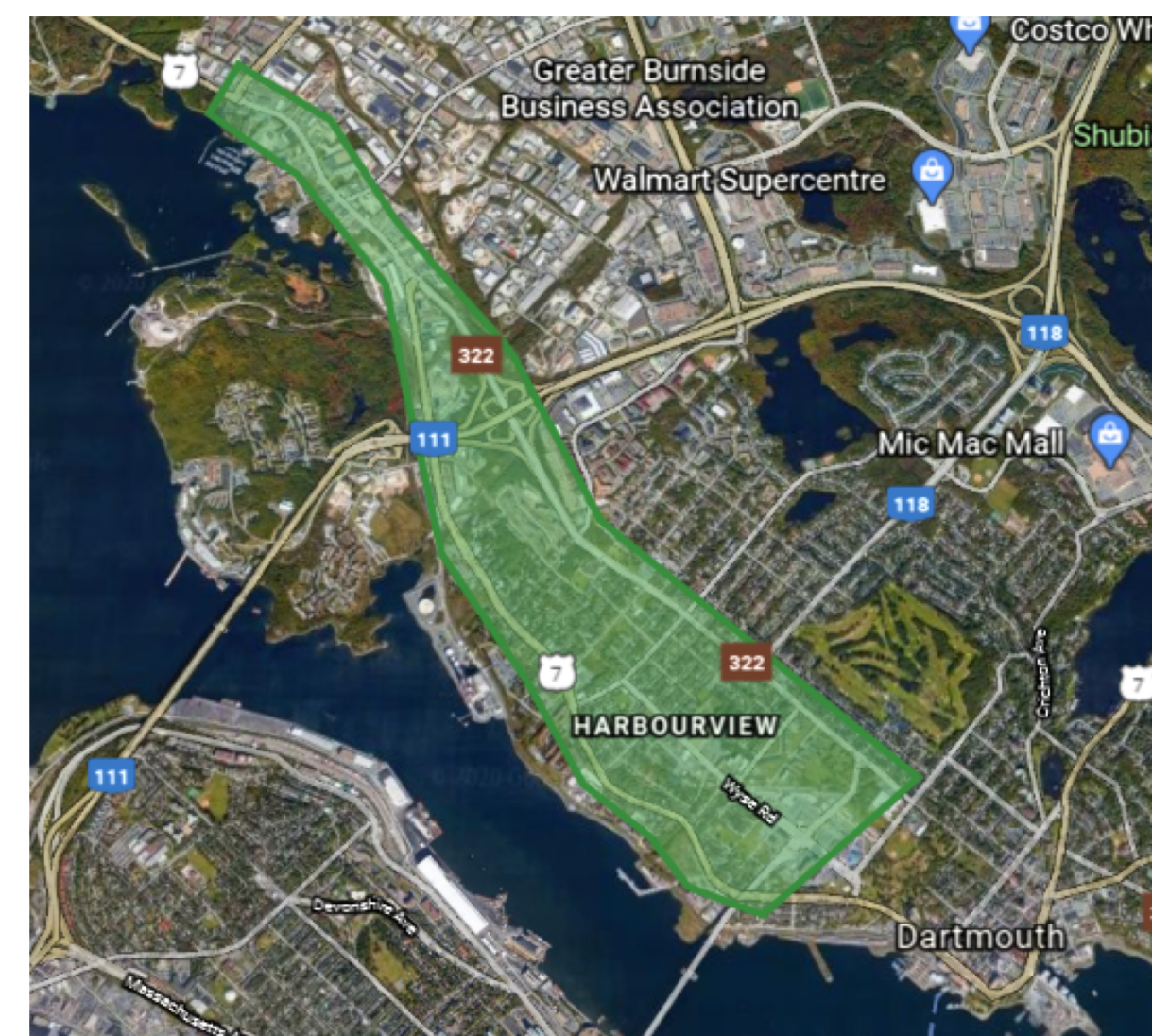


Introduction

HRM's goal:
Advance sustainable methods of transportation by increasing walking, biking and transit and minimizing trips by private vehicles

Our goal:
Create a Transit Priority Corridor (TPC) to help HRM achieve their goal

Project area:
Dartmouth, Nova Scotia. On Windmill Rd from Akerley Blvd to the Macdonald Bridge, on Wyse Rd from Albro Lake Dr to Nantucket Ave, and on Victoria Rd from Windmill Rd to Nantucket Ave.

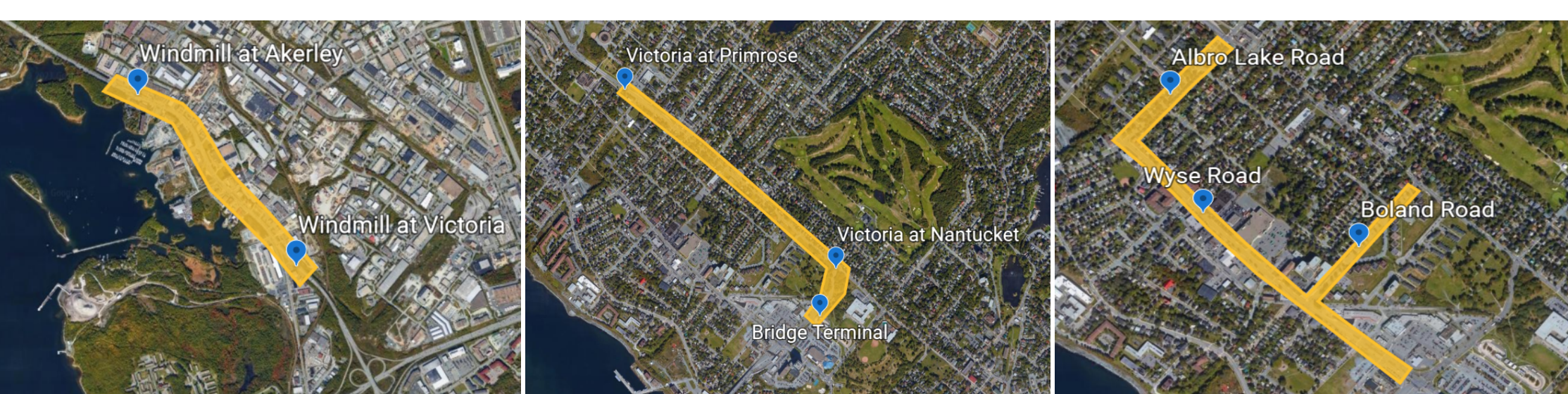


Design Process

Once the problem was defined, the traffic data was analyzed using VISUM and VISTRO. This gave the baseline conditions. From there, the options were created, and they were compared using the decision matrix to give the optimal option. Then, the optimal option was finalized to give the final design and recommendations.



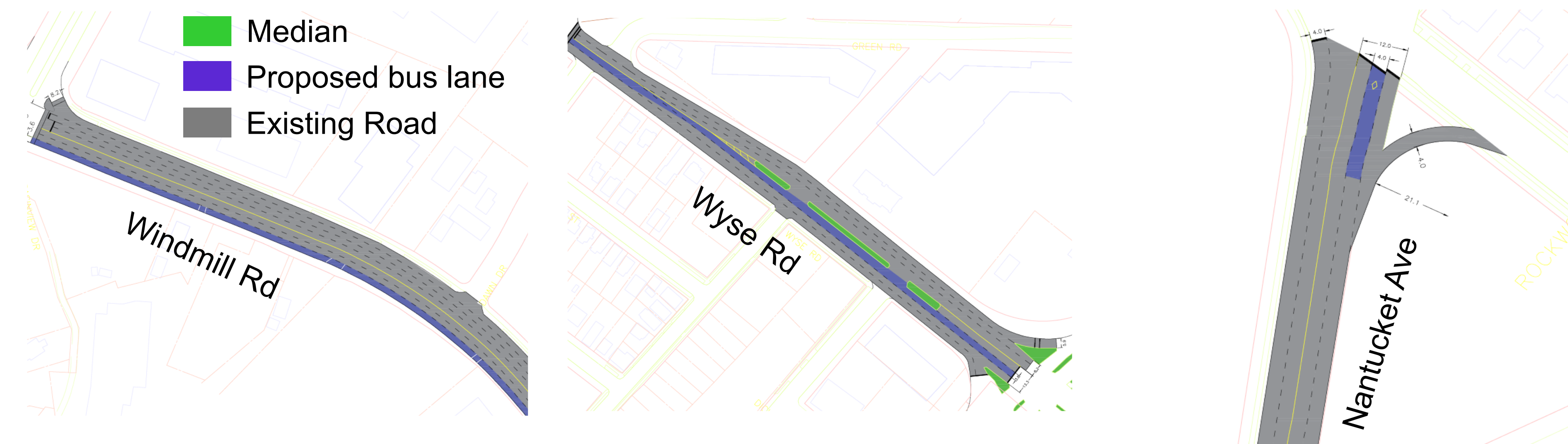
Baseline Conditions



- 8 different bus routes
- 26 buses inbound per hour
- Cumulative Delay: **3.26 min**
- 4 different bus routes
- 13 buses inbound per hour
- Cumulative Delay: **1.43 min**
- 3 different bus routes
- 6 buses inbound per hour
- Cumulative Delay: **3.65 min**

The baseline conditions were found using VISTRO and VISSUM modeling. From this, the delays were found for each intersection. This helped demonstrate where the problem intersections were and where improvements needed to be made.

Design Options



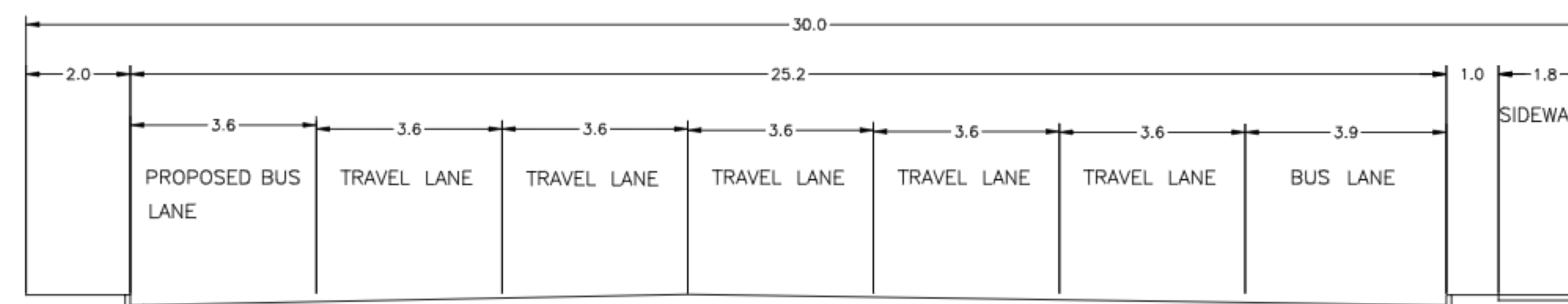
Option 1: Curbside dedicated bus lane southbound on Windmill Rd from Akerley Blvd to Victoria Rd. TSP implemented at each intersection along the way.

Option 2: Option 1 plus a median dedicated bus lane southbound on Wyse Rd from Boland Rd to Nantucket Ave. Left turn/straight queue jump at Wyse Rd and Nantucket Ave.

Option 3: Option 2 plus a left turn queue jump on Nantucket Ave to go onto Victoria Rd. Widening of the existing right turn ramp to compensate for the additional lane.

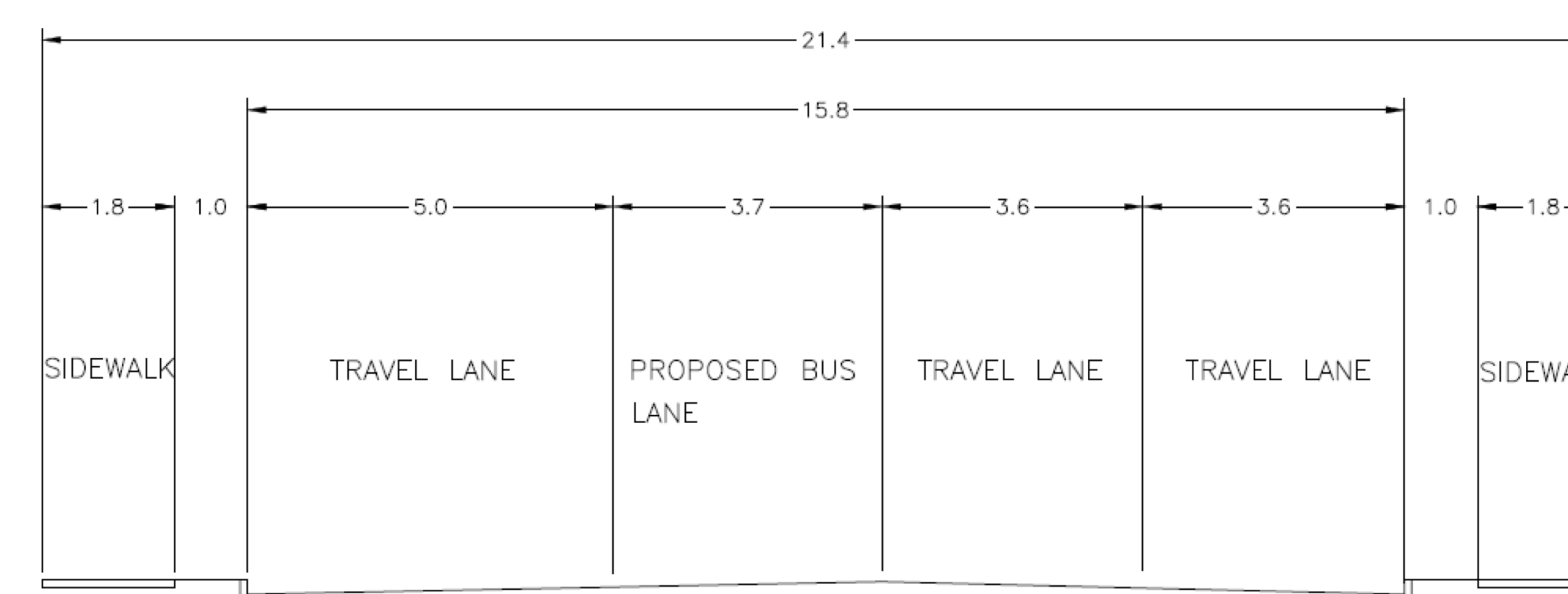
Details of Final Design

Cross-section Windmill Rd after Akerley Blvd



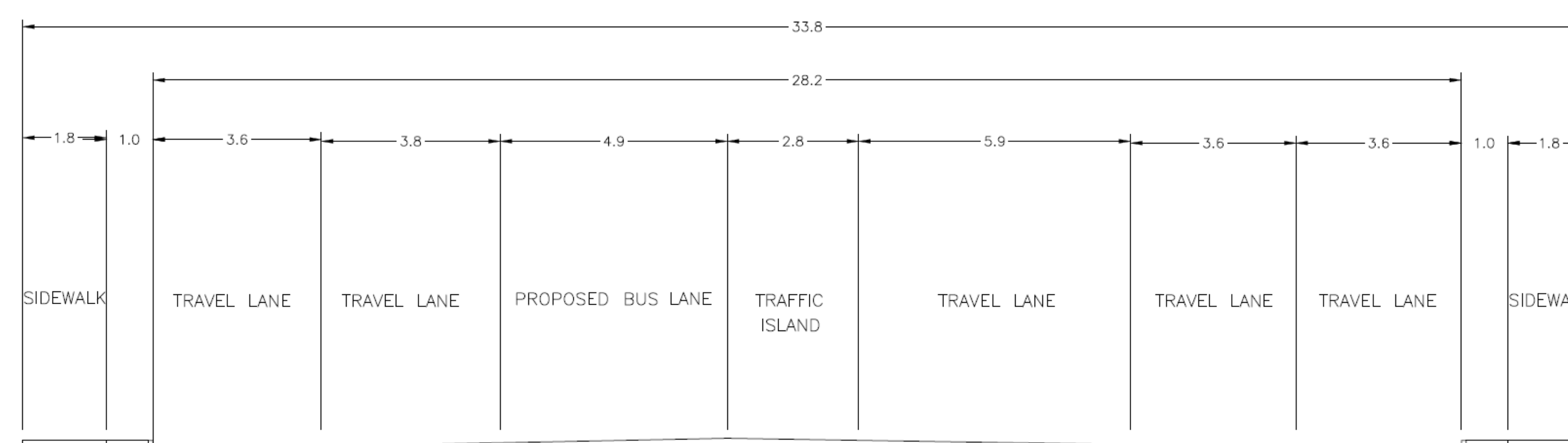
NORTHBOUND

Cross-section Wyse Rd at Boland Rd



NORTHBOUND

Cross-section Wyse Rd between Boland Rd and Nantucket Ave



NORTHBOUND

Evaluation Matrix

Most Desirable ← → Least Desirable

Criterion	Base Condition	Option 1	Option 2	Option 3
Trip Time Improvement	Red	Yellow	Green	Green
User Impact	Green	Yellow	Orange	Orange
Cost	Green	Yellow	Orange	Red
Safety	Red	Yellow	Green	Green

Economics

Option	Total Cost
Option 1	\$ 2,730,000
Option 2	\$ 3,460,000
Option 3	\$ 3,750,000

Option	Cost-Time Savings	Peak Hour Travel Time Saved	Peak Hour Time Savings	Yearly Savings
Option 1		754 min	\$302	\$313,000
Option 2		1157 min	\$463	\$481,000
Option 3		1168 min	\$467	\$486,000

Conclusion and Recommendations

With any new project, community engagement is necessary. With the implementation of Option 2, it is important that the client engages the community in order to boost ridership. To aid in this, it is recommended that the client implements more sustainable practises. This could include the use of electric or hybrid buses, or alternative green paving methods.

References

- Burgess, Paul. 2020. *Dalhousie CIVL 4200 Notes*. Halifax
- Halifax Regional Municipality. 2017. "Integrated Mobility Plan." https://www.halifax.ca/sites/default/files/documents/about-the-city/regional-community-planning/IMP_report_171220-WEB.pdf.
- Halifax Transit. 2016. "Moving Forward Together Plan." https://www.halifax.ca/sites/default/files/documents/transportation/halifax-transit/MFTP_PlanOnly.pdf.