

# Barrington Transit Priority Corridor

## Study Objectives

To develop transit priority measures along Barrington Street (St.) in order to create a transit priority corridor, in accordance with Halifax's Moving Forward Together Plan. This is being done to decrease the transit travel time along the section, in anticipation to increase the number of community members who use transit as their primary mode of transportation.

## Project Location/Initial Conditions

The project study area is along Barrington St., between Scotia Square (Duke St.) and the Macdonald Bridge Ramp. This design will be based on the Cogswell Redevelopment Project's base plan.



## Design Process

- Analyze road section (using supplied traffic volumes and traffic engineering software).
- Depict sections experiencing the greatest congestion.
- Research transit priority tools and develop them to be applicable for the given project.
- Begin creating multiple design options.
- Finalize design options.
- Analyze design options using an option evaluation matrix.
- Chose final design (based primarily on cost, travel time saved, etc.).
- Develop final design into a proper, working transit priority corridor.

## Design Options

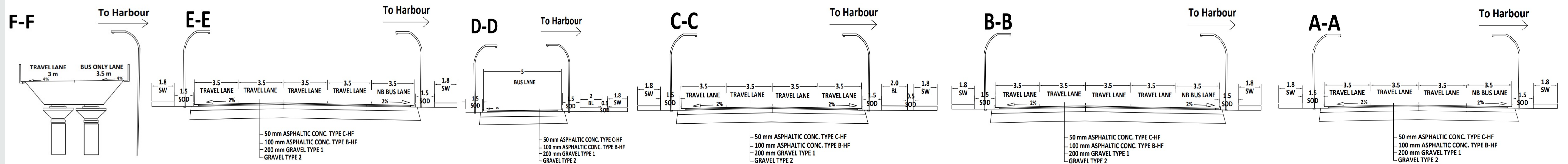
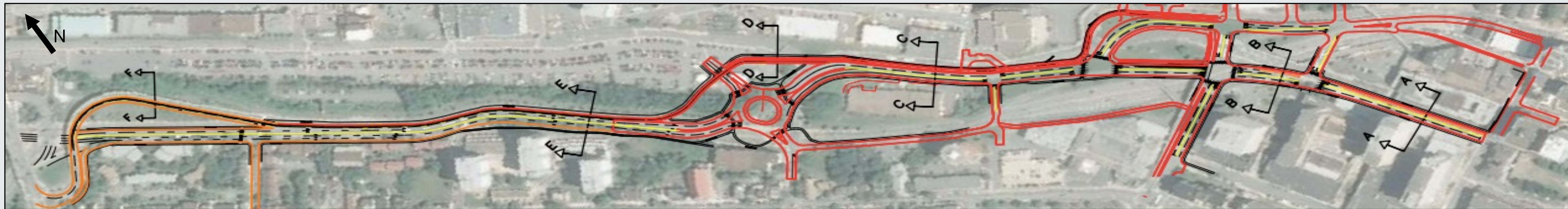
	From Scotia Square to Upper Water St.	Approach to Roundabout	Between Roundabout & Bridge Ramp	Bridge Ramp	Between Proctor St. & Upper Water St. (Southbound)
Option 1	Queue Jump Lane (right turning lane will also be a through bus-only lane)	---	Curbside Bus-Only Lane	---	---
Option 2	Queue Jump Lane (right turning lane will also be a through bus-only lane)	At Grade Slip Lane	Curbside Bus-Only Lane	2 Lanes of Traffic	---
Option 3	Queue Jump Lane (right turning lane will also be a through bus-only lane)	Below Grade Slip Lane	Curbside Bus-Only Lane	2 Lanes of Traffic	---
Option 4	Queue Jump Lane (right turning lane will also be a through bus-only lane)	At Grade Slip Lane	Curbside Bus-Only Lane	2 Lanes of Traffic	Queue Jump Lane (bus-only lane to the right of traffic)

## Evaluation Matrix

Determined by the Evaluation Matrix Option 2 was our Final Design.

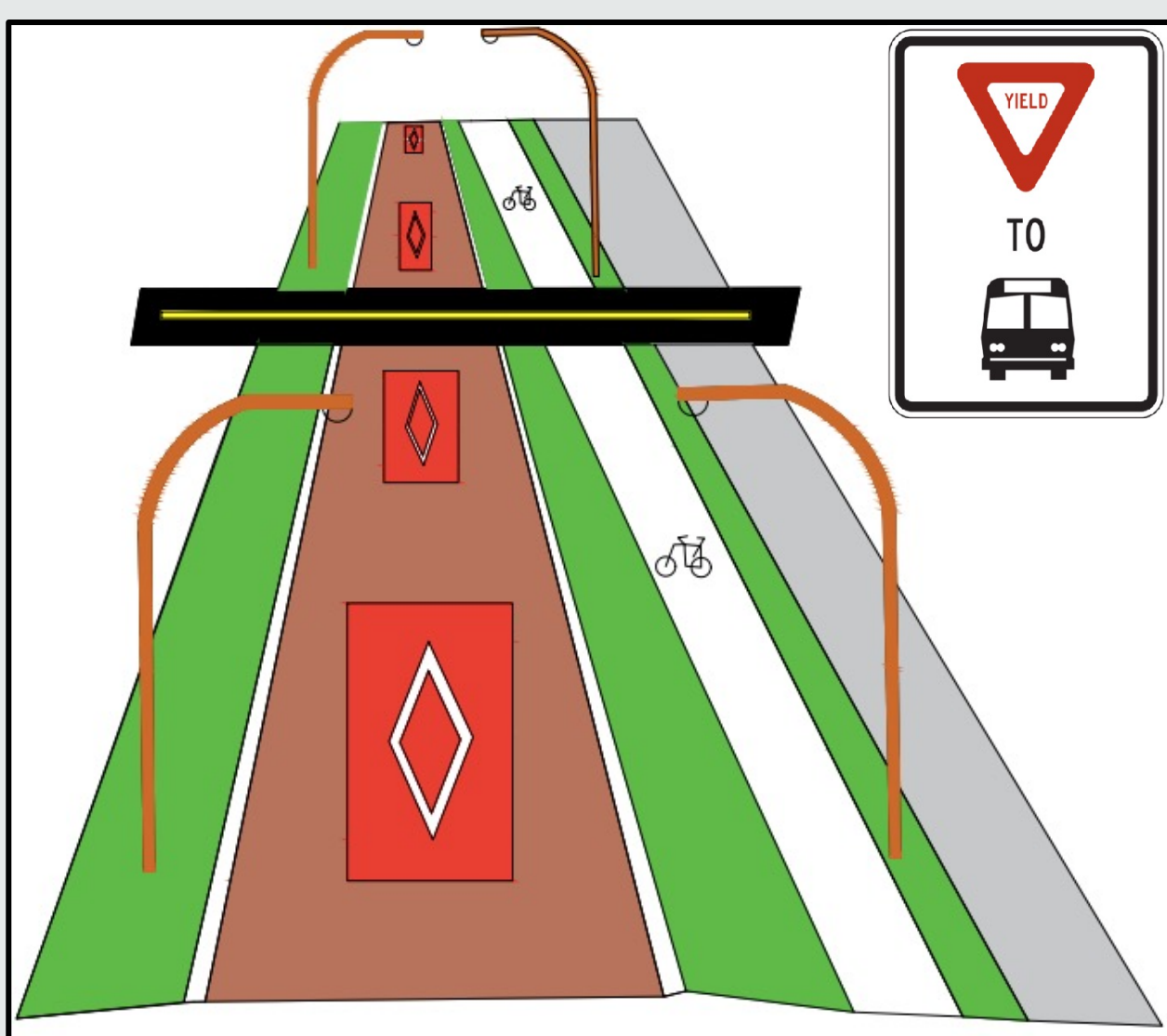
Evaluation Criteria	Parameter Weight	Design Option			
		Option 1	Option 2	Option 3	Option 4
Cost (& Complexity)	4	20	16	4	12
Transit Travel Time (Northbound)	6	6	24	30	24
Transit Travel Time (Southbound)	2	4	4	4	8
Impact on Other Traffic	1	2	4	5	4
Impact on Pedestrians	2	10	4	6	4
Safety Considerations	3	12	9	9	6
Property Requirements	1	5	5	5	5
<b>Total:</b>		<b>59</b>	<b>66</b>	<b>63</b>	<b>63</b>

## Final Design



## Final Design

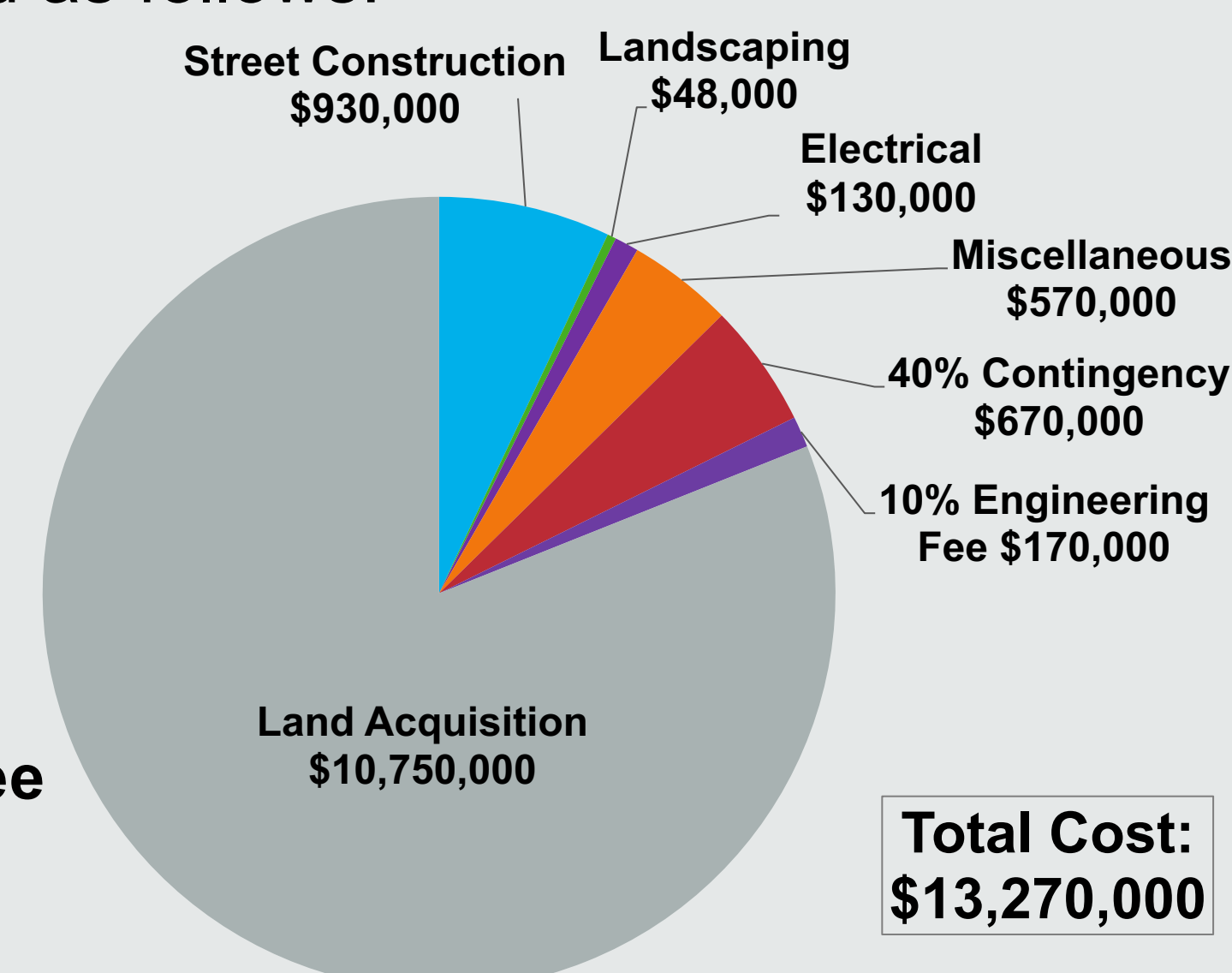
Below shows the at-grade slip lane that intersects Valour Way.



## Cost Estimate

The cost breakdown associated with the implementation of the final design are outlined as follows:

- Street Construction
- Landscaping
- Electrical
- Miscellaneous
- 40% Contingency
- 10% Engineering Fee
- Land Acquisition



## Conclusion and Recommendations

- Our final design provided a decrease in transit travel time by 4 minutes per trip.
- This design allows for the transition of 30 out of the 45 peak hour bus routes to move from Gottingen St. to Barrington St.
- The money saved with the implementation of our final design will be approximately \$600,000/year. This will allow for a payback period of 22 years.
- This design will decrease transit travel time but the project itself may not be the best financial decision for Halifax Regional Municipality (HRM), since Gottingen St. was developed only 3 years ago to support all 45 of these buses.

## Acknowledgements

Our team would like to thank both our supervisors, Dr. Nouman Ali and Mr. Paul Burgess for their continuous support and guidance throughout the duration of our project. We would also like to thank HRM, specifically Tanya Davis for this opportunity.

## References

- National Research Council (U.S.). (2010). *HCM 2010. Highway capacity manual*. Washington, D.C: Transportation Research Board.
- Ryus, P., Laustsen, K., Blume, K., Beard, S., & Langdon, S. (2016). *A Guidebook on Transit-Supportive Roadway Strategies. A Guidebook on Transit-Supportive Roadway Strategies*, 1.

Software: PTV VISTRO & Civil3D