

ROUTE ONE SOUTH CONCEPT INFRASTRUCTURE PLAN

Falmouth, Maine

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Route One/Turnpike Spur Concept Options

5.4 Matrix and Cost Estimate

During the development of the Plan a concept matrix was prepared that summarized options for improvements and their associated cost. The matrix helped to guide throughout the process the selection of Plan options given costs and benefits. Under the current Plan components, the planning level cost for the project is approximately \$5,600,000. The cost estimate, included in the appendix, assumed the following key components:

- At this point Power and Communication will remain above ground. However, in conjunction with the preliminary engineering task refined cost estimates will be prepared for underground placement that will continue to inform the final Plan.
- Pavement marking costs are to be included in the cost of the MaineDOT project.
- The coordination of traffic signals will be a future PACTS project request.
- Route One will not be widened for bicycle lanes.
- Implementation of medians will be installed in select locations.
- Future capacity expansion at Bucknam Road, Depot Road, and Fundy Road will occur under separate future projects.
- Natural gas will be installed by others.
- Pedestrian scale lighting will begin at Waldo's and continue to Bucknam Road.
- Streetscape improvements are included for a portion of the side streets (Bucknam Road, Depot Road, Fundy Road, and Clearwater Drive).

6.0 ROUTE ONE/MAINE TURNPIKE SPUR

A feasibility assessment of creating an at-grade intersection between Route One and the Maine Turnpike Falmouth Spur was performed. The assessment consisted of: 1) reviewing prior analyses as it relates to highway design standards, 2) projecting future traffic volumes, 3) assessing traffic operations under both traffic signal control and a roundabout intersection configuration, and 4) preparing conceptual plans of each option (See Appendix for conceptual plans).

6.1 Highway Design Grade Conformity

A review of prior work conducted by Gorrill-Palmer Consulting Engineers, Inc. assessing the roadway design feasibility of creating an at-grade intersection was conducted. The consultant's professional opinion is that the conclusion of the GPCEI evaluation is reasonable and removing the bridge is feasible. Specific comments are noted below.

- The GPCEI assessment appears reasonable with the limited amount of data provided.
- For 40 MPH the crest vertical curve does not meet stopping sight distance for grade adjusted condition ($G=5.66\%$).
 - An increase of the vertical curve length to approximately 302 feet with the same grades will be acceptable.
- The maximum grade of 5.66% exceeds the maximum grade of 5% for this typical application (a design exception would seem to be reasonable for this location).
- Very flat grades are noted at both ends of the vertical curve and match existing conditions are less than the minimum 0.3% grade.

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- Beginning curve is matching the existing roadway profile so it may not be feasible to change.
- End curve location is a stop condition, so revision to standard may be applicable.

6.2 Future Traffic Volumes

Future 2035 traffic volumes were estimated at the Route One/Turnpike Spur intersection according to PACTS Travel Demand Model projections. These were conducted for the both the weekday Mid-Day and PM peak hours.

To account for potential future commercial development east of the subject intersection, traffic generation was estimate for a scenario where 100,000 square feet of retail space is constructed. The following table presents the results for the weekday PM peak hour:

Route One/Turnpike Spur 2035 PM Peak Hour Traffic Volumes PACTS Model Plus 100,000 sf Shopping Center		
Intersection Movement	w/o Development	w/ Development
Route One SB Right	149	149
Route One SB Through	491	447
Route One SB Left	0	105
Route One NB Left	193	193
Route One NB Through	595	531
Route One NB Right	0	166
Turnpike Spur Left	107	107
Turnpike Through	0	41
Turnpike Spur Right	187	187
Shopping Center Right	0	129
Shopping Center Through	0	21
Shopping Center Left	0	174

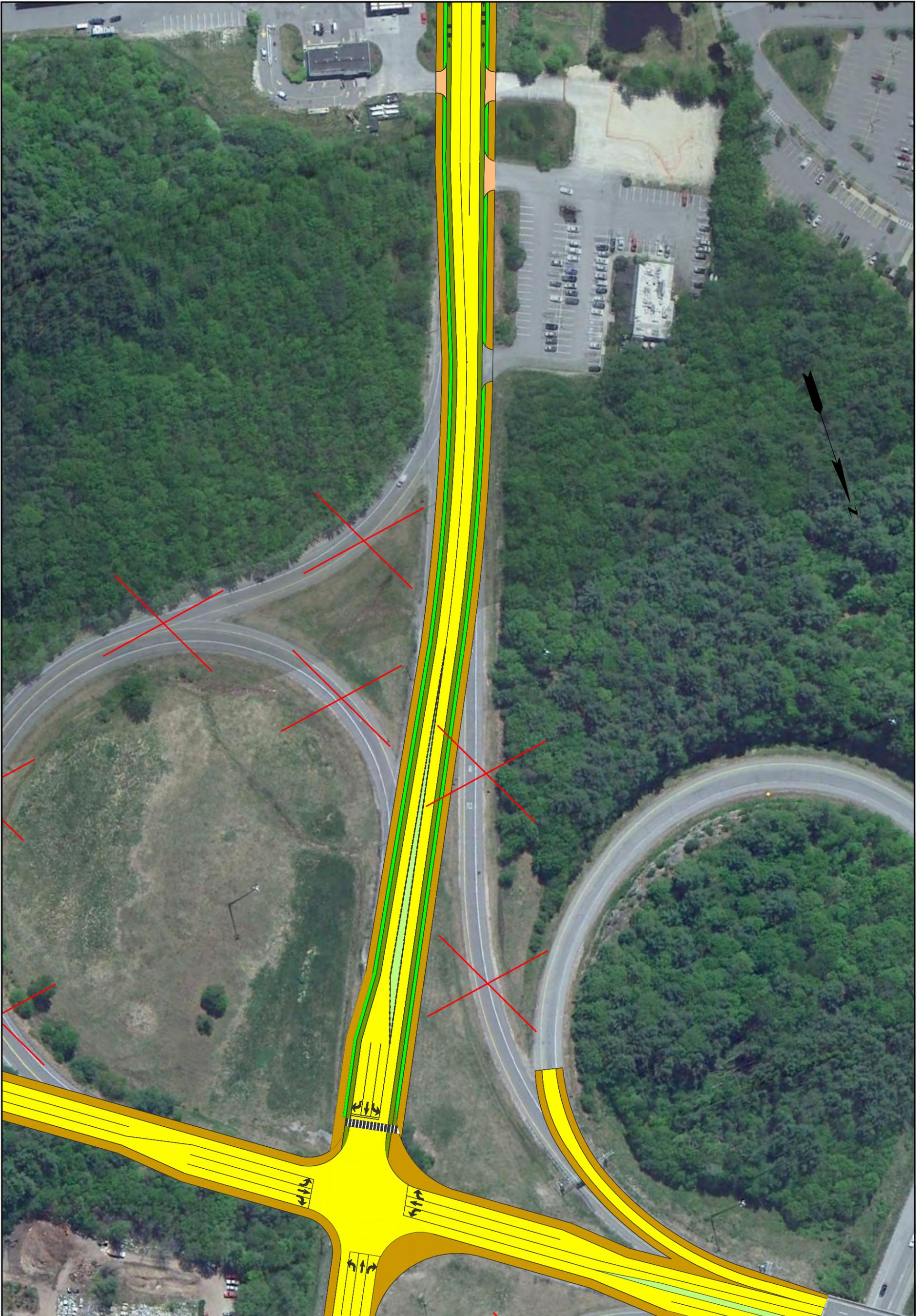
6.3 Traffic Operations Analysis

Based upon the forecasted traffic volumes, it is very likely that a traffic signal would be required, particularly if commercial development occurs on the east side of Route One. Accordingly, a capacity analysis was conducted for two intersection configuration scenarios, a standard signalized intersection, and a roundabout. The results are summarized below.

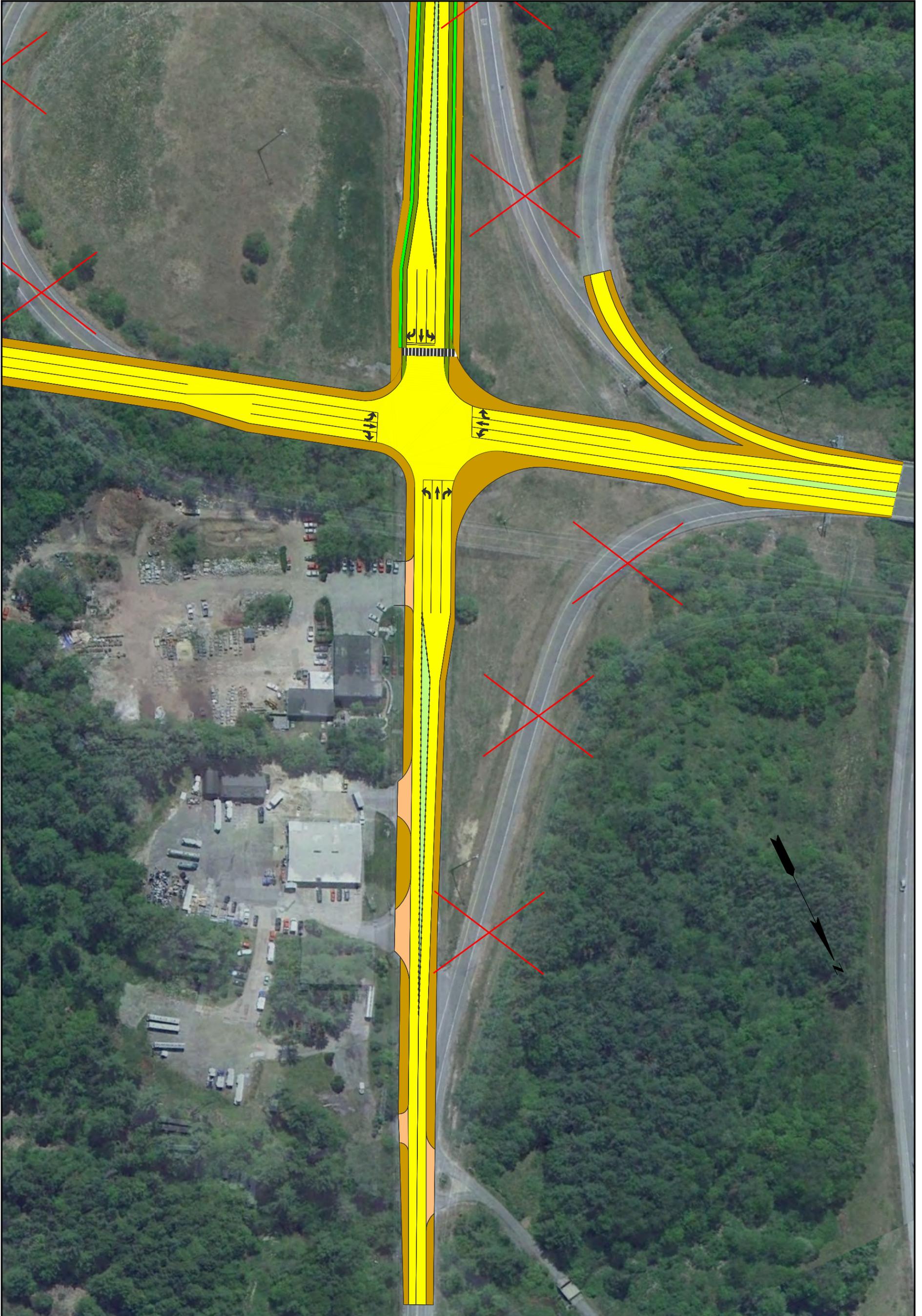
- Signalized intersection – A capacity analysis of the intersection indicates the intersection will operate at level of service C during the 2035 weekday PM peak hour. This analysis assumed the following intersection geometry:
 - Route One Southbound
 - Left Lane
 - Through Lane
 - Right Lane
 - Route One Northbound
 - Left Lane
 - Through Lane

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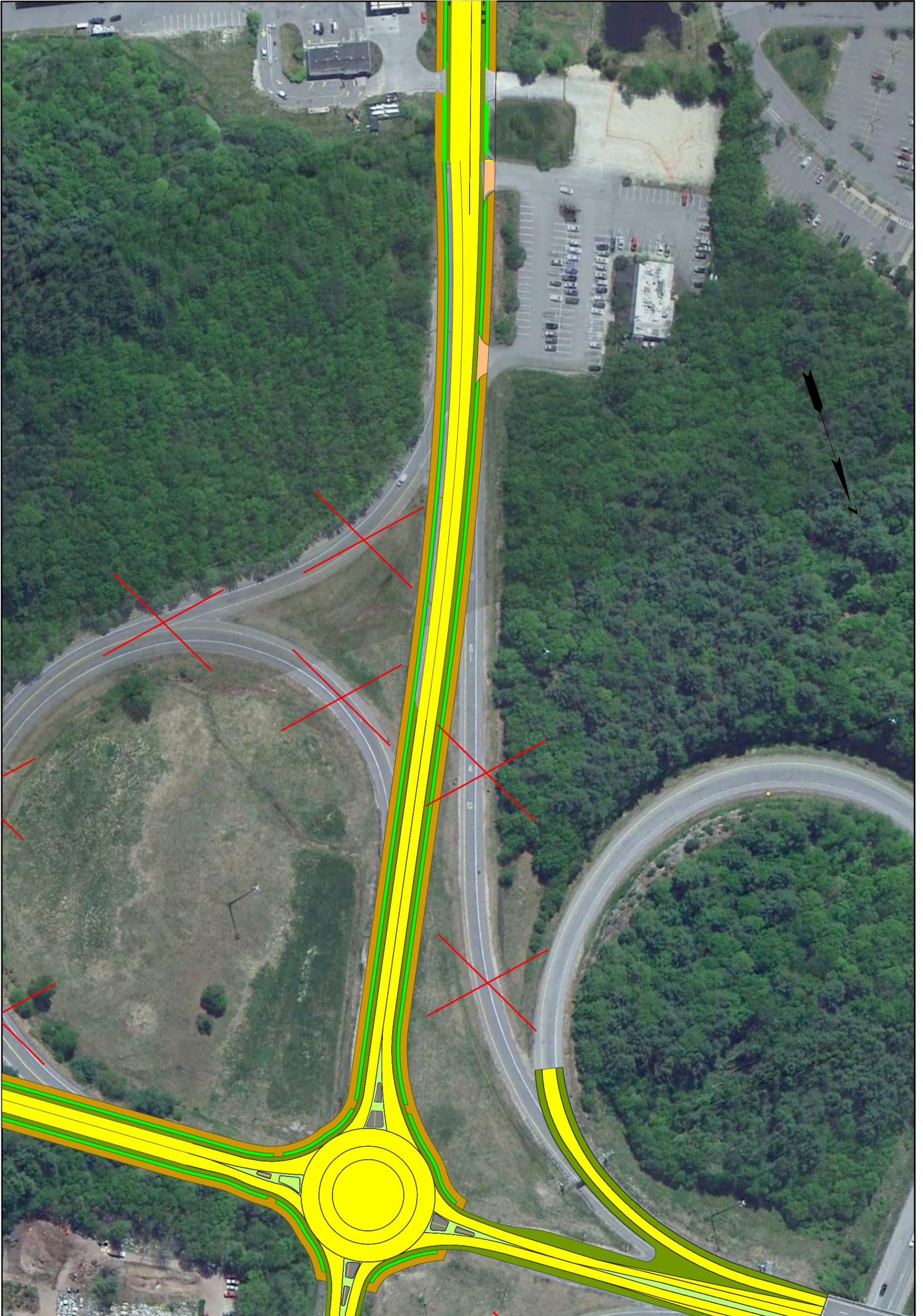
- Right lane
 - Turnpike Spur
 - Left Lane
 - Through Lane
 - Right Lane
 - Shopping Center
 - Left Lane
 - Through Lane
 - Right Lane
- Roundabout – A planning level capacity analysis was conducted using procedures contained in Synchro traffic analysis model and based upon the assumption of providing a single-lane roundabout, the intersection would be expected to operate at level of service B during the 2035 weekday PM peak hour.



4	JOB NO.: DATE: 10/19/12 SCALE: AS NOTED	TOWN OF FALMOUTH - ROUTE ONE SOUTH INFRASTRUCTURE PLAN	TYLIN INTERNATIONAL <small>12 NORTHBROOK DRIVE, BUILDING A, SUITE ONE FALMOUTH, MAINE 04105 (207) 781-4721</small>	 <small>41 Hutchins Drive Portland, Maine 04102 800.426.4262 www.woodardcurran.com</small> WOODARD & CURRAN <small>COMMITMENT & INTEGRITY DRIVE RESULTS</small>	MRLD Landscape Architecture + Urbanism



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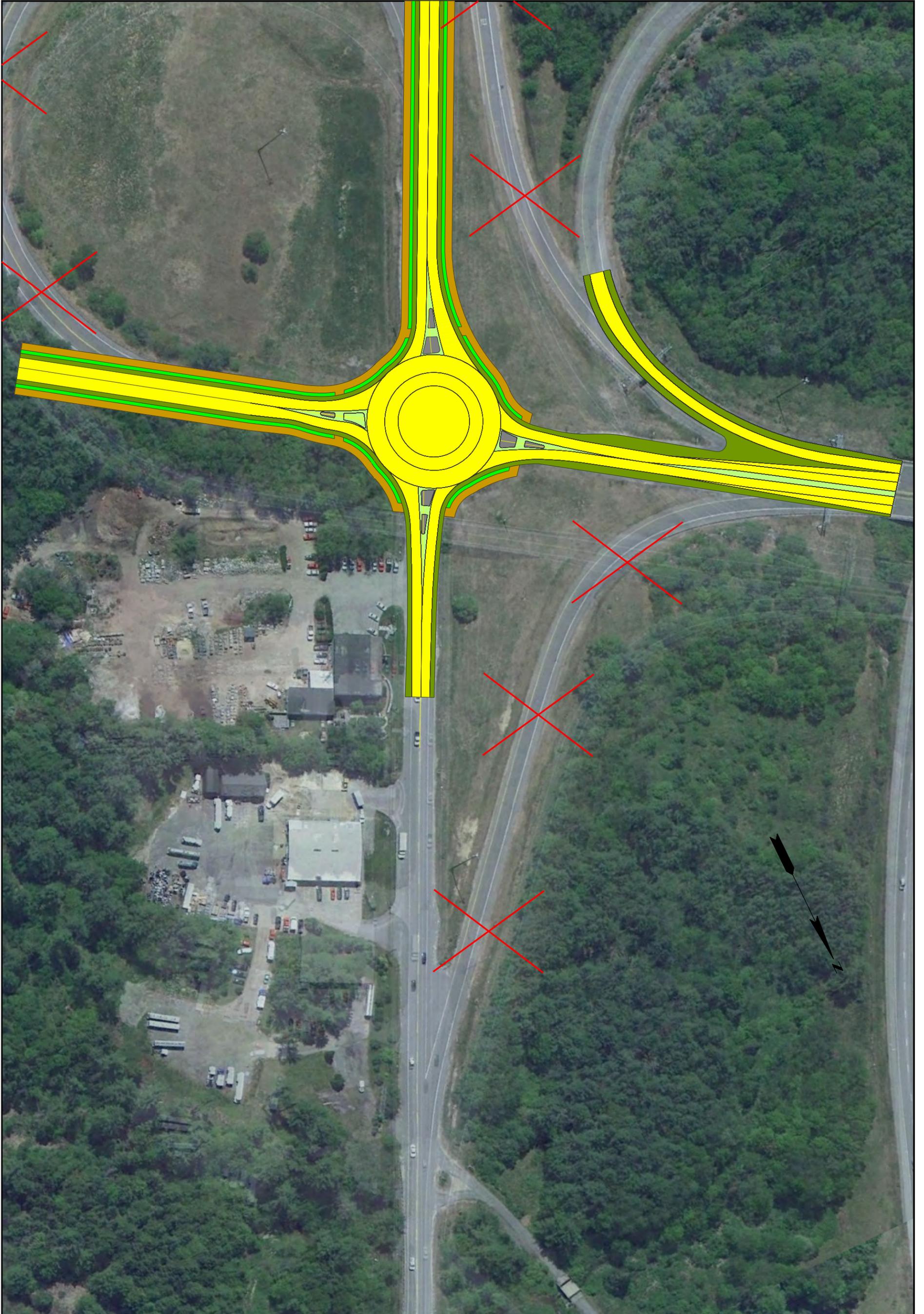
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