made with the affected parties.

Stage 1 - A

-  Closed to Through Traffic
-  Single Lane Alternating Traffic (as required)
-  Detour Traffic

Detour in Place for
Approx. 15 days






Methodology - Stage 1 – A:

- Watermain and services construction on Water St. will generally proceed from east to west starting at the foot of Water St, (ie: west of Robinson St.)
- Once the new main is installed in Stage 1 west of Centre St, a lane-at-a-time excavation will be advanced into Centre St. to install the watermain lowering and the live-tap w/valve and temporary cap. Centre St. will then be temporarily backfilled for the approx. 1 week duration of commissioning.
- The east side of the lowering will purposely constructed to allow the new watermain to pass just above (or just below) the existing main and continue out to above grade at the edge of the roadway embankment on the SE corner of the intersection using a “rolled” 45 degree bend and temporary tapped cap with ball valve and tail, thereby creating an ideal source water connection, swab entry and sampling point out of the heavily travelled roadway using a backflow-prevented connection to the nearby fire hydrant (or alternatively using a water truck, whichever is deemed most suitable at the time)
- Once all new Stage 1 watermain to the west (ie: From Centre St. to just past the West St. intersection) is installed and commissioned (using the above-mentioned source water location at Centre St.) the short section of temporary pipe east of the existing main on Centre St. will be removed and a final connection to the previously installed tapping sleeve and valve will be made.
- Once the Stage 1 watermain is tied in, temporary asphalt / coldpatch restoration will be provided at the road cut on Centre St. until such time Stage 1 receives permanent base course asphalt paving. (Note: This duration will be minimized by scheduling Stage 1 paving to occur as soon as possible following tie-in)
- Storm sewer construction and existing sanitary service replacements on Water St. will also be advanced in an east to west direction, ie: with the watermain.

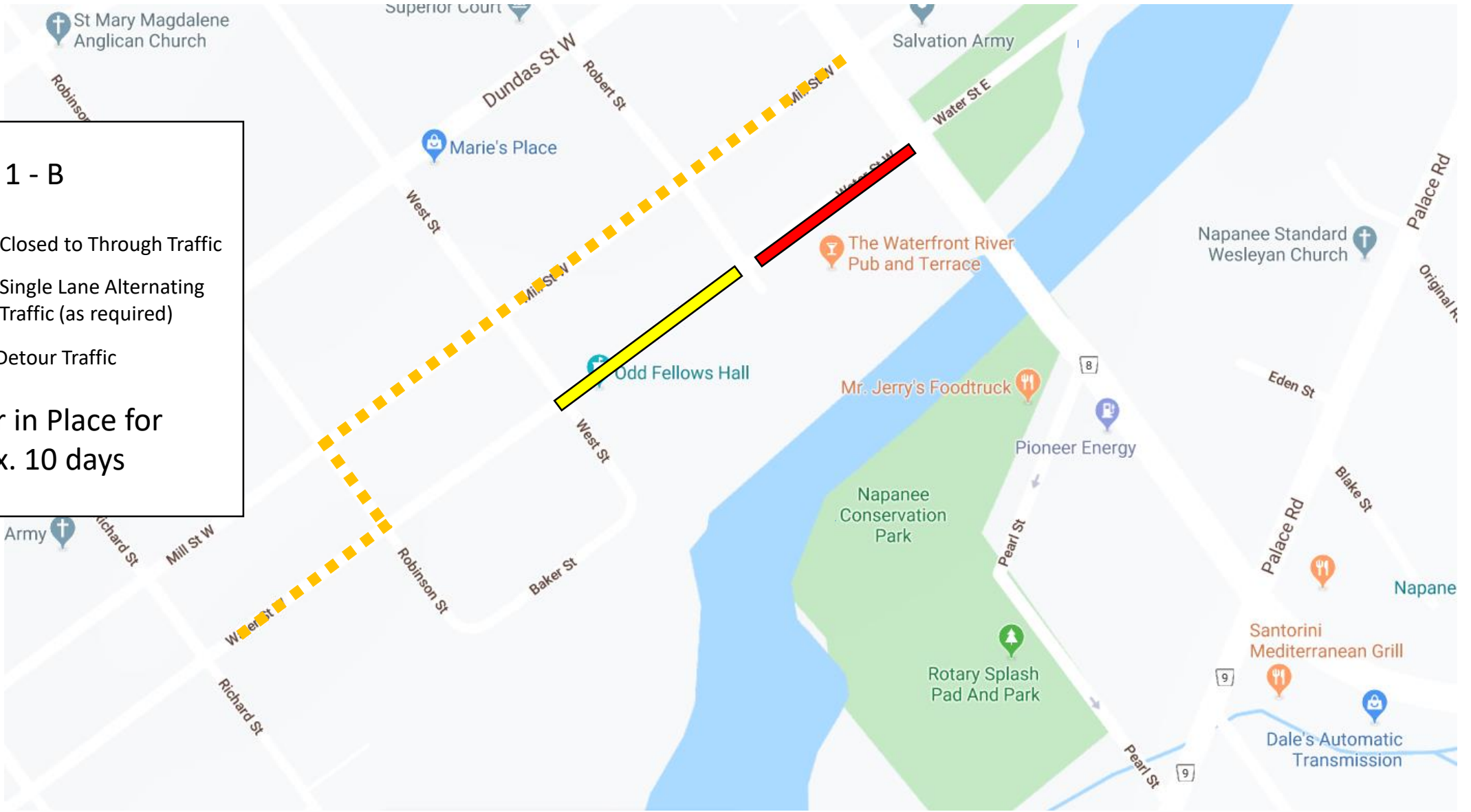
Methodology - Stage 1 – A: (Cont'd)

- Traffic effects on Centre St. are intended to be limited to single lane closures, with trench boxes utilized wherever possible to minimize horizontal excavation limits for watermain crossing.
- **Should it be deemed not possible to accomplish the watermain lowering (and/or live tap and/or final connection) at Centre St. without closing both lanes, the work will be completed during an overnight period(s) with a short-term detour(s) set up using Palace Road and Dundas St. E., with advance notification provided to all emergency services.**
- Access to and egress from the upper Municipal Parking Lot will be maintained at all times. (Note: During the potential overnight Centre St. closure mentioned above, there would be no parking lot access to or from Centre St.)
- Even during the single block closure, Watermain, Storm Sewer and Sanitary Service Replacements on Water St. will proceed such that a single lane of access to the lower parking lot, boat launching ramp, Waterfront Restaurant and Queen Elizabeth Apartments will always be maintained, whether it be from the East or West direction
- Temporary tapped cap-to-cap systems with ball valves and tails will be used at the Queen Elizabeth Apartments as well as at Robert St. to create swab exit, flushing and sampling points for watermain commissioning as required.
- It is intended that all Robert St. intersection underground work will be completed during this stage such that it can re-open to traffic prior to advancement to the next stage.

Stage 1 - B

-  Closed to Through Traffic
-  Single Lane Alternating Traffic (as required)
-  Detour Traffic




Detour in Place for
Approx. 10 days



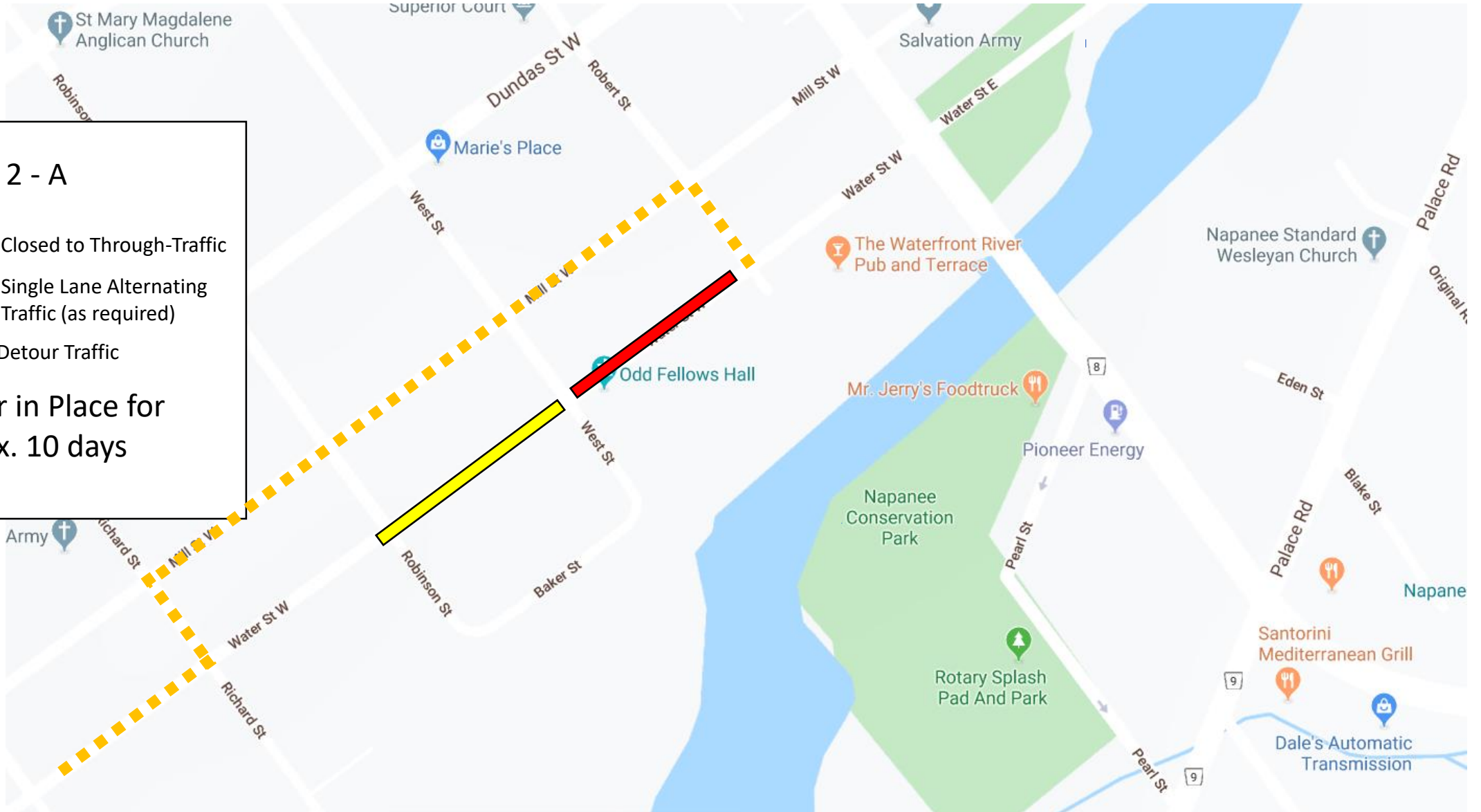
Methodology - Stage 1 – B:

- Water St. between Centre St. and Robert St. will be re-opened to traffic (minum single-lane alternating) before the block from Robert St. to West St. is closed.
- Watermain and services construction on Water St. will generally proceed from east to west
- Existing sanitary service replacements on Water St. will also be advanced in an east to west direction, ie: with the watermain
- Temporary blocked and tapped cap-to-cap systems with ball valves and tails will be used at the West St. intersection (ie: to the south, west and north) to create swab exit, flushing and sampling points for Stage 1 watermain commissioning.
- It is intended that all West St. intersection underground work will be completed during this stage such that it can re-open to traffic prior to advancement to the next stage
- While it would be most ideal that Stage 1 would receive concrete curbs, base course asphalt paving and sidewalks prior to advancement to Stage 2, to maintain continuity of work, crews will likely proceed to Stage 2 underground work while the above-mentioned Stage 1 items are being completed under single lane closures
- As described in the Stage 1-A methodology, all Stage 1 watermain will be tested, commissioned and connected independently to Stage 2 such that asphalt paving in Stage 1 can be placed with confidence.

Stage 2 - A

-  Closed to Through-Traffic
-  Single Lane Alternating Traffic (as required)
-  Detour Traffic




Detour in Place for
Approx. 10 days



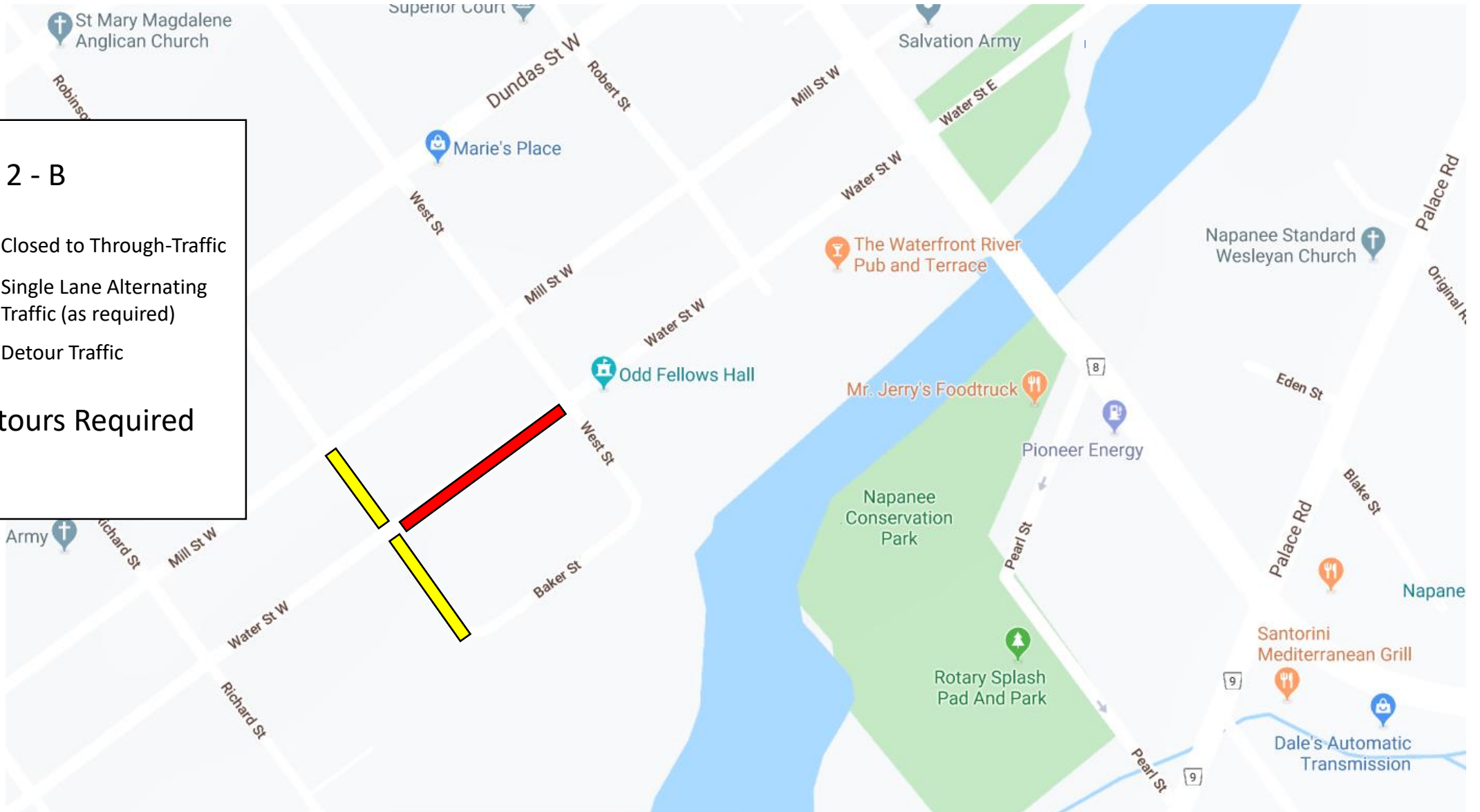
Methodology - Stage 2 – A:

- Water St. between Robert St. and West St. will be re-opened to traffic (minimum single-lane alternating) before the block from West St. Robinson St. is closed.
- Watermain and services construction on Water St. will generally proceed from east to west
- Existing sanitary service replacements on Water St. will also be advanced in an east to west direction, ie: with the watermain
- Existing storm sewer crossing at Sta 0+180 will be removed in due course when watermain installation advances to that station and it will be replaced with the new CSP arch culvert following construction of the required watermain lowering to accommodate it.
- Culvert will be constructed in a south to north manner with the north side headwall positioned as the culvert construction approached the north limit. Protective railing will be installed immediately after headwall is installed.
- Suitable means of coffer damming and bypass pumping commensurate to observed levels of flow (with excess capacity to handle storm events) will be utilized to convey run-off from north to south over the duration of culvert removal, watermain lowering construction and culvert replacement.
- Watermain construction on Robinson St. north and south of Water St. will carry over into Stage 2-B
- It is intended that all Robinson St. intersection underground work will be completed during this stage such that it can re-open to traffic prior to advancement to the next stage.
- A heavy-duty engineered beam system will be used to support the 1000mm dia. storm sewer crossing located at Robinson St.
- Replacement of the existing sanitary sewer in the Robinson St. intersection will be performed under a bypass pumping condition, ie: from SANMH2 to the outlet side of SANMH3 in the intersection

Stage 2 - B

-  Closed to Through-Traffic
-  Single Lane Alternating Traffic (as required)
-  Detour Traffic




No Detours Required



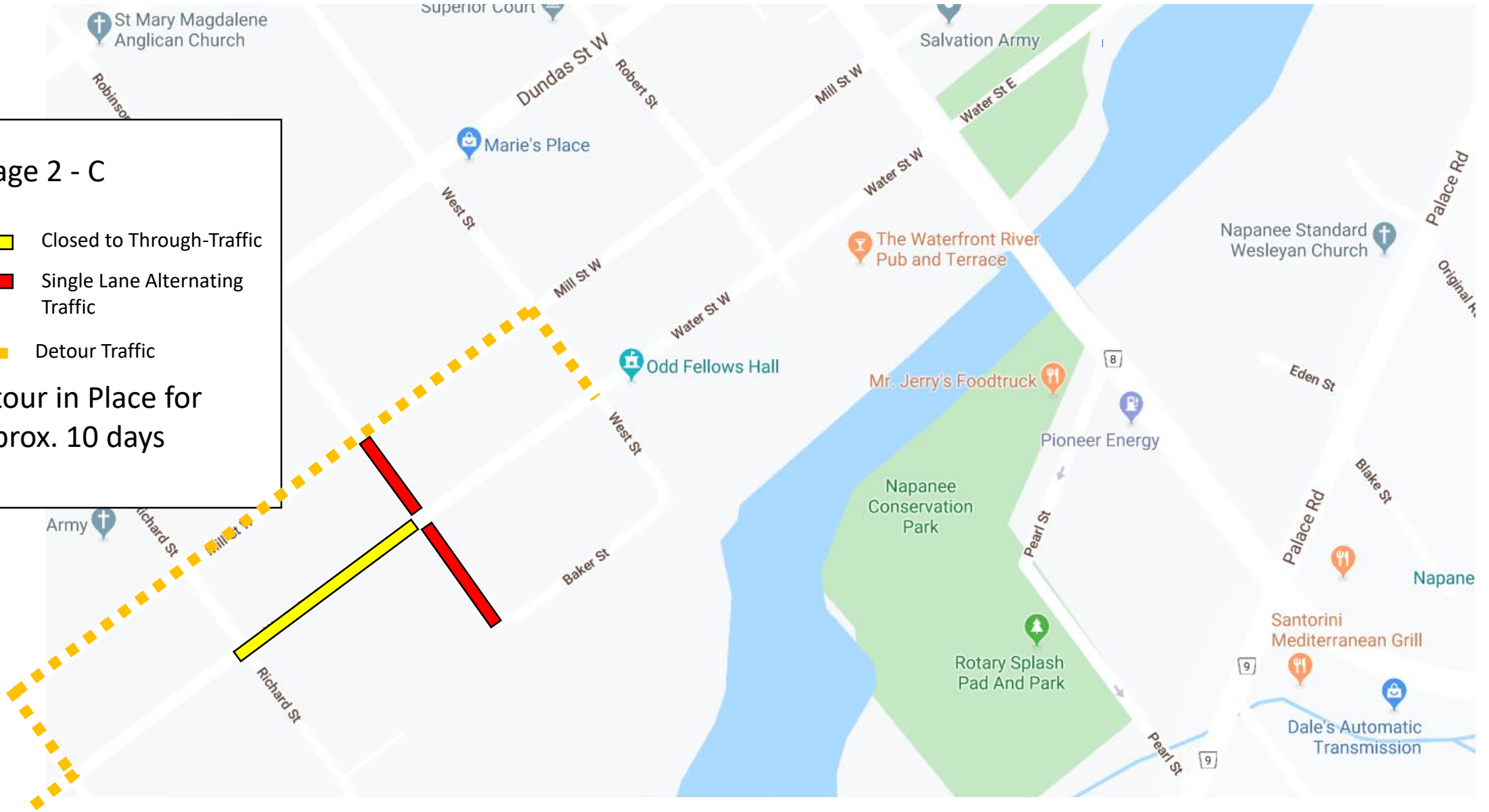
Methodology - Stage 2 – B:

- Water St. between West St. and Robinson St. will be re-opened to traffic (minimum single-lane alternating) before the two blocks on Robinson St. are closed.
- Watermain and services construction on Robinson St. will generally proceed from Robinson St. to the north and south limits.
- Existing sanitary service replacements on Robinson St. (where present) will also be advanced in a manner to coincide with the watermain and services construction
- Temporary blocked and tapped cap-to-cap systems with ball valves and tails will be used at the north and south limits of watermain construction to create swab exit, flushing and sampling points for watermain commissioning.

Stage 2 - C

-  Closed to Through-Traffic
-  Single Lane Alternating Traffic
-  Detour Traffic

Detour in Place for
Approx. 10 days



Methodology - Stage 2 – C:

- Robinson St. north and south of Water St. will be re-opened to traffic (minimum single-lane alternating) before the block of Water St. from Robinson St. to Richard St. is closed.
- Watermain and services construction on Water St. will generally proceed from east to west
- Existing sanitary sewer and service replacements on Water St. will also be advanced in an east to west direction, ie: with the watermain
- Replacement of the existing sanitary sewer on Water St. will be performed under a bypass pumping condition, ie: ideally from the manhole upstream of SANMH2 to SANMH3 in the Robinson St. intersection
- Temporary blocked and tapped cap-to-cap systems with ball valves and tails will be used at the west limit of watermain construction to create a swab entrance, flushing and sampling point for watermain commissioning as required.
- The west end of the commissioned watermain from Stage 1 will be used as source water for Stage 2 watermain commissioning, ie: using a backflow-prevented connection from the Stage 1 watermain (or alternatively using a water truck, as deemed most suitable at the time)
- It is intended that all Richard St. intersection underground work will be completed during this stage such that it can re-open to traffic prior to advancement to the final stage.
- It is intended that Stage 2 will receive concrete curbs, base course asphalt paving and ideally sidewalks prior to advancement to the final stage.

Methodology - Final Stage:

- All temporary water system mains and service related components still in place from Stage 1 and/or 2 will be removed.
- Upon completion of the base course paving from Stage 2-C, it is intended that surface course paving operations as associated with the final stage can proceed in a west to east manner under single-lane shut-downs, ending at Centre St.
- Upon completion of roadway paving, all asphalt driveways, entrances and boulevards would receive paving, minimizing disturbance to residents and businesses.
- Per our proposed preliminary schedule, final boulevard grading and landscaping takes place following surface course paving. At the Town's preference, surface course asphalt can be deferred until such time all boulevard work is complete so as to minimize any potential for damage caused to fresh paving by the light rubber-tracked or wheeled equipment associated with the boulevard work.
- Prior to demobilization a pre-to post condition assessment of all signs and other roadside fixtures will be performed to ensure all pre-construction features have been protected / maintained / re-installed in the correct locations
- As illustrated on our proposed preliminary schedule, it is anticipated that based on a theoretical Contract award date of 03/02/20, under ideal field, ground and weather conditions we can complete all work associated with this project by 09/11/20, thereby leaving a full 2-week buffer for unforeseen delays arising from any of the above parameters being less than ideal.