

North West Community Council
May 19, 2014

TO: Chair and Members of North West Community Council

SUBMITTED BY: Original Signed

Kathleen Llewellyn-Thomas, P.Eng., Acting Director, Transportation &
Public Works

DATE: March 24, 2014

SUBJECT: **April 2014 Update: Waverley Ratepayers Association Traffic Study
and Transportation Study – Fall River, Waverley and Wellington
Area**

ORIGIN

Item 7.1 of the March 25, 2013 meeting of the Marine Drive, Valley and Canal Community Council:

MOVED by Councillor Dalrymple, seconded by Councillor Craig that North West Community Council request staff to provide oral or written updates on transportation issues in the Fall River, Waverley and Wellington Area every six months instead of every three months, as previously requested.

MOTION PUT AND PASSED

LEGISLATIVE AUTHORITY

Part 1, Section 25, (e), (i) “Powers and Duties of Community Council” of HRM Charter.

RECOMMENDATION

It is recommended that this item be removed from the North West Community Council status sheet. Items in the report that have not yet been addressed, require coordination with major projects not yet planned and short-term updates would not provide any additional benefit to Community Council.

BACKGROUND

In 2009, a transportation study was completed in support of the Fall River Community Visioning Project. The study identified long-term requirements and opportunities to accommodate future development and modifications related to a proposed village commercial centre concept. In addition, the study also assessed three locations identified by the community as problematic today, in order to identify immediate upgrades. The locations were:

1. Highway 102 / Highway 118 interchange area
2. Highway 2 / Fall River Road intersection
3. Fall River Road / Lockview Road / MacPherson Road area

In June of 2011, the Waverley Ratepayers Association Traffic Calming Committee presented their report “Traffic Calming Issues in Greater Waverley”. The report described the following eight (8) items put forward to be considered for implementation:

1. Shoulder widening – Waverley Road, Cobequid Road and No. 2 Highway.
2. Installation of stop signs at certain key intersections and rumble strips before sharp turns.
3. Construction of two turning circles (i.e. “roundabouts”), one at the intersection of the Cobequid Road and Rocky Lake Drive and the other at the intersection of Rocky Lake Drive with the Waverley Road and No. 2 Highway.
4. Installation of photo radar units at three dangerous Waverley Road locations along with appropriate warning signs, i.e., segments where traffic tends to accelerate to speeds that are well above the posted 50 km per hour limit.
5. Defining bicycle lanes on both sides of the Waverley Road to heighten driver awareness.
6. Begin the installation of lighting poles in the village core that will also support signs identifying features of historical significance. Expand the lighting/historical sign program to other parts of the Waverley area (e.g., No.2 Highway and Rocky Lake Drive).
7. Increase active radar surveillance during rush hour times at problematic locations along the Waverley Road and reduce the speed limit on No. 2 Highway to 50 km/hour between the Highway No. 102 intersection and Waverley.
8. Establish uniform regulations for recreational cyclists and cyclists training for competitive events.

The purpose of this report is to provide an information update on all of these recommendations.

DISCUSSION

Waverley Ratepayers Association – Report on Traffic Calming Issues in Greater Waverley

Upon receipt of the report from the Waverley Ratepayers Association, Traffic & Right of Way Services staff reviewed the information provided and determined that items 2, 3, 7 and 8 related to Traffic Services. These items were addressed in a memo dated August 23, 2011 to Councillor Dalrymple and would require no further action / update (see Attachment 1).

As for the remaining items (1, 4, 5 and 6), that were discussed in the original Information Report (see Attachment 2), the following points will provide an update on information received and status for these remaining issues:

Item 1 – Shoulder Widening (Waverley Road / Cobequid Road / No. 2 Highway)

As indicated in the original Information Report, shoulder widening on these roadways could only be accomplished as part of an extensive roadway reconstruction project. At the time of this report, no such project has been identified or budgeted for. No further information is available beyond what was provided in the February 25, 2013 Information Report.

Item 4 – Installation of Photo Radar Units at Three Waverley Road Locations

No legislative changes have been made to allow the use of photo radar in Nova Scotia at this time. There is no update beyond what was provided in the February 25, 2013 Information Report.

Item 5 – Defining Bicycle Lanes on Both Sides of Waverley Road

HRM staff continues to investigate opportunities to extend the existing bicycle lanes along Waverley Road as capital roadway projects are identified. There is no update beyond what was provided in the February 25, 2013 Information Report.

Item 6 – Begin the Installation of Lighting Poles in the Village Core

HRM Facility Development has a project currently underway which will see improvements to the Village Green, including landscaping and decorative lighting poles. Outside of this, no other projects involving installation of decorative lighting poles have been programmed for the area. Traffic and Right of Way Services (TROW) is responsible for the provision of roadway lighting based on lighting levels required for safe operation of the facility; TROW does not install decorative light poles or lighting beyond safety requirements. If it is the desire of the community to have decorative lighting poles and signage related to historical locations, then a project would need to be identified and programmed through the capital budget process.

Transportation Study – Fall River/Waverley/Wellington Areas

For the areas identified by the community, the short-term assessment included in the transportation study provided seven recommendations (see Attachment 3).

Recommendation 1 – Fall River Road and Trunk 2

This recommendation identified four separate items:

1. Channelized Right-Turn Lane

As outlined in the original Information Report, addition of this channelized right-turn lane would require widening of the bridge on Fall River Road. HRM has carried out a Level 2 assessment of this bridge; maintenance items were identified. This bridge will have a Level 3 assessment carried out this year (2014) to determine if any structural issues exist that would require changes to weight restrictions or replacement. At this time, there are no immediate plans to replace this bridge. If/when it is determined that this bridge needs to be replaced, consideration for extending the existing right-turn lane will be incorporated into the bridge replacement project.

2. Eliminate Left Turns from Fall River Road to Wilson’s Gas Station

This item could potentially be revisited when the Fall River Road bridge is being replaced and other modifications to the roadway are being done. As indicated in item 1 above, consideration for this modification would be incorporated into the bridge replacement project.

3. Improve Pedestrian Facilities at Fall River Road and Trunk 2

The requested crosswalk was added. Because of property constraints, drainage requirements and existing infrastructure on private property (asphalt curbing, large pylon sign, etc.), modification to the corner at the Wilson’s property may be difficult. Staff is investigating potential modifications to this location in order to determine what, if any, impact there will be to private property in order to accommodate adjustment to this crosswalk. Once infrastructure requirements are identified, staff will determine how best to proceed with the work.

4. Add Northbound Left-Turn Advanced Green

This item has been addressed.

Recommendation 2 – Improve Drop-Off Area at Ash Lee Jefferson School

The original Information Report outlined the options put forward for this item and indicated that the most effective and appropriate approach was to use the neighbouring church parking lot, coupled with a trail connecting the lot to the school property. This would be a matter to be resolved between the school and adjacent property owner. No further update is provided.

Recommendation 3 – Highway 118 NB Ramp and Perrin Drive Intersection

As outlined in the original Information Report, this item has been addressed.

Recommendation 4 – Trunk 2 and Highway 102 NB Ramps

HRM continues to work with the Province of Nova Scotia on issues surrounding the interchange area in Fall River through on-going project identification and coordination. NSTIR (Nova Scotia Transportation and Infrastructure Renewal) has indicated that this project is well into the design stage and has been added to the 2014/2015 capital program. It is expected that a roundabout will be built at this location during the upcoming construction season.

Recommendation 5 – Improve Primary Connector Trail

The Shubenacadie Watershed Environmental Protection Society (SWEPS) is continuing with their consultant on planning and design work. Three priority options have been identified and information is being gathered on these options for detailed design. It is anticipated that design work will be completed in 2014 with construction beginning in 2015.

Recommendation 6 – Implement Secondary Multi-use Trail Along Trunk 2

As indicated in the original Information Report, there are difficulties in constructing this trail because of geography and available property. There were no plans or budget identified for this project at the time of this report. This item will be assessed for coordination opportunities as capital roadway projects come up in this area.

Recommendation 7 – Park and Ride Location

This item has been addressed.

FINANCIAL IMPLICATIONS

There are no budget implications associated with this report.

COMMUNITY ENGAGEMENT

Community engagement was not required as this item originated from a report submitted by a community group.

ATTACHMENTS

1. Memorandum from Patrick Hatton, Traffic Analyst, dated August 23, 2011 re: Traffic Operations Concerns, Waverley Ratepayers Association
2. February 25, 2013 Information Report to North West Community Council
3. Transportation Study – Fall River/Waverley/Wellington Areas, Chapter 4 – Recommendations

April 2014 Update: Waverley Ratepayers Association Traffic Study and Transportation Study – Fall River, Waverley and Wellington Area
Community Council Report - 6 - May 19, 2014

A copy of this report can be obtained online at <http://www.halifax.ca/commcoun/index.html> then choose the appropriate Community Council and meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Roddy MacIntyre, P.Eng., Transportation Engineer, 490-5525

Original signed

Report Approved by: Taso Koutroulakis, P.Eng., PTOE, Manager, Traffic & Right of Way, 490-4816

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Bruce Colborne, P.Eng., A/Manager, Design & Construction, 490-4896

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David McCusker, P.Eng., A/Manager, Planning, 490-6696



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MEMORANDUM

TO: Barry Dalrymple, Councillor District 2

CC: Taso Koutroulakis, A/Manager Traffic and Right of Way
David Hubley, Manager Design and Construction
David McCusker, Manager Strategic Transportation Planning

FROM: Patrick Hatton, Traffic Analyst

DATE: August 23, 2011

SUBJECT: Traffic Operations Concerns, Waverley Ratepayers Association

A report on traffic calming issues in Greater Waverley was written by the Waverley Ratepayers Association and submitted to you on October 26, 2010. In the report, the ratepayers detail perceived issues with traffic on Waverley Road, Highway 2, Rocky Lake Drive, and Cobequid Road. Issues raised included speeding, poor sight lines due to horizontal and vertical road curves, and the narrowness of the roadways. The ratepayers suggested eight improvements that they felt would improve safety and calm traffic in the area. The suggested improvements are noted below:

1. Shoulder widening – Waverley Road, Cobequid Road and No. 2 Highway;
2. Installation of stop signs at certain key intersections and rumble strips before sharp turns;
3. Construction of two turning circles (ie roundabouts);
4. Installation of photo radar units at three Waverley Road locations;
5. Defining bicycle lanes on both sides of the Waverley Road;
6. Begin the installation of lighting poles in the village core;
7. Increase radar surveillance and reduce the speed limit on No. 2 highway to 50km/h; and
8. Establish uniform regulations for cyclists.

Of the suggestions above, items 2, 3, 7, and 8 relate to Traffic Services and are dealt with in this memorandum.

2. Stop signs and rumble strips – Stop signs are meant for assigning right-of-way at busy intersections, not for slowing traffic. The HRM uses the Transportation Association of Canada (TAC) national standard warrant when determining whether or not all-way stop signs should be installed at intersections. In order for an intersection to warrant all-way stop control, a minor street average volume of 200 vehicles per hour is required for a consecutive 8 hour period. Installation of unwarranted all-way stop control can worsen the situation as drivers may be inclined to “roll through” the stop sign as they perceive that it is not necessary to stop. Where they do stop, this can increase the likelihood for rear end collisions as drivers behind them may not be expecting a large queue of traffic.

Staff conducted peak period traffic counts in June 2011 at the three intersections requested by the ratepayers. The results of the counts showed two-way, peak hour volumes of 13, 45, and 64 vehicles per hour at the intersections of Waverley Road with Joe Street, Rolling Hills Drive, and Sibley Street, respectively. All-way stop control is not warranted at the three intersections and as such, Traffic Services does not support their installation.

In addition to the assessment for all-way stop control, staff reviewed each intersection for sight lines to ensure that any warranted hidden intersection signs were in place. The review found that a hidden intersection sign should be installed just south of Joe Street for northbound traffic. A work order has been issued for the installation of this sign.

Rumble strips are grooves that are cut into the road to draw the attention of drivers to unexpected roadway elements through generation of noise where the tires contact the grooves. Due to this noise generation, rumble strips are not installed on roadways proximate to residences as this noise would be generated by all traffic, at all times of the day and night and would be very disruptive to nearby property owners.

3. Construction of two roundabouts – The Waverley Ratepayers Association is correct that numerous engineering studies have been conducted in Canada and the United States that indicate that roundabouts reduce vehicular collision rates by forcing drivers to reduce their speed as well as by reducing both the number and severity of vehicular conflict points. Also, staff concur that roundabouts are much smaller than rotaries and require vehicles to slow to speeds at or below 35 km/h and roundabouts in Nova Scotia are typically designed for speeds of 30 km/h. Even with this smaller size, roundabouts require a larger area than do typical stop controlled and signalized intersections, and this area typically exceeds that which is enclosed in the rights of way of the adjacent roadways. The right of way width on each of the roads is 20 metres and land acquisition would be necessary for the installation of roundabouts at these intersections. As the collision rates at these intersections are not high under existing conditions, the high cost of land acquisition and construction would outweigh the benefits achieved through reduction of collision potential. As such, installation of roundabouts at these locations is not recommended.

7. Increase radar surveillance and reduce the speed limit on No. 2 highway to 50km/h – The matter of radar surveillance on Waverley Road has been passed to the RCMP.

The segment of Highway 2 between the Highway 102 intersection and the beginning of the 50km/h segment in Waverley was assessed by staff to determine the correct posted speed. There are two methods of verifying the correct speed limit of a roadway. These methods are to determine the 85th percentile speed and conduct a TAC speed warrant. The 85th percentile speed is the speed that 85 percent of drivers are travelling at or below. This metric is used because engineering studies conclude that at least 85 percent of drivers will be driving a reasonable speed for roadway conditions. Based on the most recent (2009) speed data obtained by the HRM for this segment of roadway, the 85th percentile speed on this section of roadway is 70km/h. Staff also conducted a speed warrant for this segment of road. The speed warrant considers road curvature, hills, pedestrians, bicycles, intersections, and driveways. The results of the TAC warrant show that the correct posted speed of this segment of roadway is 60km/h based on the few

intersections and driveways in this segment of roadway. With an 85th percentile speed of 70km/h and a recommended speed limit of 60km/h using the TAC warrant, 60km/h is the correct posted speed for this segment of roadway.

8. Establish uniform regulations for cyclists – The Province of Nova Scotia has already developed regulations for cyclists. A summary of regulations can be found on HRM's bicycle map, the Provincial Bicycle safety pamphlet, as well as the Provincial website. For more information, see the below online resources.

<http://www.gov.ns.ca/snsmr/access/drivers/be-a-safe-bicyclist.asp>

<http://www.gov.ns.ca/snsmr/pdf/ans-rmv-bicycle-safety.pdf>

<http://www.halifax.ca/cycling/>

TRANSPORTATION AND PUBLIC WORKS

TRAFFIC AND RIGHT OF WAY

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Chapter 4 **Recommendations**

The following sections of the report outline recommendations that have been developed which focus on improving the movement of people to, from, and within the study area. Recommendations have been categorized as either short-term (within 5 years) or long-term (within 25 years). When appropriate, order of magnitude cost estimates have also been provided. It must be noted, cost estimates do not include potential property acquisition costs.

4.1 Short-Term Recommendations

Recommendation I - Fall River Road and Trunk 2 (Figure 14)

A. Channelized Right Turn Lane

During the AM peak hour, eastbound right turning traffic intersection is limited by the length and the accessibility of the right turn lane. The narrow bridge of Fall River Road and queues in the left turn/through lane limit access to the right turn lane. As a short term solution, it is recommended that a channelized right turn lane be provided for the eastbound right turning traffic. This would help to improve traffic flow between Fall River Road and Trunk 2 and ease some of the queuing that exists.

Estimated Cost: \$75,000

B. Eliminate Left Turns from Fall River Road to Wilson's Gas Station

Left turns from Fall River road to Wilson's Gas Station, particularly during the PM peak, disrupt the flow of through moving traffic. It is recommended that this entrance be modified to only permit right-in and right/left-out access. This would be achieved by installing raised islands that direct the flow of traffic in and out of the gas station and eliminate left turns into the site.

Estimated Cost: \$7,500

C. Improve Pedestrian Facilities at Fall River Road and Trunk 2

The pedestrian facilities at the intersection of Fall River Road and Trunk 2 require attention. A cross-walk should be added on the eastbound approach to allow for movement across all legs of the intersection. This would provide a connection between the Wilson's Gas Station and the sidewalk that is present on the north side of Fall River Road.

In its present form, the pedestrian refuge island in the southwest corner near the Wilson's property is inadequate. The island is not wheelchair accessible and is too small for the large number of pedestrians in the area.

It is recommended that the island be enlarged and include pedestrian ramps to improve accessibility.

Estimated Cost: \$1,000 (Refuge Island incorporated in Recommendation A)

D. Add Northbound Left Turn Advanced Green

The PM peak volumes result in a high percentage of northbound left turning vehicles at the intersection. Currently, left turning vehicles are not afforded the advantage of an advanced green signal. As volumes continue to rise at the intersection, due to background traffic growth and further residential and commercial development, the addition of an advanced green phase would serve to improve the level of service at the intersection.

Recommendation II – Improve Drop-off Area at Ash Lee Jefferson School

Two options are being recommended for improvement of the drop-off/pick-up area at the elementary school.

Option A

The first recommendation involves relocating the existing sidewalk in front of the school (Figure 15) away from the road and closer to the school. A lay-by area would then be created in the space of the old sidewalk. This would provide parents with an area to park close to the school that does not disrupt the flow of traffic. This would provide approximately 9 new parking spaces.

Estimated Cost: \$30,000

Option B

The second option (Figure 16) is to develop a drop-off area behind the adjacent Church on Lockview Road. This area goes unused during the week and there may be an opportunity to develop an agreement with the Church to use this area for parents to drop-off and pick-up their children. The grades on the hill between the school and Church would require that a winding trail be created between the two properties.

The combination of these two options would provide a generous amount of parking for parents as well as staff and would greatly improve safety.

Estimated Cost: \$45,000

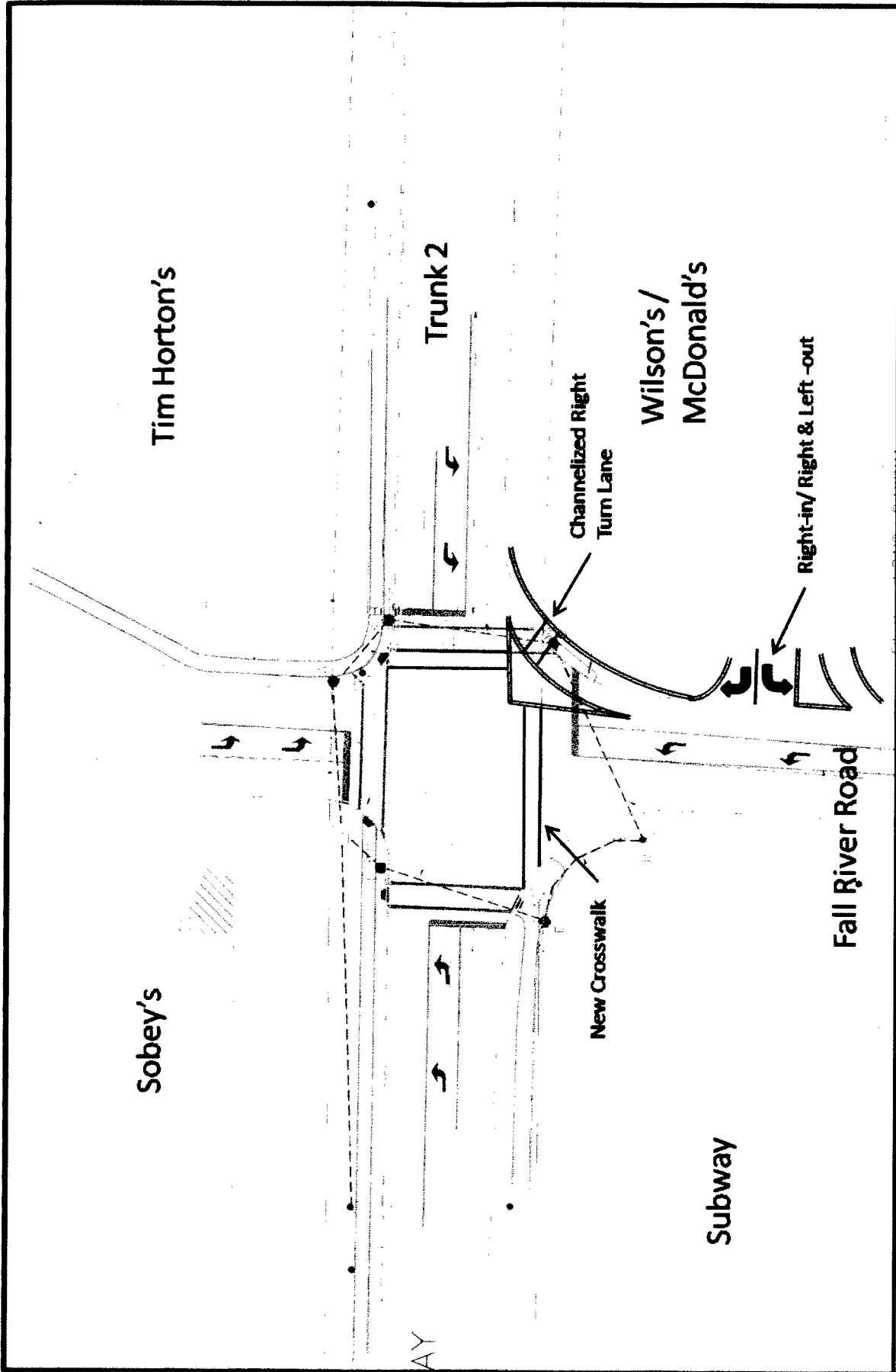


Figure 14

Fall River Road/ Trunk 2

Short Term Recommendation IA, B, & C





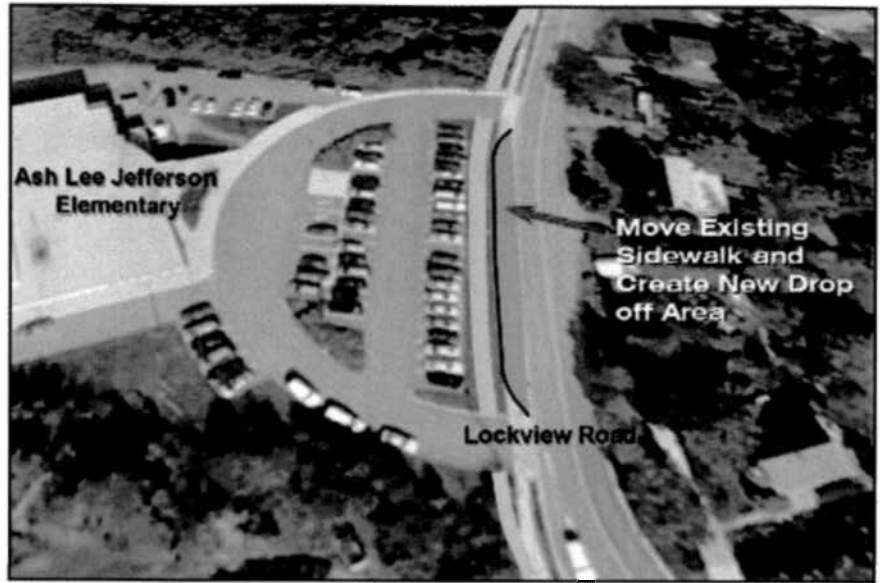


Figure 15 - Ash Lee Jefferson School Drop-off Option A

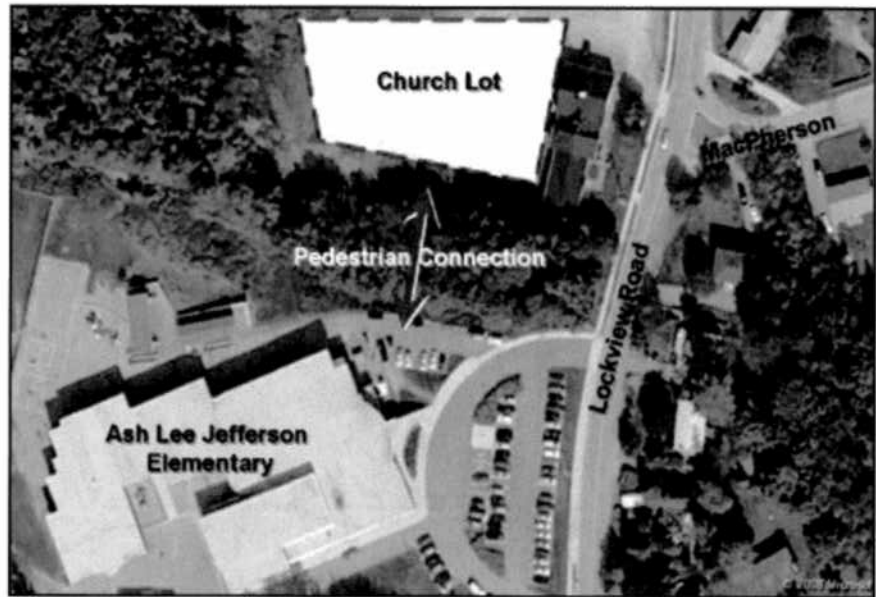


Figure 16 - Ash Lee Jefferson School Drop-off Option B

Recommendation III – Highway 118 NB Ramp and Perrin Drive Intersection

During the PM peak hours, vehicles on the northbound ramp have the potential to queue back onto Highway 118, creating a major safety issue. This is sometime a result of a lack of capacity on Perrin Drive due to delays at the intersection at Trunk 2. However, it is often the case that the traffic light on the ramp remains red for an excessively long period of time causing queues to form on the ramp. Improvements to the signal timing and detection at this location are recommended to ensure that when possible, queues are dissipated as quickly as possible.

Recommendation IV - Trunk 2 and Highway 102 NB Ramps

In order to manage the large queue lengths and excessive delays at the intersection during the AM and PM peaks, it is recommended that the option of constructing a roundabout be considered (Figure 17). Roundabouts can have considerable advantages over signalized intersections. They can reduce delays, improve safety, and reduce vehicle emissions due to less idling. Also they provide an excellent opportunity to create a beautiful gateway to the community. Although the option appears to have considerable cost implications, it would be significantly less than alternatives such as a more direct connection to Highway 118. A conceptual design is shown on the following page.

A preliminary analysis of a roundabout at this location indicates there would be considerably shorter delays, LOS would improve, and queue lengths would be reduced significantly. A summary of the results is found in the following table. Full analysis results are contained in Appendix F.

Table 14 - Level of Service and Queue Lengths for Proposed Roundabout at Trunk 2 and Highway 102 NB Ramp/Perrin Drive

AM Peak			
Roundabout Leg	Delay (sec)	LOS	Queue Length (m)
Trunk 2 SB	3	A	10
Hwy 102 NB Ramp	10.8	B	40
Trunk 2 NB	7.8	A	10
Perrin Drive	2.4	A	5
PM Peak			
Roundabout Leg	Delay (sec)	LOS	Queue Length (m)
Trunk 2 SB	3.2	A	5
Hwy 102 NB Ramp	5.6	A	7
Trunk 2 NB	4.2	A	5
Perrin Drive	6.6	A	60

*Analysis performed using ARCADY analysis software

The roundabout would operate at LOS B or better in the AM peak and LOS A during the PM peak. A maximum 95 percentile queue of 60m would be reached in the PM peak on Perrin Drive.

The primary concern associated with a roundabout at this location is the reduction in the length of the northbound off-ramp due to the increased footprint of the roundabout. The ramp currently has approximately 210 m and that would be reduced to 165 m. However, there are some points that require consideration. Currently, the longest queues on the ramp occur during the AM peak hour and are approximately 160 m. With a roundabout, queues would be reduced to approximately 40 m during this same period. In addition, the roundabout would have dual approach lanes (~50 m) that would allow for additional queuing. Finally, the conceptual design that has been analyzed is a 65 m ICD roundabout. This would be a worst case scenario for this location and detailed design would likely reduce that size considerably, further increasing available storage.

Estimated Cost: \$2,000,000

Recommendation V – Improve Primary Connector Trail (Figure 18)

The Shubie Canal Trail should serve as the primary connector trail in Fall River and to ensure the functionality of the trail, existing gaps such as near Highway 102 and at the northern tip of Fletchers Lake should be closed. Overall, the trail should follow recognized standards to ensure that the trail is attractive, accessible, readily maintained and safe for appropriate and prudent users. Where the trail follows an off-road delineation, enough tread should be provided to allow for pedestrian and non-motorized movement. A 4.0m width is generally seen as appropriate for a trail that accommodates varied users in both directions.

Where the Shubie Canal Trail functions as an on-road trail, both a sidewalk and bike lane should be provided within the street ROW. Furthermore, appropriate signage should be installed to raise awareness for the Shubie Canal Trail and to direct users to possible connections to the secondary trail network.

Recommendation VI – Implement Secondary Multi-Use Trail along Trunk 2

Stage 1 of the implementation of a secondary trail network should comprise the construction of a multi-use trail along Trunk 2 from Fall River Plaza to the commercial node near Highway 102. Depending on land ownership and availability of land, the trail should follow the shore of Lake Thomas. Where this is not possible, both pedestrian and safe bike travel should be accommodated within the 20m ROW of Trunk 2.

The sidewalk to the east of Trunk 2 should be retained and a 4 meter wide multi-use trail should be added to the west of the road bed as shown in the following Figure 19.

The provision of a multi-use trail along Trunk 2 may eliminate the need for wide shared use curb lanes (4.5 m lanes as shown in Figure 19). This would permit narrower lanes (3.5m) and potentially allow for the provision of a centre median.

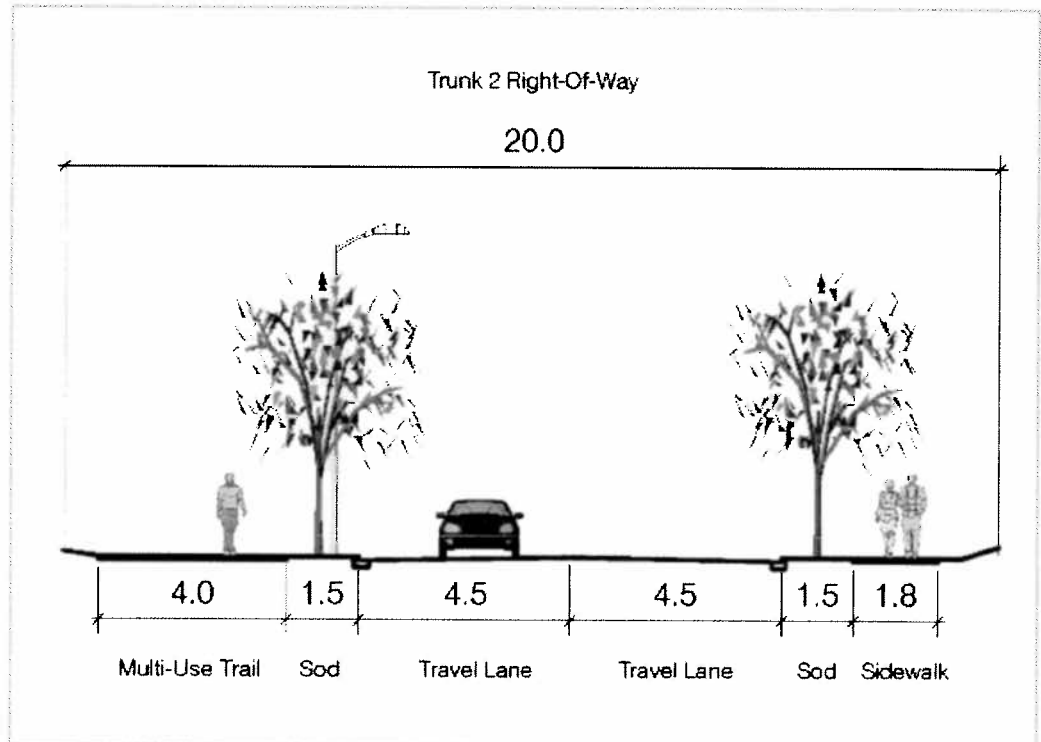


Figure 19 - Proposed Cross Section for Trunk 2

Recommendation VII – Park and Ride Location

Without significant intersection upgrades, it is felt that the Park & Ride lot should be located in the Fall River commercial area, on Trunk 2 near the intersection with Fall River Road. This arrangement would encourage combining trips and would reduce Trunk 2 traffic between Fall River Road and the Highway 102 interchange. However, an upgrade to the intersection of Trunk 2 and Perrin Drive would improve access to the Perrin Drive location and make it more attractive to commuters.

4.2 Long-Term Recommendations

The Fall River area is expected to experience continued growth over the next 25 years. This is evidenced by the 1200 plus residential lots that are proposed for development if approved and the potential for further commercial expansion as well. However, the growth of the area will be limited by its ability to accommodate expected future traffic growth.

The main intersections in the area, particularly the interchanges, are already taxed and experience significant congestion and delay during the AM and PM peaks. Minor improvements to existing roadways and connection points can be expected to reduce delays and improve traffic flow but this will only be a short-term solution. In order to accommodate future traffic growth, it is expected that more involved solutions will be required. This section provides recommendations to aid in accommodating these forecasted traffic volumes.

Recommendation I – Fall River Road/ Trunk 2 Intersection Upgrade

The intersection of Fall River Road and Trunk 2 already is already experiencing server congestion, particularly during the AM peak period. Congestion is expected to worsen if proposed developments continue as planned and delay will only increase at the intersection. A number of improvements are recommended for the intersection in order to improve intersection performance and reduce overall delay. The improvements include:

- Channelized right turns for all legs;
- 25 m right turn lane for north and southbound legs;
- 35 m dedicated left turn lane for eastbound leg;
- Lengthening of eastbound right turn lane to 85 m; and
- Double left turn lanes in the northbound direction.

A summary of intersection performance before and after improvements for 2033 is shown in Table 15. The recommended improvements are illustrated in Figure 20.

Estimated Cost: \$1,250,000

Table 15 - Fall River Road/Trunk 2 Intersection Performance With and Without Improvements (2033)

Period	Movement											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay (seconds)												
AM		39.0	144.4	32.4	21.1		148.5	9.4		11.7	20.6	
AM w/ Improvements	13.4	17.8	57.5	13.1	17.2	5.2	67.8	30.7	9.4	25.0	79.2	19.7
PM		503	10.9	44.8	38.0		445	687		9.4	8.8	

Table 15 - Fall River Road/Trunk 2 Intersection Performance With and Without Improvements (2033)

Period	Movement											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
PM w/ Improvements	31.7	23.9	6.0	17.8	383	12.4	21.5	23.4	7.6	13.1	29.0	5.9
LOS												
AM		D	F	C	C		F	A		B	C	
AM w/ Improvements	B	B	E	B	B	A	E	C	A	C	E	B
PM		F	B	D	D		F	F		A	A	
PM w/ Improvements	C	C	A	B	D	B	C	C	A	B	C	A

Recommendation II – Replacement of Fall River Bridge

The existing bridge on Fall River Road already limits the capacity of the eastbound right turn lane. Furthermore, pedestrian access is limited to one side of the bridge limiting future connection options. As development continues, the inadequacy of this structure will become more apparent and congestion will intensify. It is recommended that in the long-term, this bridge be replaced with a four lane structure (Figure 21) with pedestrian facilities on both north and south sides. This would include two eastbound and two westbound lanes, allowing for lengthening of the eastbound right turn lane and accommodation for double left turn lane from Trunk 2.

Estimated Cost: \$3,500,000

Recommendation III - Future Connection to Highway 102

Four options were initially identified to provide a new connection between the study area and Highway 102. The primary purpose of a new connection would be to improve access to the area while reducing traffic along Trunk 2. One option included a connection from Fall River road; however, this connection option was dismissed due to its close proximity to the existing interchange at Exit 5. The other three options included the existing Aerotech Interchange (Option 1), a new connection on Cobequid Road (Option 3), and a connection to Windsor Junction Road (Option 4). Each option was ranked based on a number of factors including their cost, accessibility, and potential to reduce traffic on Trunk 2, the immediacy of the impact, and their long term impact if proposed residential development continues. The rankings for each option are found in Table 16. A one (1) was scored to the best option, two (2) to the second, and three (3) to the third. The lowest total dictates the most appropriate option.

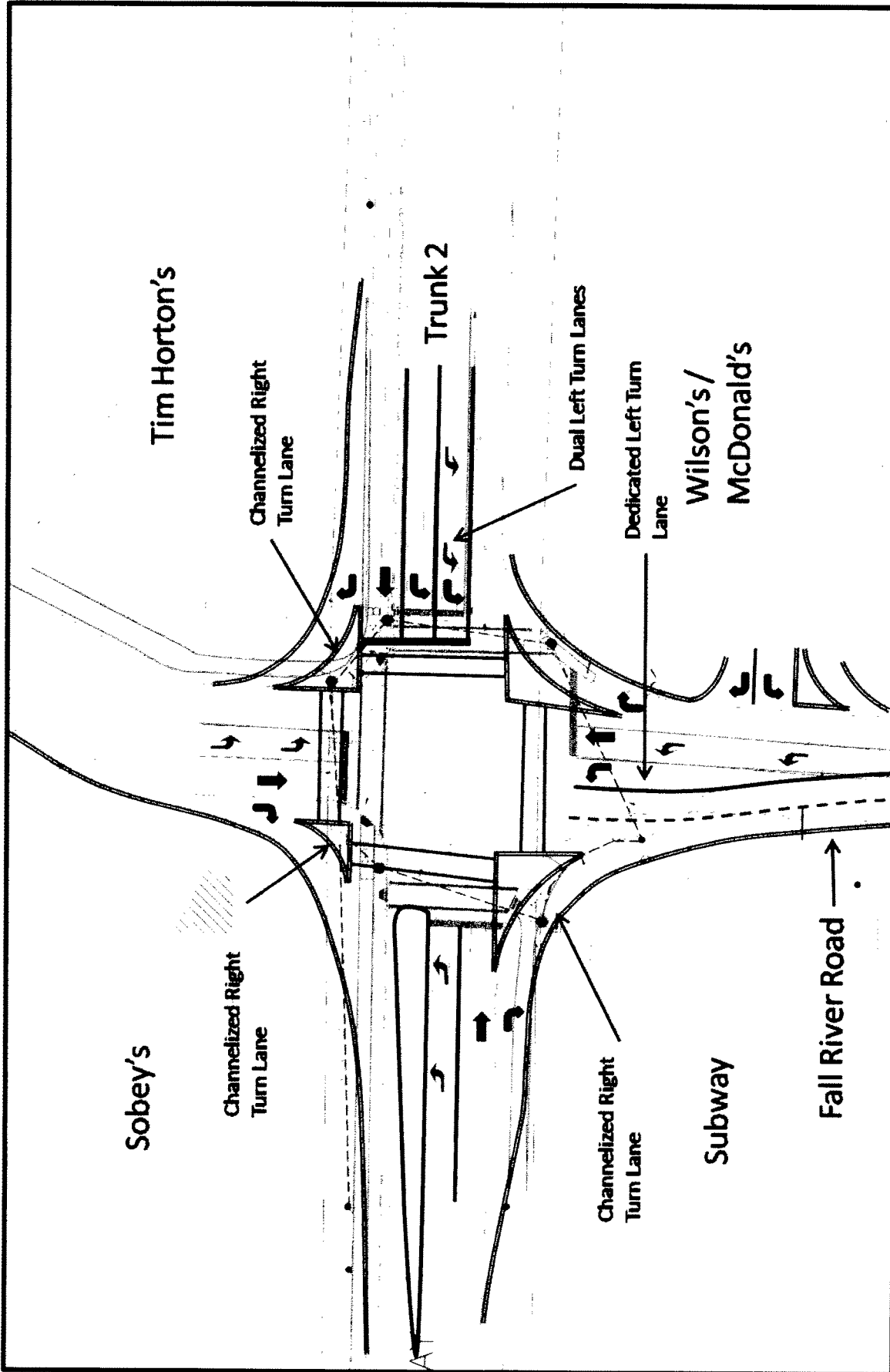


Figure 20

Fall River Road/ Trunk 2
Long Term Recommendations





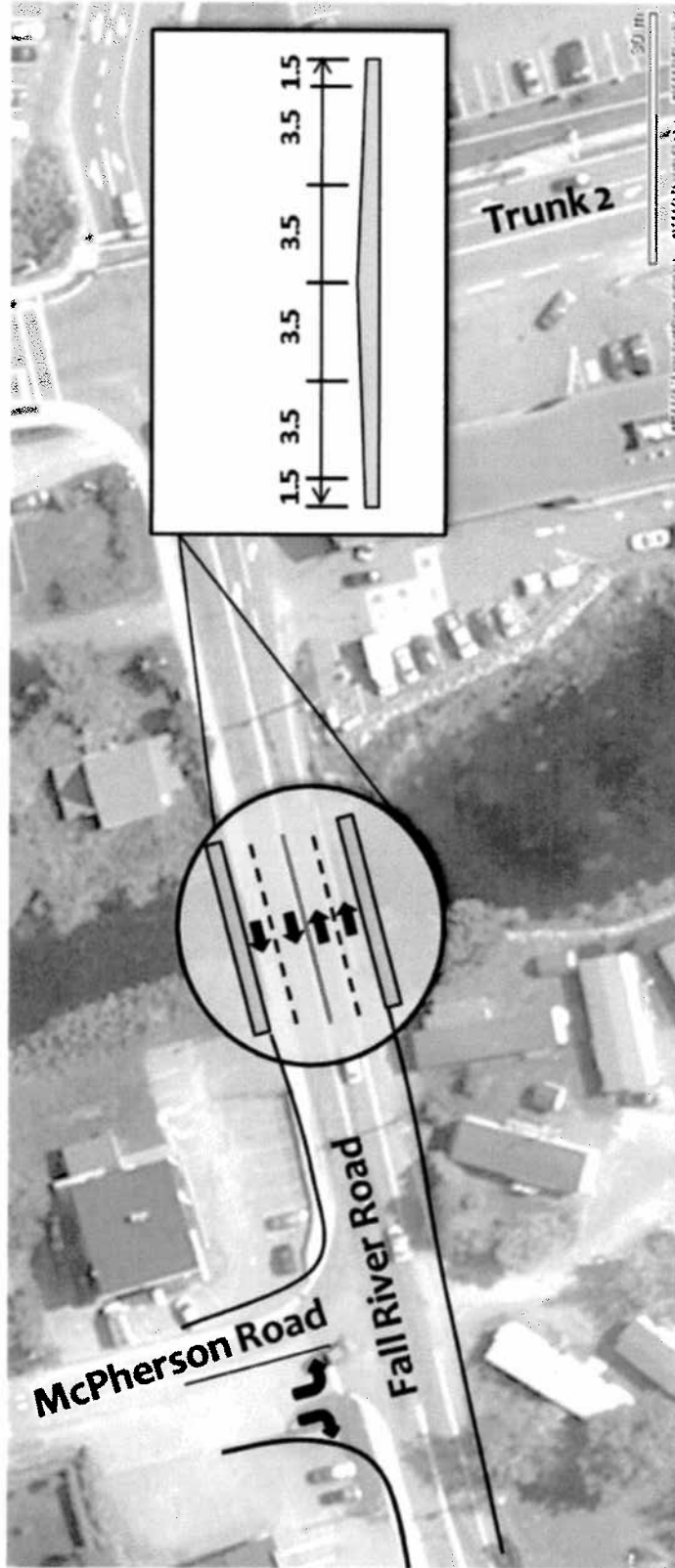


Figure 21

Fall River Road Bridge

Long Term Recommendations





Table 16 - Ranking of Connection Options

	Cost	Accessibility	Potential Reduction of Traffic on Trunk 2	Immediate Impact	Impact if Development Continues	Total
Option 1	1	3	2	3	1	10
Option 3	2	1	1	1	2	7
Option 4	3	1	2	1	3	10

Option 3 had the lowest point total and is the most appropriate connection option under existing conditions. It has the greatest potential to provide a reduction of traffic on Trunk 2 and is relatively accessible for the properties to the west of Lake Thomas. Aside from cost, its biggest drawback is that it is primarily accessed through a residential neighbourhood which could create significant opposition. Option 4 is more out of the way but would have less impact on residential areas.

Estimated Cost:

Option 1: \$10,000,000

Option 3: \$14,000,000

Option 4: \$16,000,000

If proposed residential development in the northwest region of the study area continues, Option 1 becomes a much more viable option. This connection would draw new development traffic away from Fall River Road and Trunk 2 and provide a more direct access to the residential areas. In addition, the construction of a 4 lane urban arterial with dedicated left turn lanes and limited intersection locations would promote development of the lands to the northeast.

Options 3 and 4 provide the biggest impact in terms of reducing traffic on Trunk 2 even if the proposed residential development does not occur and should therefore be given the greatest consideration. However, if residential and potentially commercial development continues in the northern half of the study area, Option 1 becomes a much more viable solution.

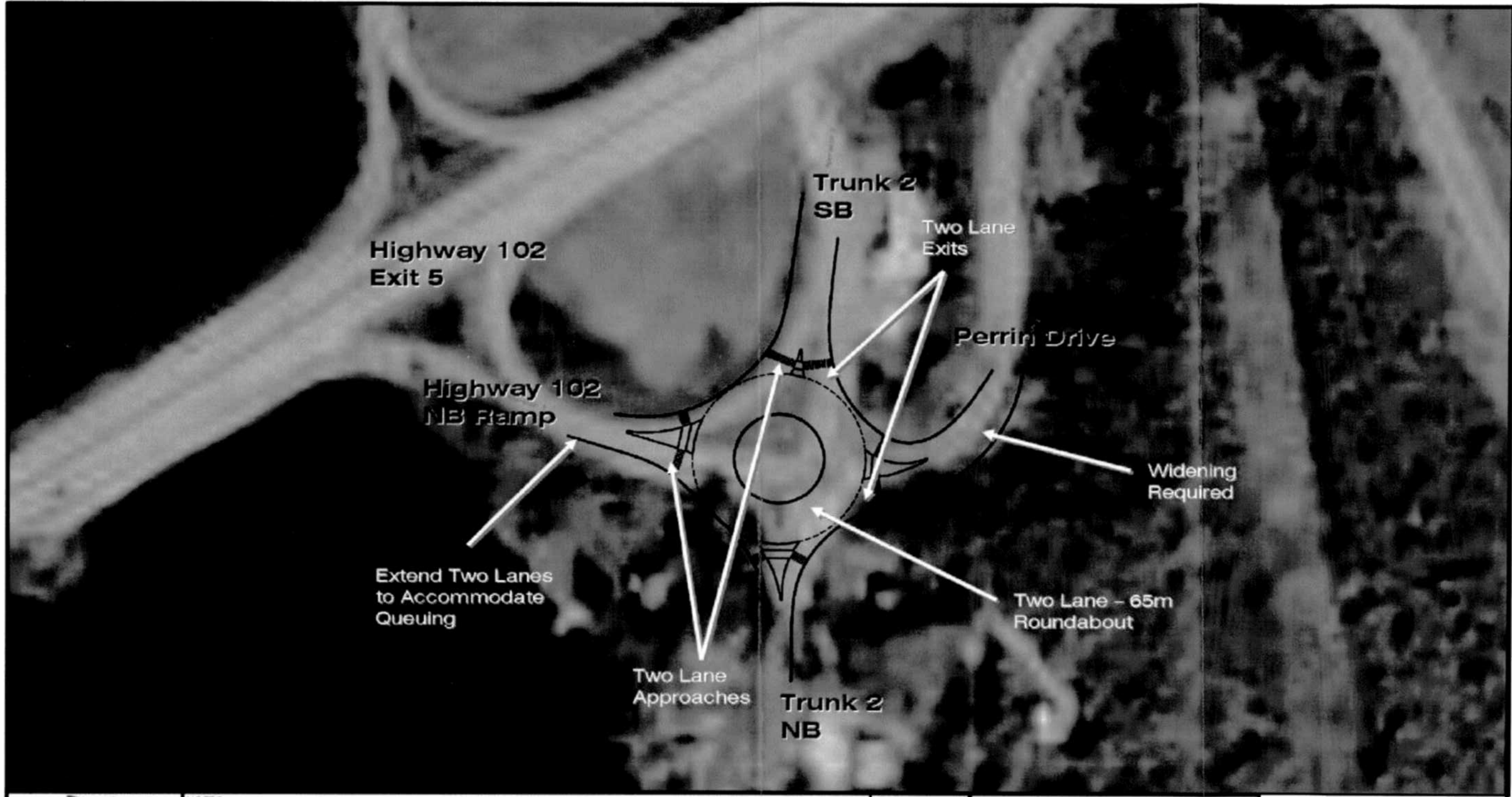
Recommendation IV – Implement Secondary Multi-Use Trail System




Implement secondary trail network as shown in Figure 18 to connect important community institutions, retail nodes, existing residential areas and future subdivisions. Upgrade existing on and off-road trail connections to same standard as Shubie Canal Trail as described in Section 4.1.

Recommendation V – Installation of Signals

Forecasted volumes indicate signals will be warranted at the intersection of Lockview Drive and Fall River road and at the intersection of Trunk 2 and

Highway 102 southbound ramps. The timing of these warrants will be dependent on the pace of residential and commercial development in the area.



 Transportation and Infrastructure Renewal	NOTES	Date:	65 m ICD Roundabout	Figure 17
	Approved:	Date:	Project: FALL RIVER TRANSPORTATION STUDY	
  Consulting Engineers <small>ISO 9001 CERTIFIED</small>				

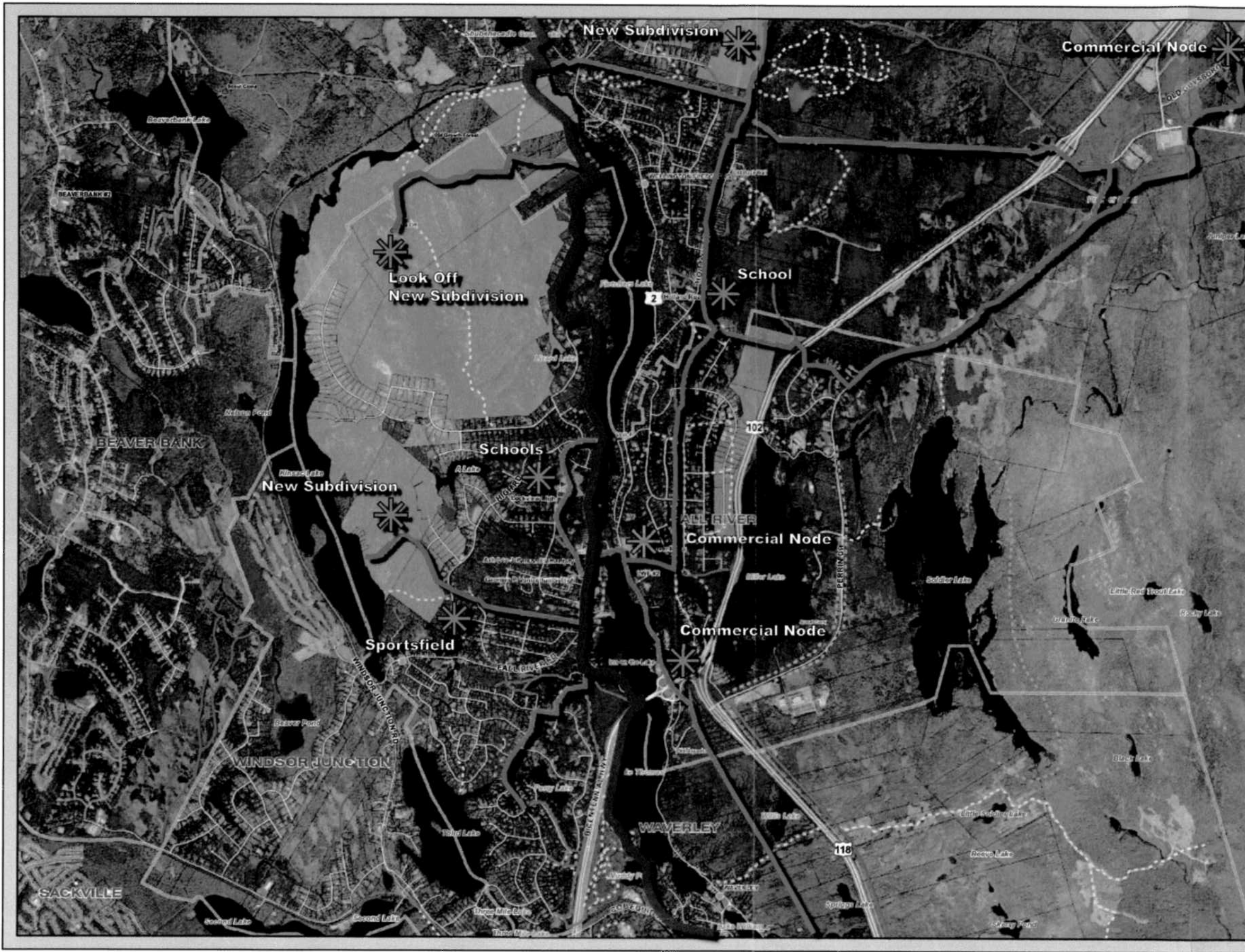



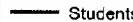
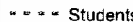
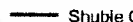










Figure 18 - Primary Connector Trail

-  Shubie Canal Trail - Primary Connector Trail
-  Secondary Community Trails
-  Fall River Places of Interest
-  Students - Existing Trails
-  Students - Conceptual Trails
-  Shubie Canal Trail (Incomplete - Jan 15/09)
-  Shubie Canal Trail (Completed - Jan 15/09)
-  Potential Fall River Trails (Jan 15/09)
-  Fire Stations
-  Schools
-  Community Boundary
-  Lake
-  Parcels
-  Subdivisions Under Development

**North West Community Council
May 19, 2014**

TO: Chair and Members of North West Community Council

SUBMITTED BY: Original Signed

Kathleen Llewellyn-Thomas, P.Eng., Acting Director, Transportation &
Public Works

DATE: March 24, 2014

SUBJECT: **April 2014 Update: Waverley Ratepayers Association Traffic Study
and Transportation Study – Fall River, Waverley and Wellington
Area**

ORIGIN

Item 7.1 of the March 25, 2013 meeting of the Marine Drive, Valley and Canal Community Council:

MOVED by Councillor Dalrymple, seconded by Councillor Craig that North West Community Council request staff to provide oral or written updates on transportation issues in the Fall River, Waverley and Wellington Area every six months instead of every three months, as previously requested.

MOTION PUT AND PASSED

LEGISLATIVE AUTHORITY

Part 1, Section 25, (e), (i) “Powers and Duties of Community Council” of HRM Charter.

RECOMMENDATION

It is recommended that this item be removed from the North West Community Council status sheet. Items in the report that have not yet been addressed, require coordination with major projects not yet planned and short-term updates would not provide any additional benefit to Community Council.

BACKGROUND

In 2009, a transportation study was completed in support of the Fall River Community Visioning Project. The study identified long-term requirements and opportunities to accommodate future development and modifications related to a proposed village commercial centre concept. In addition, the study also assessed three locations identified by the community as problematic today, in order to identify immediate upgrades. The locations were:

1. Highway 102 / Highway 118 interchange area
2. Highway 2 / Fall River Road intersection
3. Fall River Road / Lockview Road / MacPherson Road area

In June of 2011, the Waverley Ratepayers Association Traffic Calming Committee presented their report “Traffic Calming Issues in Greater Waverley”. The report described the following eight (8) items put forward to be considered for implementation:

1. Shoulder widening – Waverley Road, Cobequid Road and No. 2 Highway.
2. Installation of stop signs at certain key intersections and rumble strips before sharp turns.
3. Construction of two turning circles (i.e. “roundabouts”), one at the intersection of the Cobequid Road and Rocky Lake Drive and the other at the intersection of Rocky Lake Drive with the Waverley Road and No. 2 Highway.
4. Installation of photo radar units at three dangerous Waverley Road locations along with appropriate warning signs, i.e., segments where traffic tends to accelerate to speeds that are well above the posted 50 km per hour limit.
5. Defining bicycle lanes on both sides of the Waverley Road to heighten driver awareness.
6. Begin the installation of lighting poles in the village core that will also support signs identifying features of historical significance. Expand the lighting/historical sign program to other parts of the Waverley area (e.g., No.2 Highway and Rocky Lake Drive).
7. Increase active radar surveillance during rush hour times at problematic locations along the Waverley Road and reduce the speed limit on No. 2 Highway to 50 km/hour between the Highway No. 102 intersection and Waverley.
8. Establish uniform regulations for recreational cyclists and cyclists training for competitive events.

The purpose of this report is to provide an information update on all of these recommendations.

DISCUSSION

Waverley Ratepayers Association – Report on Traffic Calming Issues in Greater Waverley

Upon receipt of the report from the Waverley Ratepayers Association, Traffic & Right of Way Services staff reviewed the information provided and determined that items 2, 3, 7 and 8 related to Traffic Services. These items were addressed in a memo dated August 23, 2011 to Councillor Dalrymple and would require no further action / update (see Attachment 1).

As for the remaining items (1, 4, 5 and 6), that were discussed in the original Information Report (see Attachment 2), the following points will provide an update on information received and status for these remaining issues:

Item 1 – Shoulder Widening (Waverley Road / Cobequid Road / No. 2 Highway)

As indicated in the original Information Report, shoulder widening on these roadways could only be accomplished as part of an extensive roadway reconstruction project. At the time of this report, no such project has been identified or budgeted for. No further information is available beyond what was provided in the February 25, 2013 Information Report.

Item 4 – Installation of Photo Radar Units at Three Waverley Road Locations

No legislative changes have been made to allow the use of photo radar in Nova Scotia at this time. There is no update beyond what was provided in the February 25, 2013 Information Report.

Item 5 – Defining Bicycle Lanes on Both Sides of Waverley Road

HRM staff continues to investigate opportunities to extend the existing bicycle lanes along Waverley Road as capital roadway projects are identified. There is no update beyond what was provided in the February 25, 2013 Information Report.

Item 6 – Begin the Installation of Lighting Poles in the Village Core

HRM Facility Development has a project currently underway which will see improvements to the Village Green, including landscaping and decorative lighting poles. Outside of this, no other projects involving installation of decorative lighting poles have been programmed for the area. Traffic and Right of Way Services (TROW) is responsible for the provision of roadway lighting based on lighting levels required for safe operation of the facility; TROW does not install decorative light poles or lighting beyond safety requirements. If it is the desire of the community to have decorative lighting poles and signage related to historical locations, then a project would need to be identified and programmed through the capital budget process.

Transportation Study – Fall River/Waverley/Wellington Areas

For the areas identified by the community, the short-term assessment included in the transportation study provided seven recommendations (see Attachment 3).

Recommendation 1 – Fall River Road and Trunk 2

This recommendation identified four separate items:

1. Channelized Right-Turn Lane

As outlined in the original Information Report, addition of this channelized right-turn lane would require widening of the bridge on Fall River Road. HRM has carried out a Level 2 assessment of this bridge; maintenance items were identified. This bridge will have a Level 3 assessment carried out this year (2014) to determine if any structural issues exist that would require changes to weight restrictions or replacement. At this time, there are no immediate plans to replace this bridge. If/when it is determined that this bridge needs to be replaced, consideration for extending the existing right-turn lane will be incorporated into the bridge replacement project.

2. Eliminate Left Turns from Fall River Road to Wilson’s Gas Station

This item could potentially be revisited when the Fall River Road bridge is being replaced and other modifications to the roadway are being done. As indicated in item 1 above, consideration for this modification would be incorporated into the bridge replacement project.

3. Improve Pedestrian Facilities at Fall River Road and Trunk 2

The requested crosswalk was added. Because of property constraints, drainage requirements and existing infrastructure on private property (asphalt curbing, large pylon sign, etc.), modification to the corner at the Wilson’s property may be difficult. Staff is investigating potential modifications to this location in order to determine what, if any, impact there will be to private property in order to accommodate adjustment to this crosswalk. Once infrastructure requirements are identified, staff will determine how best to proceed with the work.

4. Add Northbound Left-Turn Advanced Green

This item has been addressed.

Recommendation 2 – Improve Drop-Off Area at Ash Lee Jefferson School

The original Information Report outlined the options put forward for this item and indicated that the most effective and appropriate approach was to use the neighbouring church parking lot, coupled with a trail connecting the lot to the school property. This would be a matter to be resolved between the school and adjacent property owner. No further update is provided.

Recommendation 3 – Highway 118 NB Ramp and Perrin Drive Intersection

As outlined in the original Information Report, this item has been addressed.

Recommendation 4 – Trunk 2 and Highway 102 NB Ramps

HRM continues to work with the Province of Nova Scotia on issues surrounding the interchange area in Fall River through on-going project identification and coordination. NSTIR (Nova Scotia Transportation and Infrastructure Renewal) has indicated that this project is well into the design stage and has been added to the 2014/2015 capital program. It is expected that a roundabout will be built at this location during the upcoming construction season.

Recommendation 5 – Improve Primary Connector Trail

The Shubenacadie Watershed Environmental Protection Society (SWEPS) is continuing with their consultant on planning and design work. Three priority options have been identified and information is being gathered on these options for detailed design. It is anticipated that design work will be completed in 2014 with construction beginning in 2015.

Recommendation 6 – Implement Secondary Multi-use Trail Along Trunk 2

As indicated in the original Information Report, there are difficulties in constructing this trail because of geography and available property. There were no plans or budget identified for this project at the time of this report. This item will be assessed for coordination opportunities as capital roadway projects come up in this area.

Recommendation 7 – Park and Ride Location

This item has been addressed.

FINANCIAL IMPLICATIONS

There are no budget implications associated with this report.

COMMUNITY ENGAGEMENT

Community engagement was not required as this item originated from a report submitted by a community group.

ATTACHMENTS

1. Memorandum from Patrick Hatton, Traffic Analyst, dated August 23, 2011 re: Traffic Operations Concerns, Waverley Ratepayers Association
2. February 25, 2013 Information Report to North West Community Council
3. Transportation Study – Fall River/Waverley/Wellington Areas, Chapter 4 – Recommendations

**April 2014 Update: Waverley Ratepayers Association Traffic Study and Transportation Study – Fall River, Waverley and Wellington Area
Community Council Report - 6 - May 19, 2014**

A copy of this report can be obtained online at <http://www.halifax.ca/commcoun/index.html> then choose the appropriate Community Council and meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Roddy MacIntyre, P.Eng., Transportation Engineer, 490-5525

Original signed

Report Approved by: Taso Koutroulakis, P.Eng., PTOE, Manager, Traffic & Right of Way, 490-4816

Original signed

Bruce Colborne, P.Eng., A/Manager, Design & Construction, 490-4896

Original Signed

David McCusker, P.Eng., A/Manager, Planning, 490-6696

North West Community Council
February 25, 2013

TO: Chair and Members of North West Community Council

Original Signed

SUBMITTED BY:

Ken Reashor, P.Eng., Director, Transportation and Public Works

DATE: February 5, 2013

SUBJECT: Waverley Ratepayers Association Traffic Study and Transportation Study – Fall River, Waverley and Wellington Area

INFORMATION REPORT

ORIGIN

Item 11.1 of the September 6, 2012 meeting of the Marine Drive, Valley and Canal Community Council:

MOVED by Councillor Dalrymple, seconded by Councillor Streach that Marine Drive, Valley and Canal Community Council recommends that:

- 1. Given that on the 23rd of August 2011 the Waverley Ratepayers Association completed a local area Traffic Study which was submitted to HRM's Design & Construction Services, Traffic & R.O.W. Department and Manager of Strategic Transportation Planning, that this report be referred again to staff and placed on the Marine Drive, Valley and Canal Community Council and/or a future assigned Community Council for the designated area Status Sheet for quarterly reports on status.*
- 2. Given that in 2009 a Traffic Study commissioned by HRM and conducted by CBCL was completed, the report is entitled: Transportation Study – Fall River – Waverley – Wellington Areas, that this full report be placed on the Marine Drive, Valley and Canal Community Council and/or a future assigned Community Council for the designated area Status Sheet for quarterly reports on status.*

MOTION PUT AND PASSED

LEGISLATIVE AUTHORITY

Part 1, Section 25, (e), (i) "Powers and Duties of Community Council" of HRM Charter.

BACKGROUND

In June of 2011, Traffic Services was presented with a report prepared by the Waverley Ratepayers Association Traffic Calming Committee. The report was entitled “Traffic Calming Issues in Greater Waverley” and outlined eight (8) items which were put forward to be considered for implementation, those being:

1. Shoulder widening – Waverley Road, Cobequid Road and No. 2 Highway.
2. Installation of stop signs at certain key intersections and rumble strips before sharp turns.
3. Construction of two turning circles (i.e. “roundabouts”), one at the intersection of the Cobequid Road and Rocky Lake Drive and the other at the intersection of Rocky Lake Drive with the Waverley Road and No. 2 Highway.
4. Installation of photo radar units at three dangerous Waverley Road locations along with appropriate warning signs, i.e., segments where traffic tends to accelerate to speeds that are well above the posted 50 km per hour limit.
5. Defining bicycle lanes on both sides of the Waverley Road to heighten driver awareness.
6. Begin the installation of lighting poles in the village core that will also support signs identifying features of historical significance. Expand the lighting/historical sign program to other parts of the Waverley area (e.g., No. 2 Highway and Rocky Lake Drive).
7. Increase active radar surveillance during rush hour times at problematic locations along the Waverley Road and reduce the speed limit on No. 2 Highway to 50 km/hr between Highway No. 102 intersection and Waverley.
8. Establish uniform regulations for recreational cyclists and cyclists training for competitive events.

Prior to the above, a study entitled “Transportation Study – Fall River / Waverley / Wellington Areas” was carried out by CBCL Ltd. in support of the Fall River Community Visioning project conducted by HRM Regional Planning. The study, completed in 2009, was jointly funded by HRM and the Nova Scotia Department of Transportation and Infrastructure Renewal. The main goal of the study was to assess potential future conditions in order to identify long-term requirements and opportunities to accommodate future development and modifications related to a proposed village commercial centre concept. In addition to this, the study was also intended to assess three locations that were indicated by the community as problematic in order to identify potential upgrades to address current issues. The locations were identified as:

1. Highway 102 / Highway 118 interchange area
2. Highway 2 / Fall River Road intersection
3. Fall River Road / Lockview Road / MacPherson Road area

DISCUSSION

Waverley Ratepayers Association – Report on Traffic Calming Issues in Greater Waverley

Upon receipt of the report from the Waverley Ratepayers Association, Traffic & Right of Way Services staff reviewed the information provided and determined that items 2, 3, 7 and 8 related to Traffic Services. These items were addressed in a memo dated August 23, 2011 to

Councillor Dalrymple and would require no further action / update (see Attachment 1).

As for the remaining items (1, 4, 5 and 6), Traffic Services staff has gathered information from those sections that would be responsible for addressing these particular issues. The following points will provide an update on the information received and status for these remaining issues:

Item 1 – Shoulder Widening (Waverley Road / Cobequid Road / No. 2 Highway)

Design & Construction Services, staff met on site with the Councillor in order to assess / discuss the potential for shoulder widening where existing guiderail was offset less than a metre from the edge of asphalt. Generally, the guide rails were found to be in acceptable condition and appeared to be receiving routine maintenance. The shoulder width could not be widened unless a significant and costly roadway / shoulder reconstruction was provided for in the Capital Budget due to existing embankment height restrictions and/or because of proximity to lakes. Also the practical time to consider increasing the offset of the guiderail is when the entire guiderail segment needs to be replaced due to a failing condition. One section was identified as being able to accommodate new guiderail which was subsequently installed in 2012.

This item would require no further action unless a complete road reconstruction was to be carried out.

Item 4 – Installation of Photo Radar Units at Three Waverley Road Locations

At this time, there is no legislation in place that would permit the use of photo radar enforcement within the Province of Nova Scotia. Based on this, no further action is required on this item unless there is a change to the legislation.

Item 5 – Defining Bicycle Lanes on Both Sides of Waverley Road

Waverley Road has been assessed several times for the potential to install bicycle lanes and where possible, they have been put in. Because of existing geography, steep slopes on one side and lakes on the other, there are only limited opportunities to construct bicycle lanes without undertaking a significant road reconstruction.

During capital works projects, consideration for bicycle lanes is always included as required by various policies such as the Active Transportation Plan and Municipal Services Specification (Red Book). At this point, there is no further action required on this item.

Item 6 – Begin the Installation of Lighting Poles in the Village Core

Street lighting in the Fall River area is currently the responsibility of Nova Scotia Power.

HRM does have the ability to carry out installation of decorative street lighting in this area, however, there is currently a project underway to convert all streetlights to LED. As part of this project, areas will be assessed in order to determine appropriate lighting levels. Until

requirements for this particular area are determined, no new poles should be installed in order to avoid the expense of potentially having to remove / relocate infrastructure.

At this time, no further action would be required on this item.

Transportation Study – Fall River / Waverley / Wellington Areas

For the areas identified by the community, the short-term assessment included in the transportation study provided seven recommendations.

Recommendation 1 – Fall River Road and Trunk 2

This recommendation identified four separate items:

1. Channelized Right-Turn Lane

The community indicated that the queues from vehicles exiting Fall River Road onto Trunk 2 (through and left) block vehicles from accessing the right turn lane and that construction of an extended right-turn channel would be beneficial.

The current lane configuration on Fall River Road at Trunk 2 includes a shared through-left lane and a separate right-turn lane. The right-turn lane begins at the driveway to the Wilson's gas station, just beyond the Fall River bridge. Extension of this lane is not possible until the Fall River bridge is replaced which may provide opportunity to gain the additional width required. At this point, there is no immediate plan for replacement of the bridge.

No action can be taken on this item until such time as the bridge is replaced.

2. Eliminate Left Turns from Fall River Road to Wilson's Gas Station

Because vehicles trying to turn left from Fall River Road into the Wilson's gas station can tend to block other traffic coming onto Fall River Road from the intersection, it was felt that restricting left turns from Fall River Road into the Wilson's site would alleviate this problem. In order to accomplish this, the recommendation was to modify the Wilson's driveway by constructing an island to allow left / right turns out, but only right turns in. Based on the site configuration of the Wilson's property, the proximity of the pumps to the driveway and turning requirements for the fuelling truck to enter / exit the site, it is not likely possible to construct an island in such a way as to be effective in eliminating the left turns from Fall River Road.

This item could potentially be revisited when the Fall River bridge is being replaced and other modifications to the roadway are being done. At this point, no action can be taken on this item.

3. Improve Pedestrian Facilities at Fall River Road and Trunk 2

At the time the transportation study was being done, the community was requesting that a crosswalk be added across Fall River Road and modifications be made to the concrete pedestrian refuge island on the Wilson's corner of the intersection. Since the study has been completed, modifications have been made to this intersection which resulted in the addition of the requested crosswalk. The concrete island was originally intended as protection for the traffic signal pole and not for pedestrian refuge. Because of property constraints and drainage requirements, modification to this corner would be difficult but potential solutions could be investigated.

This item has been partially addressed with the remaining issue being investigated.

4. Add Northbound Left-Turn Advanced Green

Because of high left-turning traffic volumes in the northbound direction (Trunk 2 to Fall River Road) during the PM peak, it was felt that operations at the intersection could be improved by providing an advanced left-turn phase for northbound traffic. A left-turn investigation has been carried out for this intersection and based on the results, implementation of a northbound advanced left-turn phase is being considered for implementation in 2013.

This item is currently being addressed.

Recommendation 2 – Improve Drop-Off Area at Ash Lee Jefferson School

This recommendation concerned issues the community had with disruption on Lockview Road as a result of parents parking in front of Ash Lee Jefferson School while dropping off / picking up students. The study identified two options; relocating the existing sidewalk in front of the school in order to create an on-street layby that could accommodate approximately nine vehicles outside the through lane and creating a trail between the school property and the adjacent church property which would allow parents to use the church parking lot to drop off / pick up their children without parking on-street.

In general, on-street laybys are not supported because they result in maintenance issues. In this particular case, existing concrete sidewalk would need to be removed and the limited number of vehicles that could be accommodated would not result in any real impact. The most effective option would be the use of the neighbouring church parking lot coupled with a trail connection between the church and school property. This would serve to accommodate a larger number (if not all) of the parents dropping off / picking up children. The implementation of this option would need to be pursued by the property owners (school and church) as it would be a private property matter.

Recommendation 3 – Highway 118 NB Ramp and Perrin Drive Intersection

Concerns were raised that traffic queues were backing up onto Highway 118 from the Perrin Drive intersection because of an unnecessarily long red light. The report recommended

improvements to vehicle detection and signal timings at this location. In 2010, the Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR) completed construction of an extended exit lane on the ramp to provide additional queuing space outside of the through lane to improve safety at this location. NSTIR also adjusted the timing for the signals at Perrin Drive in order to provide additional green time for vehicles exiting the highway.

This item has been addressed.

Recommendation 4 – Trunk 2 and Highway 102 NB Ramps

Concerns were raised regarding excessive queuing and delay at this location. The recommendation for improvement here was the installation of a roundabout. Because this location is part of the Highway 102 interchange, it is under the jurisdiction of NSTIR and they would need to be approached as to their plans for this particular intersection. The Province was a partner on this study and so they would have the report and be aware of all information that was provided relating to the assessment of this item.

HRM continues to work with the Province to explore opportunities for a second interchange access to the Fall River area to reduce loading on the existing Trunk 2 interchange. Preliminary investigations involving the Aerotech Interchange and the Cobequid Road underpass have been undertaken, but both remain in longer term planning.

Recommendation 5 – Improve Primary Connector Trail

The Shubenacadie Watershed Environmental Protection Society (SWEPS), has applied to the Halifax Regional Trails Program for the coming 2013/14 season. The SWEPS Trails Committee proposes to undertake a design and development study for those segments of the Fall River Corridor Trails Plan that fit with the HRM Active Transportation Plan and HRTA Greenway Corridors vision.

The Study will build on the work performed by the Fall River Vision Implementation Committee (VIC) Open Space and Trail Group (OSTG). Priority trails have been further filtered to select those seven trails that line up with HRTA's Greenway Corridor focus and to a lesser extent, the Active Transportation strategy to the extent it can be applied to Fall River.

This item is currently in progress and will be overseen by HRM's Regional Trails group.

Recommendation 6 – Implement Secondary Multi-Use Trail along Trunk 2

A desire was expressed for the implementation of an active transportation trail along Trunk 2 between the Fall River Road area and a proposed commercial node near Highway 102. HRM continually evaluates opportunities to provide active transportation infrastructure when carrying out capital projects. This particular location has challenges because of property ownership along the lake as well as limited space available between the existing roadway and the lake which would make it difficult to implement infrastructure along this corridor. However, as roadway projects arise in this area, consideration will be given to active transportation infrastructure.

This item will be evaluated as capital roadway projects come up in this area.

Recommendation 7 – Park and Ride Location

Two locations were recommended for implementation of a park-and-ride transit lot; near the intersection of Trunk 2 and Fall River Road or on Perrin Drive near the Highway 118 NB exit ramp. Metro Transit has chosen the Perrin Drive location and has since constructed a park-and-ride lot at this location.

This item has been addressed.

The long-term recommendations included in the study were intended to deal with conditions that might be expected when / if implementation of the Fall River Community Vision was to materialize and do not lend themselves to on-going evaluation and updates since it is very likely nothing will proceed for many years.

FINANCIAL IMPLICATIONS

There are no budget implications associated with this report.

COMMUNITY ENGAGEMENT

Community engagement was not required as this item originated from a report submitted by a community group.

ATTACHMENTS

1. Memorandum from Patrick Hatton, Traffic Analyst, dated August 23, 2011 re: Traffic Operations Concerns, Waverley Ratepayers Association
2. Transportation Study – Fall River/Waverley/Wellington Areas, Chapter 4 – Recommendations

A copy of this report can be obtained online at <http://www.halifax.ca/commcoun/cc.html> then choose the appropriate Community Council and meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Roddy MacIntyre, P.Eng., Transportation Engineer, 490-5525

Original Signed

Report Approved by: Taso Koutroulakis, P.Eng., Acting Manager, TROW, 490-4816

Original Signed

David Hublev, P.Eng., Manager, Design & Construction Services 490-4845

Original Signed

Austin French, Manager, Planning, 490-6717



PO Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

MEMORANDUM

TO: Barry Dalrymple, Councillor District 2

CC: Taso Koutroulakis, A/Manager Traffic and Right of Way
David Hubley, Manager Design and Construction
David McCusker, Manager Strategic Transportation Planning

FROM: Patrick Hatton, Traffic Analyst

DATE: August 23, 2011

SUBJECT: **Traffic Operations Concerns, Waverley Ratepayers Association**

A report on traffic calming issues in Greater Waverley was written by the Waverley Ratepayers Association and submitted to you on October 26, 2010. In the report, the ratepayers detail perceived issues with traffic on Waverley Road, Highway 2, Rocky Lake Drive, and Cobequid Road. Issues raised included speeding, poor sight lines due to horizontal and vertical road curves, and the narrowness of the roadways. The ratepayers suggested eight improvements that they felt would improve safety and calm traffic in the area. The suggested improvements are noted below:

1. Shoulder widening – Waverley Road, Cobequid Road and No. 2 Highway;
2. Installation of stop signs at certain key intersections and rumble strips before sharp turns;
3. Construction of two turning circles (ie roundabouts);
4. Installation of photo radar units at three Waverley Road locations;
5. Defining bicycle lanes on both sides of the Waverley Road;
6. Begin the installation of lighting poles in the village core;
7. Increase radar surveillance and reduce the speed limit on No. 2 highway to 50km/h; and
8. Establish uniform regulations for cyclists.

Of the suggestions above, items 2, 3, 7, and 8 relate to Traffic Services and are dealt with in this memorandum.

2. Stop signs and rumble strips – Stop signs are meant for assigning right-of-way at busy intersections, not for slowing traffic. The HRM uses the Transportation Association of Canada (TAC) national standard warrant when determining whether or not all-way stop signs should be installed at intersections. In order for an intersection to warrant all-way stop control, a minor street average volume of 200 vehicles per hour is required for a consecutive 8 hour period. Installation of unwarranted all-way stop control can worsen the situation as drivers may be inclined to “roll through” the stop sign as they perceive that it is not necessary to stop. Where they do stop, this can increase the likelihood for rear end collisions as drivers behind them may not be expecting a large queue of traffic.

Staff conducted peak period traffic counts in June 2011 at the three intersections requested by the ratepayers. The results of the counts showed two-way, peak hour volumes of 13, 45, and 64 vehicles per hour at the intersections of Waverley Road with Joe Street, Rolling Hills Drive, and Sibley Street, respectively. All-way stop control is not warranted at the three intersections and as such, Traffic Services does not support their installation.

In addition to the assessment for all-way stop control, staff reviewed each intersection for sight lines to ensure that any warranted hidden intersection signs were in place. The review found that a hidden intersection sign should be installed just south of Joe Street for northbound traffic. A work order has been issued for the installation of this sign.

Rumble strips are grooves that are cut into the road to draw the attention of drivers to unexpected roadway elements through generation of noise where the tires contact the grooves. Due to this noise generation, rumble strips are not installed on roadways proximate to residences as this noise would be generated by all traffic, at all times of the day and night and would be very disruptive to nearby property owners.

3. Construction of two roundabouts – The Waverley Ratepayers Association is correct that numerous engineering studies have been conducted in Canada and the United States that indicate that roundabouts reduce vehicular collision rates by forcing drivers to reduce their speed as well as by reducing both the number and severity of vehicular conflict points. Also, staff concur that roundabouts are much smaller than rotaries and require vehicles to slow to speeds at or below 35 km/h and roundabouts in Nova Scotia are typically designed for speeds of 30 km/h. Even with this smaller size, roundabouts require a larger area than do typical stop controlled and signalized intersections, and this area typically exceeds that which is enclosed in the rights of way of the adjacent roadways. The right of way width on each of the roads is 20 metres and land acquisition would be necessary for the installation of roundabouts at these intersections. As the collision rates at these intersections are not high under existing conditions, the high cost of land acquisition and construction would outweigh the benefits achieved through reduction of collision potential. As such, installation of roundabouts at these locations is not recommended.

7. Increase radar surveillance and reduce the speed limit on No. 2 highway to 50km/h – The matter of radar surveillance on Waverley Road has been passed to the RCMP.

The segment of Highway 2 between the Highway 102 intersection and the beginning of the 50km/h segment in Waverley was assessed by staff to determine the correct posted speed. There are two methods of verifying the correct speed limit of a roadway. These methods are to determine the 85th percentile speed and conduct a TAC speed warrant. The 85th percentile speed is the speed that 85 percent of drivers are travelling at or below. This metric is used because engineering studies conclude that at least 85 percent of drivers will be driving a reasonable speed for roadway conditions. Based on the most recent (2009) speed data obtained by the HRM for this segment of roadway, the 85th percentile speed on this section of roadway is 70km/h. Staff also conducted a speed warrant for this segment of road. The speed warrant considers road curvature, hills, pedestrians, bicycles, intersections, and driveways. The results of the TAC warrant show that the correct posted speed of this segment of roadway is 60km/h based on the few

intersections and driveways in this segment of roadway. With an 85th percentile speed of 70km/h and a recommended speed limit of 60km/h using the TAC warrant, 60km/h is the correct posted speed for this segment of roadway.

8. Establish uniform regulations for cyclists – The Province of Nova Scotia has already developed regulations for cyclists. A summary of regulations can be found on HRM's bicycle map, the Provincial Bicycle safety pamphlet, as well as the Provincial website. For more information, see the below online resources.

<http://www.gov.ns.ca/snsmr/access/drivers/be-a-safe-bicyclist.asp>

<http://www.gov.ns.ca/snsmr/pdf/ans-rmv-bicycle-safety.pdf>

<http://www.halifax.ca/cycling/>

TRANSPORTATION AND PUBLIC WORKS

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Chapter 4 **Recommendations**

The following sections of the report outline recommendations that have been developed which focus on improving the movement of people to, from, and within the study area. Recommendations have been categorized as either short-term (within 5 years) or long-term (within 25 years). When appropriate, order of magnitude cost estimates have also been provided. It must be noted, cost estimates do not include potential property acquisition costs.

4.1 Short-Term Recommendations

Recommendation I - Fall River Road and Trunk 2 (Figure 14)

A. Channelized Right Turn Lane

During the AM peak hour, eastbound right turning traffic intersection is limited by the length and the accessibility of the right turn lane. The narrow bridge of Fall River Road and queues in the left turn/through lane limit access to the right turn lane. As a short term solution, it is recommended that a channelized right turn lane be provided for the eastbound right turning traffic. This would help to improve traffic flow between Fall River Road and Trunk 2 and ease some of the queuing that exists.

Estimated Cost: \$75,000

B. Eliminate Left Turns from Fall River Road to Wilson's Gas Station

Left turns from Fall River road to Wilson's Gas Station, particularly during the PM peak, disrupt the flow of through moving traffic. It is recommended that this entrance be modified to only permit right-in and right/left-out access. This would be achieved by installing raised islands that direct the flow of traffic in and out of the gas station and eliminate left turns into the site.

Estimated Cost: \$7,500

C. Improve Pedestrian Facilities at Fall River Road and Trunk 2

The pedestrian facilities at the intersection of Fall River Road and Trunk 2 require attention. A cross-walk should be added on the eastbound approach to allow for movement across all legs of the intersection. This would provide a connection between the Wilson's Gas Station and the sidewalk that is present on the north side of Fall River Road.

In its present form, the pedestrian refuge island in the southwest corner near the Wilson's property is inadequate. The island is not wheelchair accessible and is too small for the large number of pedestrians in the area.

It is recommended that the island be enlarged and include pedestrian ramps to improve accessibility.

Estimated Cost: \$1,000 (Refuge Island incorporated in Recommendation A)

D. Add Northbound Left Turn Advanced Green

The PM peak volumes result in a high percentage of northbound left turning vehicles at the intersection. Currently, left turning vehicles are not afforded the advantage of an advanced green signal. As volumes continue to rise at the intersection, due to background traffic growth and further residential and commercial development, the addition of an advanced green phase would serve to improve the level of service at the intersection.

Recommendation II – Improve Drop-off Area at Ash Lee Jefferson School

Two options are being recommended for improvement of the drop-off/pick-up area at the elementary school.

Option A

The first recommendation involves relocating the existing sidewalk in front of the school (Figure 15) away from the road and closer to the school. A lay-by area would then be created in the space of the old sidewalk. This would provide parents with an area to park close to the school that does not disrupt the flow of traffic. This would provide approximately 9 new parking spaces.

Estimated Cost: \$30,000

Option B

The second option (Figure 16) is to develop a drop-off area behind the adjacent Church on Lockview Road. This area goes unused during the week and there may be an opportunity to develop an agreement with the Church to use this area for parents to drop-off and pick-up their children. The grades on the hill between the school and Church would require that a winding trail be created between the two properties.

The combination of these two options would provide a generous amount of parking for parents as well as staff and would greatly improve safety.

Estimated Cost: \$45,000

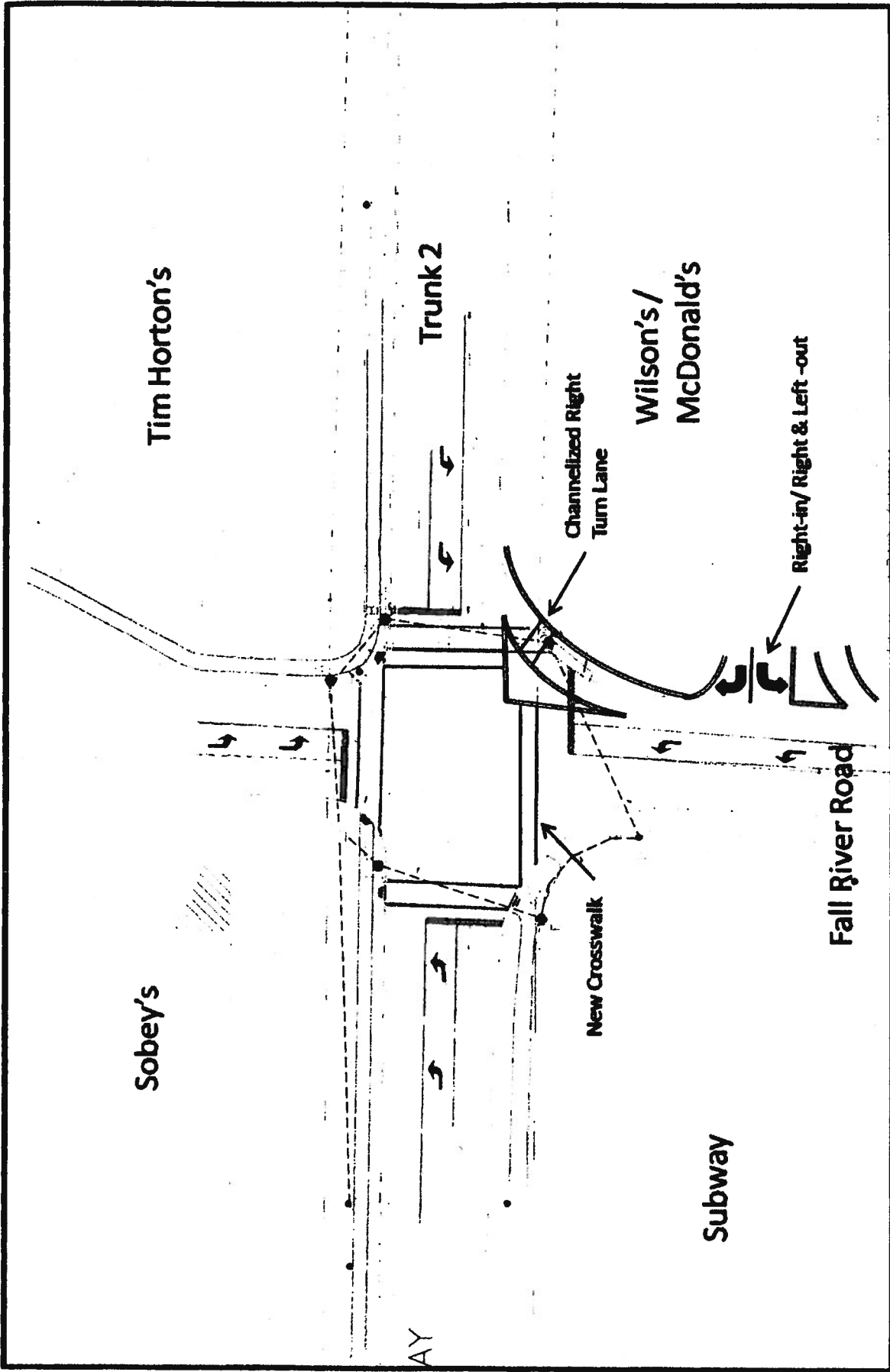


Figure 14

Fall River Road/ Trunk 2

Short Term Recommendation IA, B, & C





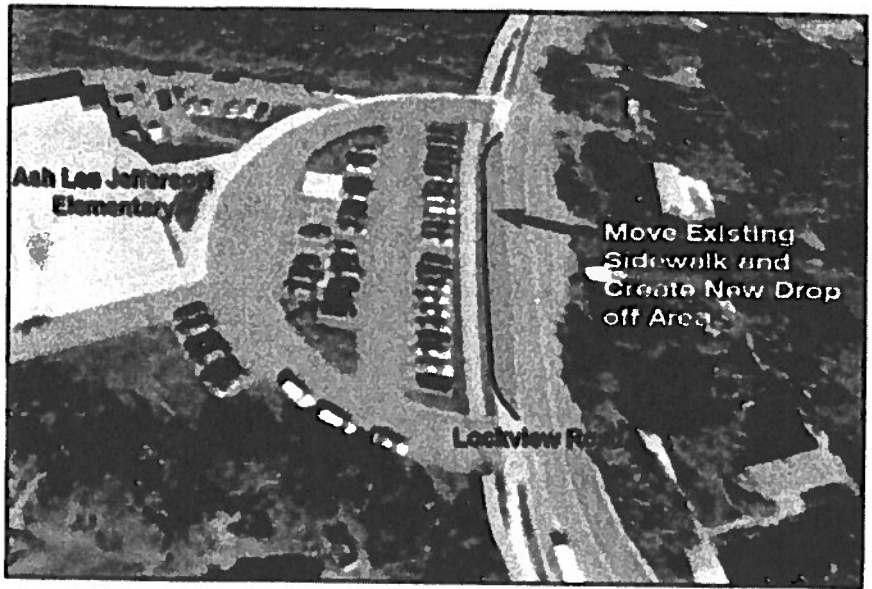


Figure 15 - Ash Lee Jefferson School Drop-off Option A

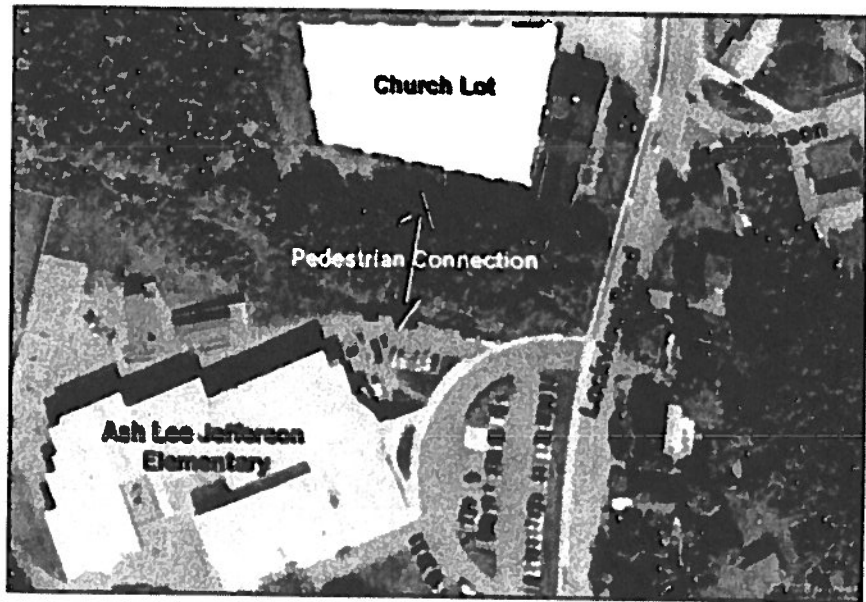


Figure 16 - Ash Lee Jefferson School Drop-off Option B

Recommendation III – Highway 118 NB Ramp and Perrin Drive Intersection

During the PM peak hours, vehicles on the northbound ramp have the potential to queue back onto Highway 118, creating a major safety issue. This is sometime a result of a lack of capacity on Perrin Drive due to delays at the intersection at Trunk 2. However, it is often the case that the traffic light on the ramp remains red for an excessively long period of time causing queues to form on the ramp. Improvements to the signal timing and detection at this location are recommended to ensure that when possible, queues are dissipated as quickly as possible.

Recommendation IV - Trunk 2 and Highway 102 NB Ramps

In order to manage the large queue lengths and excessive delays at the intersection during the AM and PM peaks, it is recommended that the option of constructing a roundabout be considered (Figure 17). Roundabouts can have considerable advantages over signalized intersections. They can reduce delays, improve safety, and reduce vehicle emissions due to less idling. Also they provide an excellent opportunity to create a beautiful gateway to the community. Although the option appears to have considerable cost implications, it would be significantly less than alternatives such as a more direct connection to Highway 118. A conceptual design is shown on the following page.

A preliminary analysis of a roundabout at this location indicates there would be considerably shorter delays, LOS would improve, and queue lengths would be reduced significantly. A summary of the results is found in the following table. Full analysis results are contained in Appendix F.

Table 14 - Level of Service and Queue Lengths for Proposed Roundabout at Trunk 2 and Highway 102 NB Ramp/Perrin Drive

AM Peak			
Roundabout Leg	Delay (sec)	LOS	Queue Length (m)
Trunk 2 SB	3	A	10
Hwy 102 NB Ramp	10.8	B	40
Trunk 2 NB	7.8	A	10
Perrin Drive	2.4	A	5
PM Peak			
Roundabout Leg	Delay (sec)	LOS	Queue Length (m)
Trunk 2 SB	3.2	A	5
Hwy 102 NB Ramp	5.6	A	7
Trunk 2 NB	4.2	A	5
Perrin Drive	6.6	A	60

*Analysis performed using ARCADY analysis software

The roundabout would operate at LOS B or better in the AM peak and LOS A during the PM peak. A maximum 95 percentile queue of 60m would be reached in the PM peak on Perrin Drive.

The primary concern associated with a roundabout at this location is the reduction in the length of the northbound off-ramp due to the increased footprint of the roundabout. The ramp currently has approximately 210 m and that would be reduced to 165 m. However, there are some points that require consideration. Currently, the longest queues on the ramp occur during the AM peak hour and are approximately 160 m. With a roundabout, queues would be reduced to approximately 40 m during this same period. In addition, the roundabout would have dual approach lanes (~50 m) that would allow for additional queuing. Finally, the conceptual design that has been analyzed is a 65 m ICD roundabout. This would be a worst case scenario for this location and detailed design would likely reduce that size considerably, further increasing available storage.

Estimated Cost: \$2,000,000

Recommendation V – Improve Primary Connector Trail (Figure 18)

The Shubie Canal Trail should serve as the primary connector trail in Fall River and to ensure the functionality of the trail, existing gaps such as near Highway 102 and at the northern tip of Fletchers Lake should be closed. Overall, the trail should follow recognized standards to ensure that the trail is attractive, accessible, readily maintained and safe for appropriate and prudent users. Where the trail follows an off-road delineation, enough tread should be provided to allow for pedestrian and non-motorized movement. A 4.0m width is generally seen as appropriate for a trail that accommodates varied users in both directions.

Where the Shubie Canal Trail functions as an on-road trail, both a sidewalk and bike lane should be provided within the street ROW. Furthermore, appropriate signage should be installed to raise awareness for the Shubie Canal Trail and to direct users to possible connections to the secondary trail network.

Recommendation VI – Implement Secondary Multi-Use Trail along Trunk 2

Stage 1 of the implementation of a secondary trail network should comprise the construction of a multi-use trail along Trunk 2 from Fall River Plaza to the commercial node near Highway 102. Depending on land ownership and availability of land, the trail should follow the shore of Lake Thomas. Where this is not possible, both pedestrian and safe bike travel should be accommodated within the 20m ROW of Trunk 2.

The sidewalk to the east of Trunk 2 should be retained and a 4 meter wide multi-use trail should be added to the west of the road bed as shown in the following Figure 19.

The provision of a multi-use trail along Trunk 2 may eliminate the need for wide shared use curb lanes (4.5 m lanes as shown in Figure 19). This would permit narrower lanes (3.5m) and potentially allow for the provision of a centre median.

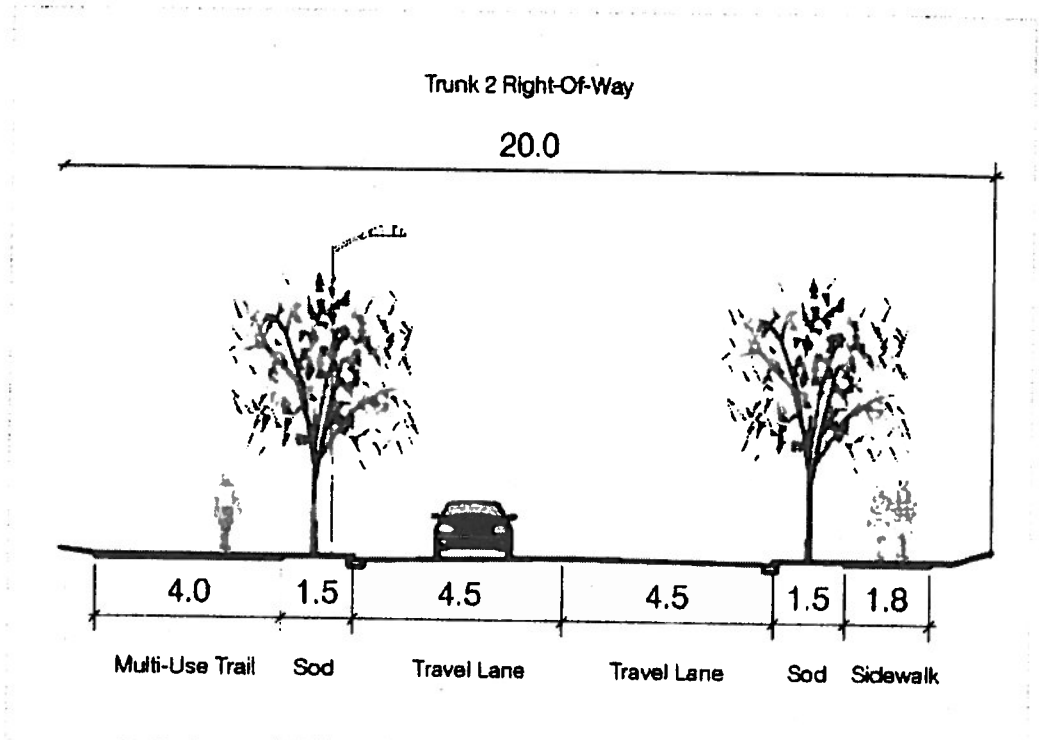


Figure 19 - Proposed Cross Section for Trunk 2

Recommendation VII – Park and Ride Location

Without significant intersection upgrades, it is felt that the Park & Ride lot should be located in the Fall River commercial area, on Trunk 2 near the intersection with Fall River Road. This arrangement would encourage combining trips and would reduce Trunk 2 traffic between Fall River Road and the Highway 102 interchange. However, an upgrade to the intersection of Trunk 2 and Perrin Drive would improve access to the Perrin Drive location and make it more attractive to commuters.

4.2 Long-Term Recommendations

The Fall River area is expected to experience continued growth over the next 25 years. This is evidenced by the 1200 plus residential lots that are proposed for development if approved and the potential for further commercial expansion as well. However, the growth of the area will be limited by its ability to accommodate expected future traffic growth.

The main intersections in the area, particularly the interchanges, are already taxed and experience significant congestion and delay during the AM and PM peaks. Minor improvements to existing roadways and connection points can be expected to reduce delays and improve traffic flow but this will only be a short-term solution. In order to accommodate future traffic growth, it is expected that more involved solutions will be required. This section provides recommendations to aid in accommodating these forecasted traffic volumes.

Recommendation 1 – Fall River Road/ Trunk 2 Intersection Upgrade

The intersection of Fall River Road and Trunk 2 already is already experiencing server congestion, particularly during the AM peak period. Congestion is expected to worsen if proposed developments continue as planned and delay will only increase at the intersection. A number of improvements are recommended for the intersection in order to improve intersection performance and reduce overall delay. The improvements include:

- Channelized right turns for all legs;
- 25 m right turn lane for north and southbound legs;
- 35 m dedicated left turn lane for eastbound leg;
- Lengthening of eastbound right turn lane to 85 m; and
- Double left turn lanes in the northbound direction.

A summary of intersection performance before and after improvements for 2033 is shown in Table 15. The recommended improvements are illustrated in Figure 20.

Estimated Cost: \$1,250,000

Table 15 - Fall River Road/Trunk 2 Intersection Performance With and Without Improvements (2033)

Period	Movement											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay (seconds)												
AM		39.0	144.4	32.4	21.1		148.5	9.4		11.7	20.6	
AM w/ Improvements	13.4	17.8	57.5	13.1	17.2	5.2	67.8	30.7	9.4	25.0	79.2	19.7
PM		503	10.9	44.8	38.0		445	687		9.4	8.8	

Table 15 - Fall River Road/Trunk 2 Intersection Performance With and Without Improvements (2033)

Period	Movement											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
PM w/ Improvements	31.7	23.9	6.0	17.8	383	12.4	21.5	23.4	7.6	13.1	29.0	5.9
LOS												
AM		D	F	C	C		F	A		B	C	
AM w/ Improvements	B	B	E	B	B	A	E	C	A	C	E	B
PM		F	B	D	D		F	F		A	A	
PM w/ Improvements	C	C	A	B	D	B	C	C	A	B	C	A

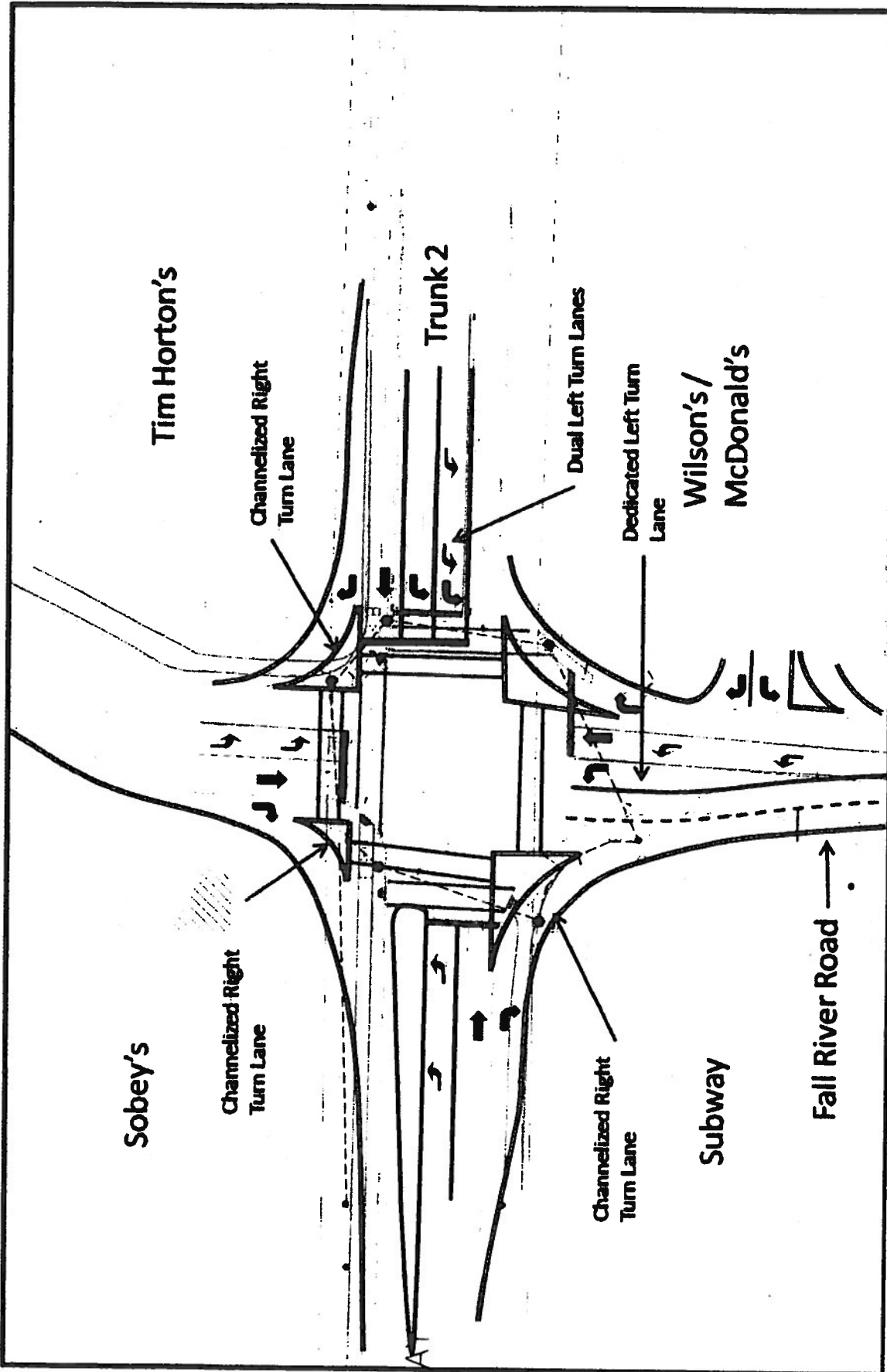
Recommendation II – Replacement of Fall River Bridge

The existing bridge on Fall River Road already limits the capacity of the eastbound right turn lane. Furthermore, pedestrian access is limited to one side of the bridge limiting future connection options. As development continues, the inadequacy of this structure will become more apparent and congestion will intensify. It is recommended that in the long-term, this bridge be replaced with a four lane structure (Figure 21) with pedestrian facilities on both north and south sides. This would include two eastbound and two westbound lanes, allowing for lengthening of the eastbound right turn lane and accommodation for double left turn lane from Trunk 2.

Estimated Cost: \$3,500,000

Recommendation III - Future Connection to Highway 102

Four options were initially identified to provide a new connection between the study area and Highway 102. The primary purpose of a new connection would be to improve access to the area while reducing traffic along Trunk 2. One option included a connection from Fall River road; however, this connection option was dismissed due to its close proximity to the existing interchange at Exit 5. The other three options included the existing Aerotech Interchange (Option 1), a new connection on Cobequid Road (Option 3), and a connection to Windsor Junction Road (Option 4). Each option was ranked based on a number of factors including their cost, accessibility, and potential to reduce traffic on Trunk 2, the immediacy of the impact, and their long term impact if proposed residential development continues. The rankings for each option are found in Table 16. A one (1) was scored to the best option, two (2) to the second, and three (3) to the third. The lowest total dictates the most appropriate option.



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Fall River Road/ Trunk 2

Figure 20

Long Term Recommendations

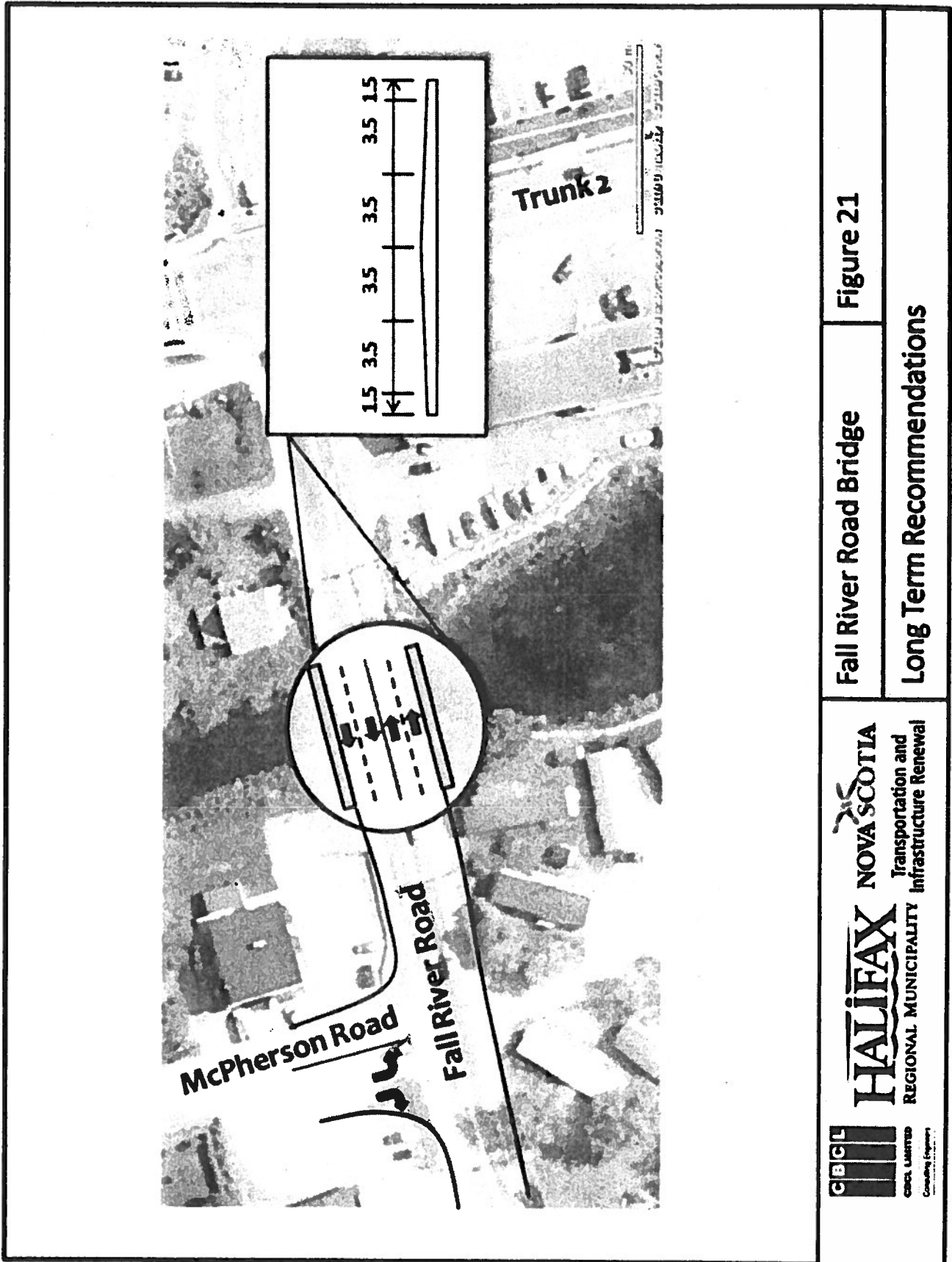


Figure 21

Fall River Road Bridge

Long Term Recommendations

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Table 16 - Ranking of Connection Options

	Cost	Accessibility	Potential Reduction of Traffic on Trunk 2	Immediate Impact	Impact if Development Continues	Total
Option 1	1	3	2	3	1	10
Option 3	2	1	1	1	2	7
Option 4	3	1	2	1	3	10

Option 3 had the lowest point total and is the most appropriate connection option under existing conditions. It has the greatest potential to provide a reduction of traffic on Trunk 2 and is relatively accessible for the properties to the west of Lake Thomas. Aside from cost, its biggest drawback is that it is primarily accessed through a residential neighbourhood which could create significant opposition. Option 4 is more out of the way but would have less impact on residential areas.

Estimated Cost:

Option 1: \$10,000,000

Option 3: \$14,000,000

Option 4: \$16,000,000

If proposed residential development in the northwest region of the study area continues, Option 1 becomes a much more viable option. This connection would draw new development traffic away from Fall River Road and Trunk 2 and provide a more direct access to the residential areas. In addition, the construction of a 4 lane urban arterial with dedicated left turn lanes and limited intersection locations would promote development of the lands to the northeast.

Options 3 and 4 provide the biggest impact in terms of reducing traffic on Trunk 2 even if the proposed residential development does not occur and should therefore be given the greatest consideration. However, if residential and potentially commercial development continues in the northern half of the study area, Option 1 becomes a much more viable solution.

Recommendation IV – Implement Secondary Multi-Use Trail System

Implement secondary trail network as shown in Figure 18 to connect important community institutions, retail nodes, existing residential areas and future subdivisions. Upgrade existing on and off-road trail connections to same standard as Shubie Canal Trail as described in Section 4.1.

Recommendation V – Installation of Signals

Forecasted volumes indicate signals will be warranted at the intersection of Lockview Drive and Fall River road and at the intersection of Trunk 2 and

Highway 102 southbound ramps. The timing of these warrants will be dependent on the pace of residential and commercial development in the area.

Trunk 2
SB

Two Lane
Exits

Perrin Drive

Widening
Required

Two Lane - 65m
Roundabout

Trunk 2
NB

Two Lane
Approaches

Highway 102
Exit 5

Highway 102
NB Ramp

Extend Two Lanes
to Accommodate
Queuing

65 m ICD Roundabout

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