

8 TRANSPORTATION PLANNING ALTERNATIVES

As part of Phase 1 of the Municipal Class EA process, a transportation master plan must determine problems or deficiencies and then identify and test alternative solutions to address them. In Phase 2, the alternatives are evaluated and a preferred alternative selected.

For the Greater Sudbury Transportation Study Report, three alternative networks were considered for the 2031 horizon year:

- ‘Do Nothing’: existing transportation network + projects planned for construction;
- ‘Auto Focused’ approach: existing transportation network + projects planned for construction + transportation projects that continue road widening or new road construction; and
- ‘Sustainability Focused’ approach: existing transportation network + transportation projects that result in a focus more on sustainability, active transportation and infill development.

All alternatives were modelled for the 2031 horizon based on forecast population and employment data as outlined in **Section 7.2**.

8.1 Do Nothing Alternative

In order to meet the requirements of the EA process, one of the alternative strategies that must be analyzed is the ‘Do Nothing’ alternative. This considers the existing transportation network and municipal projects that are planned for construction. Analysis of the ‘Do Nothing’ alternative identifies where the deficiencies in the transportation network would be located throughout the city if no further transportation improvements were to be made.

For the ‘Do Nothing’ alternative, traffic volumes within and between each of the key areas of Greater Sudbury in the p.m. peak period (3:30 – 6:30p.m.) are shown in **Table 31** below.

Table 31: ‘Do Nothing’ Traffic Volumes – P.M. Peak Period (2031)

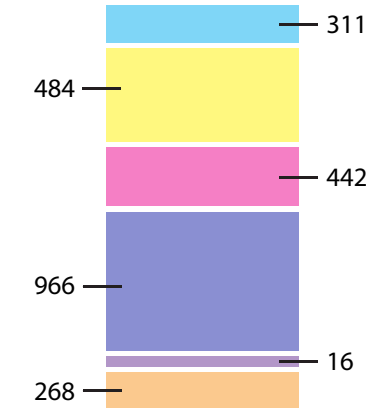
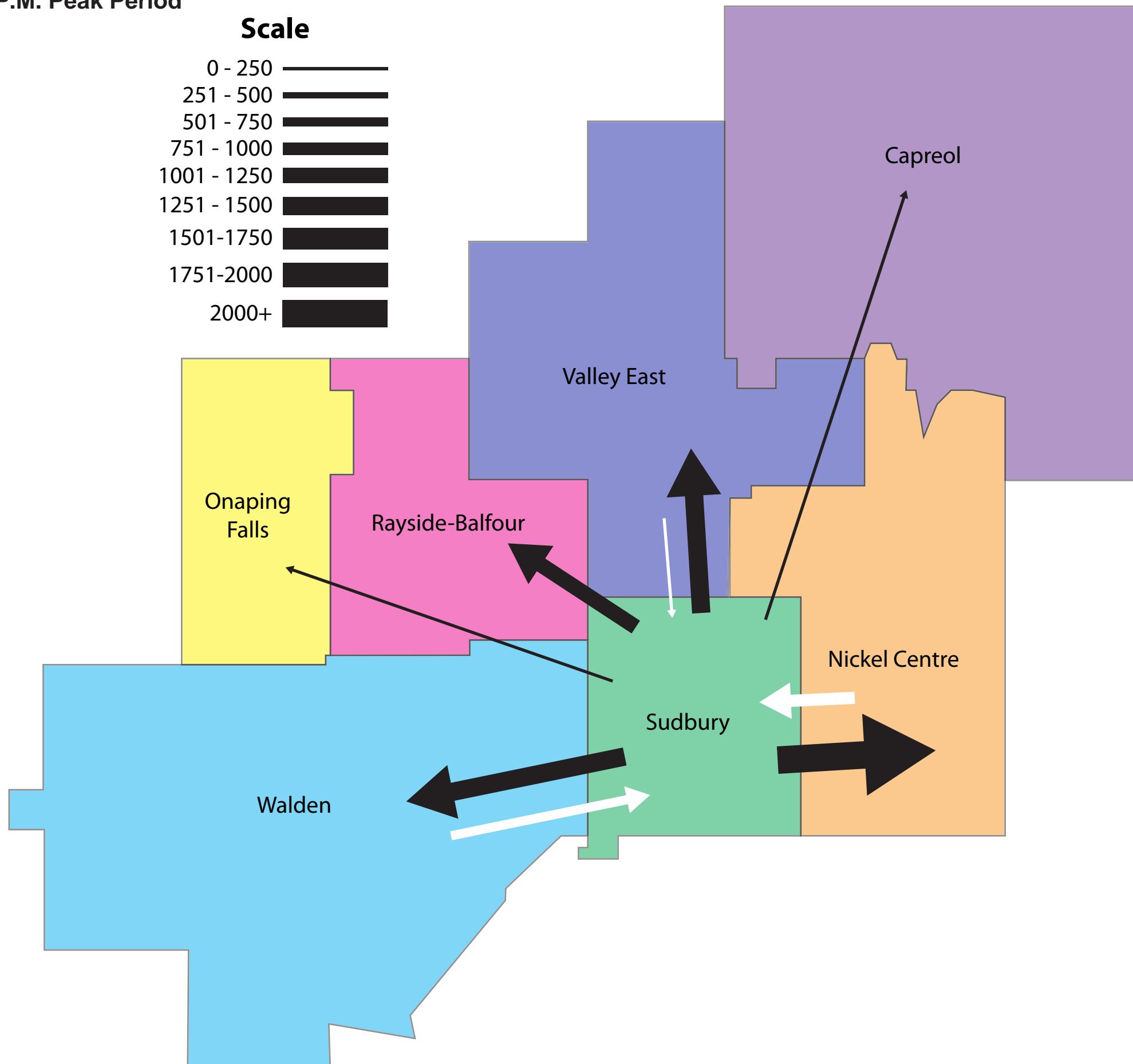
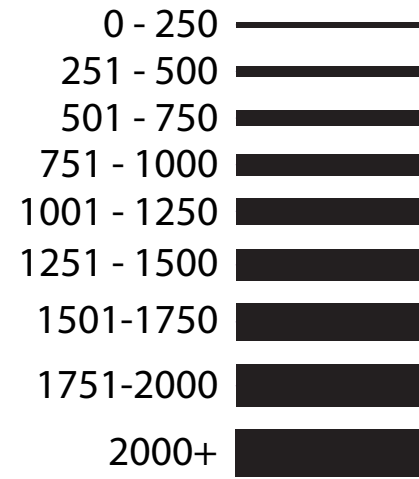
FROM \ TO	Sudbury	Nickel Centre	Capreol	Valley East	Rayside-Balfour	Onaping Falls	Walden
Sudbury	16,279	2,058	198	1,443	1,017	143	1,365
Nickel Centre	784	268	91	460	110	18	59
Capreol	1	2	16	183	41	5	7
Valley East	52	16	175	966	375	44	71
Rayside-Balfour	8	3	50	451	442	100	103
Onaping Falls	1	1	12	104	206	484	25
Walden	702	68	21	189	219	22	311

The map diagram in **Figure 36** shows trips to and from the core area traditionally known as the City of Sudbury. The thickness of the arrows is proportional to the traffic volumes into and out of the City of Sudbury. Similarly, the bars to the right of the figure represent the internal trips within each area.



P.M. Peak Period

Scale



Internal Trips

Legend

Direction of Trips

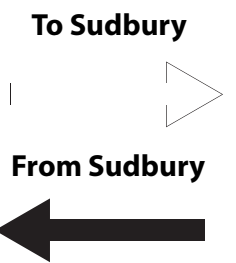


Figure 36
Key Traffic Flows -
'Do Nothing' Alternative



Major travel flows out of the Sudbury city centre have the following destinations:

- **Nickel Centre:** This is still the heaviest movement and its volume is projected to increase by more than 10% between 2011 and 2031. This will compound the existing eastbound congestion on the Kingsway, Lasalle Boulevard and Howey Drive, which in turn will affect the Falconbridge Road / Highway to Garson. When commuters returning to Coniston are added to those on the Southeast Bypass, the Trans-Canada Highway will also be impacted.
- **Valley East:** The projected increase in employment in Valley East is expected to result in a drop of more than 10% in the number of trips from Sudbury as Valley East residents work closer to home. However, the fact that Notre Dame Avenue is the only direct north-south route will result in it continuing to operate at close to capacity.
- **Walden:** Trips to this area to the southwest of Sudbury are distributed between M.R. 55 and the Trans-Canada Highway (17). Despite a marginal increase in the predicted trips from Sudbury, both these routes will continue operating at an acceptable level of service. The exception is M.R. 55 east of Balsam Street, where traffic joining from Copper Cliff and Gatchell will cause an increase in the volume/capacity ratio.
- **Rayside-Balfour:** Northwestbound traffic is channelled along M.R. 35, which operates at an acceptable level of service between Lasalle Boulevard and Notre Dame Street East, where there are two lanes westbound. However, capacity is constrained at Azilda west of where the highway reduces to one lane in each direction. The projected change in the volume of this movement between 2011 and 2031 is negligible, so this will continue to be a pinch point.

Major travel flows into the Sudbury city centre have the following origins:

- **Nickel Centre:** There are three westbound routes into the centre of Sudbury: the Kingsway, Lasalle Boulevard and Howey Drive. Between them they will have to manage an anticipated increase in traffic from Nickel Centre of over 5% by 2031. West of Bancroft Drive the accumulation of internal Sudbury trips on top of those from Nickel Centre will push the Kingsway, and also Howey Drive, over the 0.8 volume/capacity threshold;
- **Walden:** As with the flow out of Sudbury, the distribution of trips between M.R. 55 and the Trans-Canada Highway (17) means that both will operate at an acceptable level of service. This is despite an anticipated 30% increase in trips from Walden into Sudbury associated with forecast increases in employment along and to the north of the M.R. 55 corridor west of M.R. 24. The exception is M.R. 55 east of Balsam Street, where traffic joining from Copper Cliff and Gatchell will cause an increase in the volume/capacity ratio.

Major travel flows within the Sudbury city centre include:

- Commuter and commercial trips between New Sudbury and the remainder of the City. These add to demand on the Kingsway, Lasalle Boulevard, and other links;
- Traffic on Paris Street to and from Laurentian University and Health Sciences North; and
- Commercial and retail trips to the Paris Street/Long Lake Road/Regent Street intersection, known locally as the Four Corners.

Some movements within Greater Sudbury but not starting or ending in the former City of Sudbury are expected to see significant percentage increases, however the volumes are still relatively low. The same movements dominate as in the existing conditions: between Valley East and Rayside-Balfour on M.R. 15, and heading into Valley East along the Radar Road / Skead Road corridor from Nickel Centre.



Volume/capacity plots have been created showing traffic volumes on each link within the network as well as an indication of the available spare capacity on that link in the 'Do Nothing' alternative.

In order to clearly show the traffic volumes for each link, three plots with different zoom levels were produced per alternative showing:

- Full study area (**Figure 37**);
- Area approximately bounded by Copper Cliff to the west, McCrea Heights to the north, Garson to the east and the Trans-Canada Highway to the south (**Figure 38**); and
- Downtown Sudbury and New Sudbury (**Figure 39**).

As indicated in the legend, the colour of each line corresponds to the volume/capacity ratio of that link, which in turn relates to the Level of Service of that link. **Table 32** below shows the relationship between the two variables, and the colour scheme matches that of the figures.

Table 32: Level of Service Designations

Level Of Service	V/C Ratio
A	≤ 0.26
B	>0.26 – 0.4
C	>0.4 - 0.6
D*	>0.6 - 0.8
E	>0.8 - 1.0
F	>1.0

* LOS D is the threshold for acceptable road performance

For each road, the model plots show the volume to capacity ratios in the peak travel direction.

The following roadway sections have been identified as having a volume/capacity ratio of greater than 0.8 in the p.m. peak hour and are shown in red in **Figure 37**, **Figure 38** and **Figure 39**:

- Highway 144 between Isidore Street and Edward Avenue;
- M.R. 35 between M.R. 15 and Montee Rouleau;
- Montee Principale between M.R. 35 and Bonin Street;
- Notre Dame Avenue / M.R. 80 between Kathleen Street and Dell Street, and the approach to Lasalle Boulevard to Valleyview Road;
- M.R. 80 northbound between Main Street / M.R. 15 and Campeau Street;
- Falconbridge Road / Falconbridge Highway / Skead Road between Lasalle Boulevard and Sunderland Road;
- Trans-Canada Highway (17) east of the Kingsway;
- M.R. 55 between Balsam Street and Big Nickel Drive;
- Big Nickel Drive between M.R. 55 and Elm Street;
- Elm Street between Ethelbert Street and Elgin Street, and between Lisgar and Paris Street;



- Lasalle Boulevard between Frood Road and Crescent Park Road, and between Notre Dame Avenue and Attlee Avenue;
- The Kingsway / Lloyd Street between Brady Street and Falconbridge Road;
- Westmount Avenue / Attlee Avenue between Hawthorne Drive and Barry Downe Road;
- Van Horne Street / Howey Drive between Paris Street and Somerset Street;
- Bellevue Avenue between Howey Drive and Bancroft Drive;
- Paris Street between Walford Road and north of Centennial Drive, and between Ramsey Lake Road and Van Horne Street;
- Kathleen Street between Frood Road and Beatty Street;
- Regent Street between Elm Street and Oak Street, and between Lorne Street and Wembley Drive.
- Southview Drive / Bouchard Street between Cranbrook Crescent and Regent Street;
- Riverside Drive between Kilpatrick Avenue and Broadway Street;
- Broadway Street between Riverside Drive and Brady Street;
- Ramsey Lake Road between University Road and Paris Crescent;
- Second Avenue between Kenwood Street and the Kingsway;
- Radar Road between Skead Road and Hydro Road;
- Guenette Road between Radar Road and Notre Dame Avenue;
- Notre Dame Avenue between Guenette Road and Armand Street;
- Lorne Street between Regent Street and Douglas Street; and
- Ontario Street between Martindale Road and Regent Street.



Figure 37: Volume to Capacity Plots - Do Nothing Alternative (Overview)

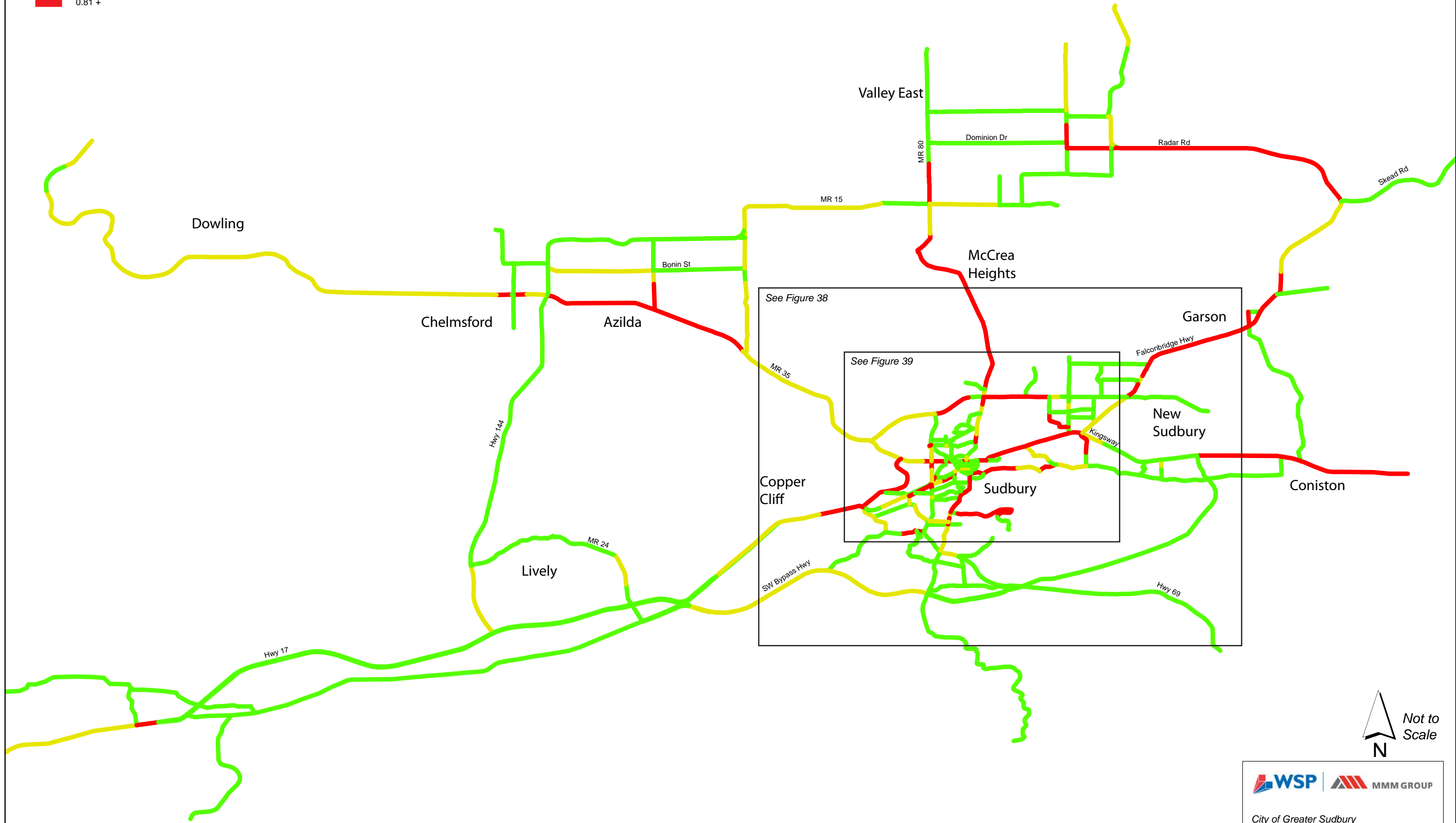
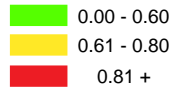


Figure 38: Volume to Capacity Plots - Do Nothing Alternative (Intermediate Zoom)

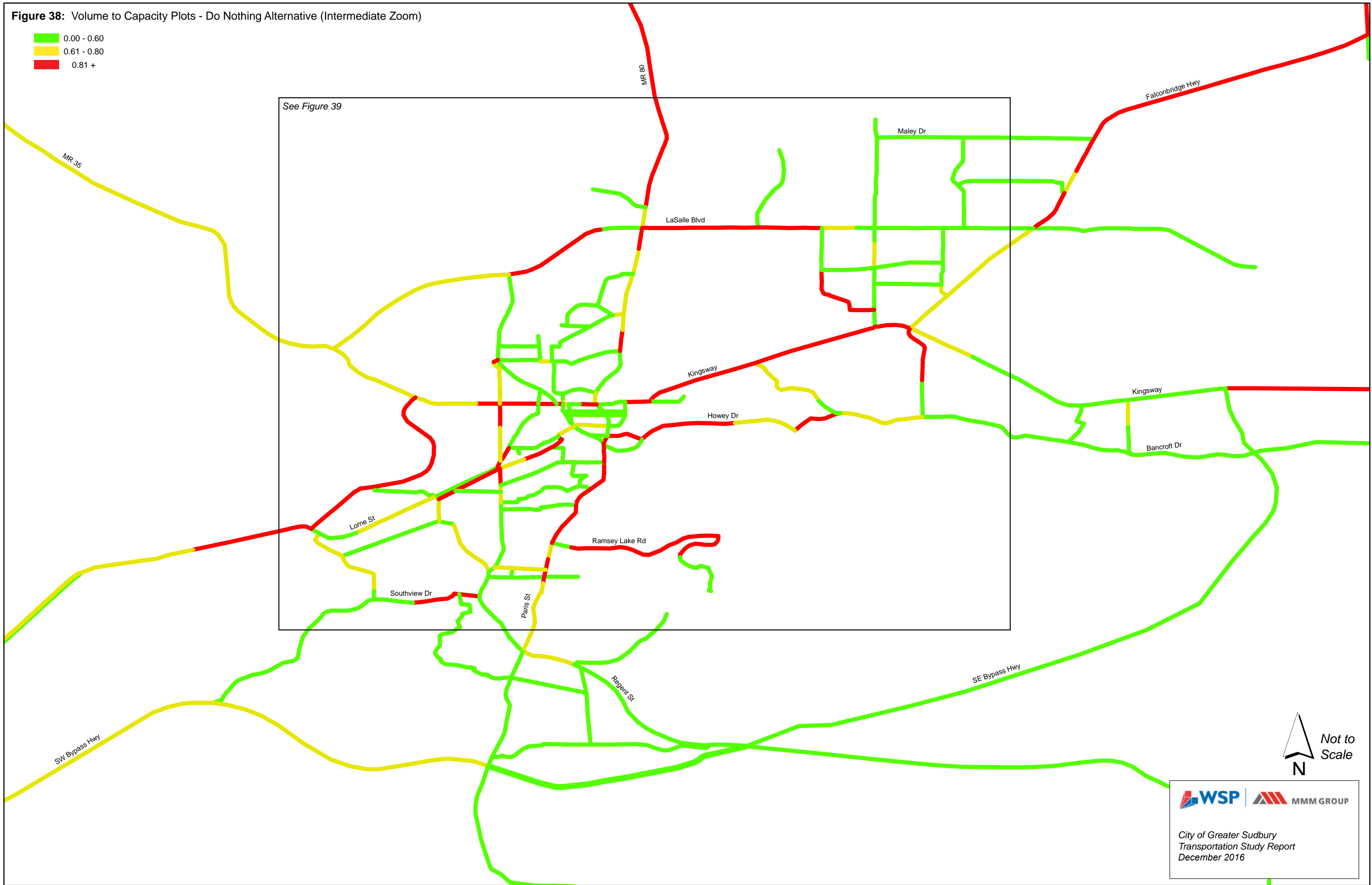
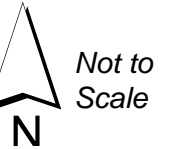
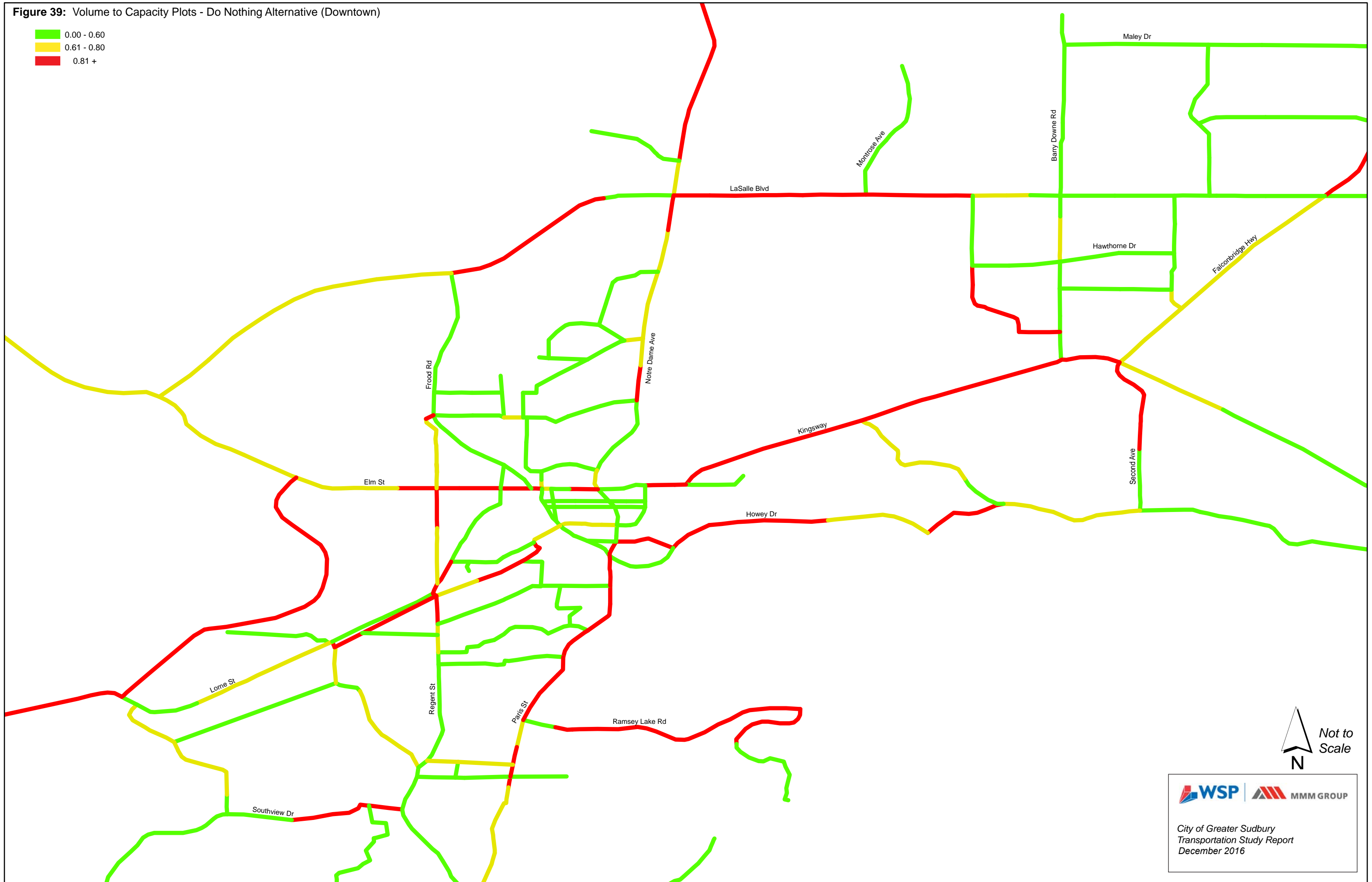


Figure 39: Volume to Capacity Plots - Do Nothing Alternative (Downtown)



8.2 Auto Focused Alternative

In addition to the 'Do Nothing' alternative, two additional alternatives were developed to respond to the Problem Statement outlined in **Section 5.4**. Key opportunities related to these needs were identified and include:

- Implementing short-term solutions for intersections and corridors of traffic congestion;
- In the longer term, creating a transportation network which offers more direct routings; and
- Providing the transportation network needed to support intensified land use in designated growth areas.

This 'Auto Focused' alternative includes projects identified in Schedule 6 of the Official Plan and the 2005 Transportation Study Report. The candidate proposals involve widening some existing roads to ease congestion on the following corridor sections:

- Notre Dame Avenue (M.R. 80) from Main Street to Kathleen Street [four-lane to six-lane];
- Maley Drive from Barry Downe Road to Falconbridge Highway [two-lane to four-lane];
- Falconbridge Highway from Maley Drive to Garson Coniston Road [four-lane to five-lane];
- Second Avenue (Donna Drive to Scarlett Road) [two-lane to five-lane];
- Barry Downe Road from Westmount Avenue to the Kingsway [five-lane to six-lane];
- The Kingsway east of Lloyd Street [four-lane to five-lane];
- Howey Drive from Elgin Street to Bancroft Drive [two-lane to four-lane];
- Ramsey Lake Road (Health Sciences North Road to South Bay Road) [two-lane to four-lane];
- Maley Drive from Lasalle Boulevard to M.R. 35; and
- M.R. 35 from M.R. 15 to Notre Dame Street East [two-lane to five-lane].

Some new roads are proposed for construction, including new bypasses and shorter links to offer more direct routings:

- Maley Drive extension (Lasalle Boulevard to Barry Downe Road);
- Montrose Avenue extension to the north (current terminus to Maley Drive extension);
- Ste. Anne Road extension to College Street;
- Larch Street extension between Elgin Street and Lorne Street;
- Martilla Drive Extension to Paris Street
- Garson connection proposed between Falconbridge Highway and Maley East Bypass;
- Big Nickel Drive connection to Southview Drive;
- Barry Downe Extension from Maley Drive to Main Street and Bodson Drive;
- South Bay Road Extension;
- Maley East Bypass;
- Silver Hills Drive (from Bancroft Drive to Marcus Drive);
- Remington Road (from current terminus to Gateway Drive); and
- Montrose Avenue south extension to Hawthorne Drive and Notre Dame Avenue.

Alignments for these new links should continue to be protected even though, in some cases, implementation may come after the 2031 horizon.



It is recommended that Environmental Assessments be conducted to determine the optimal corridor for the South Bay Road extension and the Maley East Bypass. In the latter case, the alignment shown in the 2005 Transportation Study Report has been carried over for modelling purposes. This would connect the existing intersection of Maley Drive with Falconbridge Road to the upgraded interchange of the Trans-Canada Highway with the Kingsway. However, the final alignment is to be determined in conjunction with the Ministry of Transportation of Ontario (MTO). As an alternative to the connection with Highway 17, Maley Drive may be extended east to Garson Coniston Road.

For each of the two alignment options, the distance that would be travelled between the Maley Drive / Falconbridge Road intersection is similar, however the Highway 17 connection provides the best connectivity to the Southeast Bypass. The application of this alignment to the modelling analysis allows for the most accurate assessment of demand for a continuous bypass linking Lasalle Boulevard and Highway 69. Widening and local realignments of the provincial Highways 17 and 69 have been incorporated into the network, although these fall under the jurisdiction of MTO.

The Official Plan includes proposed connections in Valley East and New Sudbury. However, the modelled network only includes those links that relate to developments that are reflected in the 2031 land use data.

For the 'Auto Focused' alternative, traffic volumes between the key locations in the region in the p.m. peak period are shown in **Table 33**.

Table 33: 'Auto Focused' Traffic Volumes – PM Peak Period (2031)

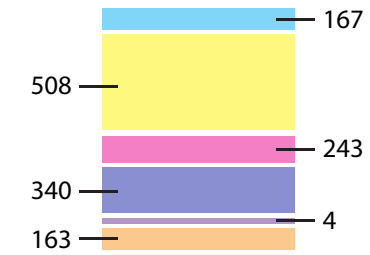
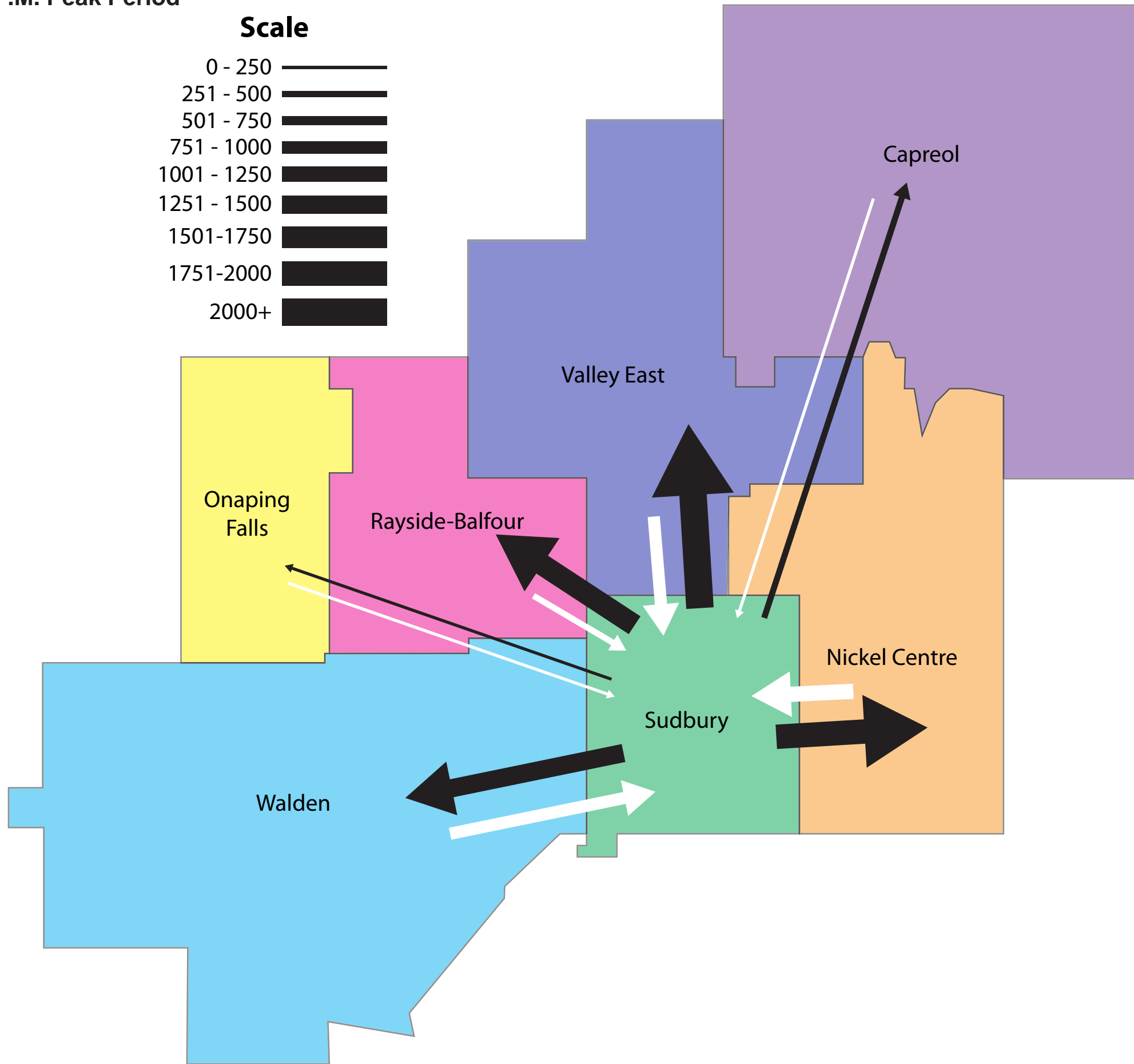
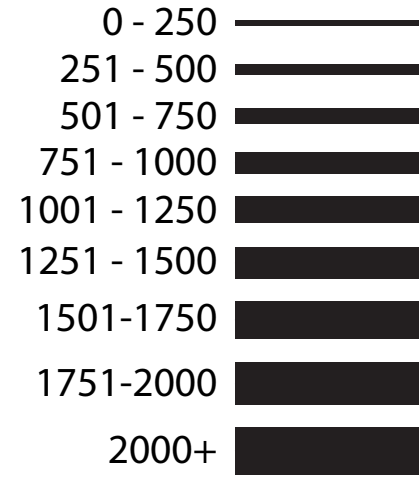
FROM \ TO	Sudbury	Nickel Centre	Capreol	Valley East	Rayside-Balfour	Onaping Falls	Walden
Sudbury	14,269	1,886	412	2,783	1,531	217	1,405
Nickel Centre	1,047	163	48	273	138	21	98
Capreol	119	24	4	61	29	3	14
Valley East	808	136	57	340	227	25	106
Rayside-Balfour	450	60	22	191	243	70	121
Onaping Falls	93	13	5	44	139	508	29
Walden	877	113	25	177	154	16	167

The map diagram in **Figure 40** shows trips to and from the former City of Sudbury. The thickness of the arrows is proportional to the traffic volumes into and out of the former City of Sudbury. Similarly, the bars to the right of the figure represent the internal trips within each area. **Table 34** summarizes the characteristics of the major traffic flows leaving the Sudbury city centre bound for the surrounding areas in the 'Auto Focused' alternative. It also identifies the main positive and negative impacts of the proposed projects on the ability of the road network to support these movements.



P.M. Peak Period

Scale



Internal Trips

Legend

Direction of Trips

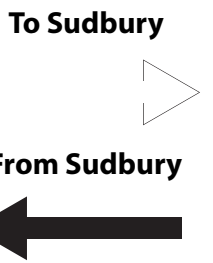


Figure 40
Key Traffic Flows -
'Auto Focused' Alternative



Table 34: Characteristics of Traffic Flow Leaving the Sudbury City Centre: 'Auto Focused'

DESTINATION	FLOW CHARACTERISTICS	POSITIVES	NEGATIVES
Valley East	<p>The anticipated number of northbound trips nearly double compared to the 'Do Nothing' alternative to become the most popular movement between areas. The proposed extension of Barry Downe Road between Sudbury and Valley East is the key determining factor for this.</p> <p>Trips to Capreol passing through Valley East are predicted to more than double, however they represent a much lower volume.</p>	<p>The additional traffic will reach Barry Downe Road via Maley Drive which will have extra capacity due to its proposed widening and extension.</p>	<p>No widening is proposed on Barry Downe Road south of Maley Drive, and this northbound section will consequently be at capacity. Despite the additional northbound link, the volume on Notre Dame Avenue in that direction will actually be higher than in the 'Do Nothing' case. This will be partly mitigated by the proposed widening of that route.</p>
Nickel Centre	<p>A slight decrease in volume is expected compared to the 'Do Nothing' case; however it is still predicted to be marginally higher than the existing conditions.</p>	<p>Congestion on the Falconbridge Highway will be reduced by this, as well as the proposed widening of that road and the availability of new alternative routes such as the Garson connection and Highway 17. The latter relieves the congestion on the existing Trans-Canada Highway to the east of Sudbury.</p> <p>The v/c ratio on the section of Falconbridge Road between Lasalle Boulevard and Maley Drive will reduce as vehicles use Maley Drive instead. This will become a thoroughfare by virtue of its planned extension to the west.</p>	<p>The Southeast Bypass is projected to be congested northbound. The Trans-Canada Highway improvements also attract additional eastbound volumes leaving Sudbury. The v/c ratio will increase on the Kingsway between Kitchener Avenue and Barry Downe Road where widening is not feasible due to right-of-way constraints, as well as routes connecting to downtown Sudbury such as Van Horne Street.</p>
Rayside-Balfour	<p>Northwestbound traffic is channelled along Municipal Road 35. The number of trips from Sudbury to Rayside-Balfour is projected to increase by 20% compared to the 'Do Nothing' case.</p>	<p>In the existing conditions, capacity is constrained at Azilda west of Notre Dame Street East where the four-lane highway reduces to two lanes. The proposed widening of this section of M.R. 35 removes this geometric pinch point and is a key factor in attracting the additional trips from Sudbury.</p>	<p>Although the highest volume/capacity ratio in the section to be widened is lower in the 'Auto Focused' alternative than in the 'Do Nothing' case, it is still over the critical 0.8 threshold. Also, the additional traffic impacts the capacity of the northwestbound approach to the section proposed for widening.</p>
Walden	<p>Trips to this area to the southwest of Sudbury are distributed between M.R. 55 and the Trans-Canada Highway (17). There is a marginal increase in the predicted trips from Sudbury.</p>	<p>In general, vehicles from downtown Sudbury will use M.R. 55 and journeys originating in southern Sudbury will follow the Trans-Canada Highway. However, there is flexibility for the balancing of flows between the two routes whereas drivers heading to most of the other communities around Sudbury only have one route option available.</p>	<p>M.R. 55 is approaching capacity east of Balsam Street, where traffic joining from Copper Cliff and Gatchell will cause an increase in the volume/capacity ratio. The Trans-Canada Highway between Southview Drive and M.R. 55 is also operating at a volume/capacity ratio of 0.8.</p>



Similarly, **Table 35** summarizes the characteristics of the major traffic flows entering Sudbury from the surrounding areas in the 'Auto Focused' alternative. It also identifies the main positive and negative impacts of the proposed projects on the performance of the road network.

Table 35: Characteristics of Traffic Flow Entering the Sudbury City Centre: 'Auto Focused'

ORIGIN	FLOW CHARACTERISTICS	POSITIVES	NEGATIVES
Valley East	The proposed Barry Downe Road extension will significantly increase demand for this movement.	For vehicles heading into the centre of Sudbury that entered the city via Barry Downe Road, Silver Hills Drive connects to Howey Drive and provides an alternative route to the congested Kingsway.	Although Lasalle Boulevard is proposed to be widened to the west of its intersection with the Maley Drive extension, the resultant spare capacity will be used up by this additional volume. Consequently, in the westbound direction the volume/capacity ratios on the widened section of Maley Drive between Lasalle Boulevard and M.R. 35 are expected to be similar to those in the 'Do Nothing' case.
Nickel Centre	There is an anticipated increase in traffic from Nickel Centre of over 25% compared to the 'Do Nothing' alternative.	The road improvements proposed on the east side of Sudbury have sufficient capacity to manage volumes into New Sudbury and the eastern side of the City of Sudbury.	Entering the downtown, the same constraints exist on the Kingsway and Van Horne Street as for travel flows out of Sudbury.
Rayside-Balfour	A significant but manageable increase in Sudbury-bound traffic is expected following the partial widening of M.R. 35.	The widening of M.R. 35 provides additional capacity to accommodate the increase in central Sudbury-bound trips.	No issue.
Walden	There is an anticipated 15% increase in trips from Walden into Sudbury compared to the 'Do Nothing' case.	As with the flow out of Sudbury, the distribution of trips between the Trans-Canada Highway (17) and M.R. 55 gives flexibility. The Trans-Canada Highway (17) is expected to operate well in the eastbound direction.	M.R. 55 is at capacity east of Balsam Street, where traffic joining from Copper Cliff and Gatchell will cause an increase in the volume/capacity ratio.

Major travel flows within the Sudbury city centre include:

- Commuter and commercial trips between New Sudbury and the remainder of the City. These add to demand on the Kingsway, Lasalle Boulevard, and other links;
- Traffic on Paris Street to and from Laurentian University and Health Sciences North. The South Bay Road extension would give university traffic an alternative route to and from southern Sudbury and the highway network. This would relieve some of the congestion on the only existing route, Paris Street, immediately south of Ramsey Lake Road; and



- Commercial and retail trips to the Paris Street/Long Lake Road/Regent Street intersection, known locally as the Four Corners.

Some movements within Greater Sudbury but not starting or ending in the former City of Sudbury are expected to see significant percentage increases, however the volumes are still relatively low. Between areas, the same movements dominate as in the 'Do Nothing' alternative: between Valley East and Rayside-Balfour on M.R. 15, and heading into Valley East along the Radar Road / Skead Road corridor from Nickel Centre.

For the communities surrounding the Sudbury city centre, traffic flows that remain within the same area are significantly lower than in the 'Do Nothing' alternative. Nickel Centre, Rayside-Balfour and Walden can expect a reduction of around 40%, whereas the predicted decline is over 60% for Valley East. This confirms that the proposed improvements to the roads linking the Sudbury city centre to the surrounding areas will be a significant motivating factor in encouraging residents to commute to places of employment outside of their home area.

Roadway sections that have been identified as having a volume/capacity ratio of greater than 0.8 are shown in red in **Figure 41**, **Figure 42** and **Figure 43**, which use the same Level of Service designations as shown in **Table 32**.

- Highway 144 westbound between Edward Avenue and M.R. 15;
- M.R. 35 between M.R. 15 and Lasalle Boulevard;
- Montée Rouleau between M.R. 35 and south of Bonin Street;
- Notre Dame Avenue / M.R. 80 between Thomas Street and Lasalle Boulevard, and north of Lasalle Boulevard to Valleyview Road;
- Falconbridge Road / Falconbridge Highway / Skead Road between Maley Drive and Racicot Drive, and Garson Coniston Road and Longyear Drive;
- M.R. 55 between Balsam Street and Big Nickel Mine Drive;
- Elm Street between Lasalle Boulevard and Big Nickel Mine Drive, Ethelbert Street and Lorne Street, between Frood Road and Elgin Street, and between Lisgar and Paris Street;
- Lasalle Boulevard between Frood Road and Maley Drive extension;
- The Kingsway between Lloyd Street and Falconbridge Road;
- Silver Hills Drive southern portion connecting to Bancroft Drive;
- Hawthorne Drive extension from Montrose Avenue to Notre Dame Avenue;
- Westmount Avenue / Attlee Avenue, between Hawthorne Drive and Barry Downe Road;
- Van Horne Street, between Paris Street and Howey Drive;
- Ste. Anne Road / Mackenzie Street from Ignatius Street to Baker Street;
- Paris Street, between Ramsey Lake Road and Van Horne Street;
- Beatty Street, between Elm Street and Kathleen Street;
- Regent Street between Oak Street and Elm Street, and between Hyland Drive and Riverside Drive;
- Southview Drive / Bouchard Street westbound between Cranbrook Crescent and Regent Street;
- Radar Road between Guenette Drive and Cote Boulevard;
- Church Street in Garson north of Falconbridge Highway;
- Notre Dame Avenue between Bodson Drive and Armand Street;



- Bodson Drive between Notre Dame Avenue and Hydro Road;
- Lorne Street between Regent Street and Douglas Street.
- Highway 144 between the Trans-Canada Highway (17) and Highway 24;
- Trans-Canada Highway (17), between Kantola Road and Southview Drive.

In some cases, additional traffic is attracted by proposed improvements to one section of their route, leading to increased congestion on other parts where no changes are proposed. In other cases, wider network improvements have encouraged growth in a particular area and bottlenecks form or are exacerbated as a result. To ensure that the transportation network supports intensified land use in designated growth areas, delays on the following roadway sections would need to be monitored as the proposed projects are implemented and development progresses. Where required, improvements should be considered at a future date, which may be beyond the 2031 horizon:

- M.R. 35 westbound between Marier Street and Big Nickel Drive; Elm Street, westbound between Big Nickel Drive and Lasalle Boulevard; and Big Nickel Drive itself in both directions. Volumes on these roadway sections are expected to increase due to improvements to M.R. 35 and Lasalle Boulevard among others, as well as background population and employment growth.
- Van Horne Street will be over-capacity in both directions between Howey Drive and Paris Street. This is associated with attraction of traffic due to the widening of Howey Drive, which makes it a more feasible alternative to the Kingsway. Also on that route, but not proposed for widening is Bancroft Drive east of the proposed connection with the Kingsway. The section between Shappert Avenue and Neelon Avenue is predicted to experience the highest volumes.
- The proposed Larch Street extension between Elgin Street and Lorne Street would be highly utilized in the eastbound direction, as is Elgin Street between Elm Street and the Larch Street extension. Although this new link is predicted to reduce the northbound volumes on Regent Street, traffic flows on Lorne Street will increase significantly as a result. The link has been modelled at grade, which would require permission from the Canadian Pacific Railway.
- The volume/capacity ratio on Beatty Street will increase in both directions between Froid Road and Elm Street, in part due to the attraction of improved links to the north.
- Higher volumes entering downtown Sudbury from Walden will result in increased congestion on: Brady Street southwestbound between Broadway Street and Minto Street; Brady Street northeastbound between Broadway Street and Paris Street; and Riverside Drive / Broadway Street northbound between Edinburgh Street and Brady Street.
- Ste. Anne Road / MacKenzie Street northbound between Elgin Street and Baker Street is impacted by northbound traffic that feeds in from both Elgin Street and the Ste. Anne Road extension.
- The additional traffic attracted by the widening of Notre Dame Avenue results in congestion south of Kathleen Street and on the northbound approach to the Lasalle Boulevard intersection.



- The western end of the Kingsway is proposed to be widened. However, higher volumes are expected in both directions west of the Barry Downe Road intersection due to the extension of that route to the north.
- Roads in and around the Valley East development area are expected to be highly utilized, particularly those that would connect to the northern end of the Barry Downe Road extension. These include: Notre Dame Avenue northbound between Bodson Drive and Armand Street; Hydro Road / Radar Road northbound between Bodson Drive and Cote Boulevard; and Bodson Drive eastbound between Notre Dame Avenue / Barry Downe Road extension and Hydro Road.
- Congestion is projected northbound on Highway 144 north of the Trans-Canada Highway (17) and on M.R. 24 southbound through Lively. Access to Lively from the west and north is via Highway 144; from Sudbury and the east it is via M.R. 55 and M.R. 24 as the latter has no interchange with the Trans-Canada Highway.
- The Silver Hills Drive road that is proposed to connect the Kingsway with Bancroft Drive is expected to be highly utilized in the southbound direction by traffic transferring from the congested Kingsway to the widened Howey Drive, as well as new trips associated with the Silver Hills development.
- Likewise, the Montrose Avenue South extension will be well used by residential traffic from the east as well as vehicles transferring from Maley Drive and Lasalle Boulevard.
- Barry Downe Road northbound is expected to be over capacity between Lillian Boulevard and Maley Drive. All possible routes from the Barry Downe Road / Maley Drive intersection into downtown Sudbury include at least one road section operating at a high volume/capacity ratio. Consequently, the benefit to commuters of the additional route between Sudbury and Valley East would be partially cancelled out by the delays caused by congestion on the southern portion of the journey.
- Through volumes on the Trans-Canada Highway (17) will increase due to improved connections to the east of Sudbury and with Highway 69 to the south. Eastbound volumes joining the Trans-Canada Highway from southern Sudbury are also expected to increase, with additional traffic exiting Laurentian University via the proposed South Bay Road extension. As a result, the volume/capacity ratio will rise just above 0.8 in the eastbound direction between the proposed link with Highway 69 and the Kingsway, and westbound between Southview Drive and M.R. 55.



Figure 41: Volume to Capacity Plots - Auto Focused (Overview)

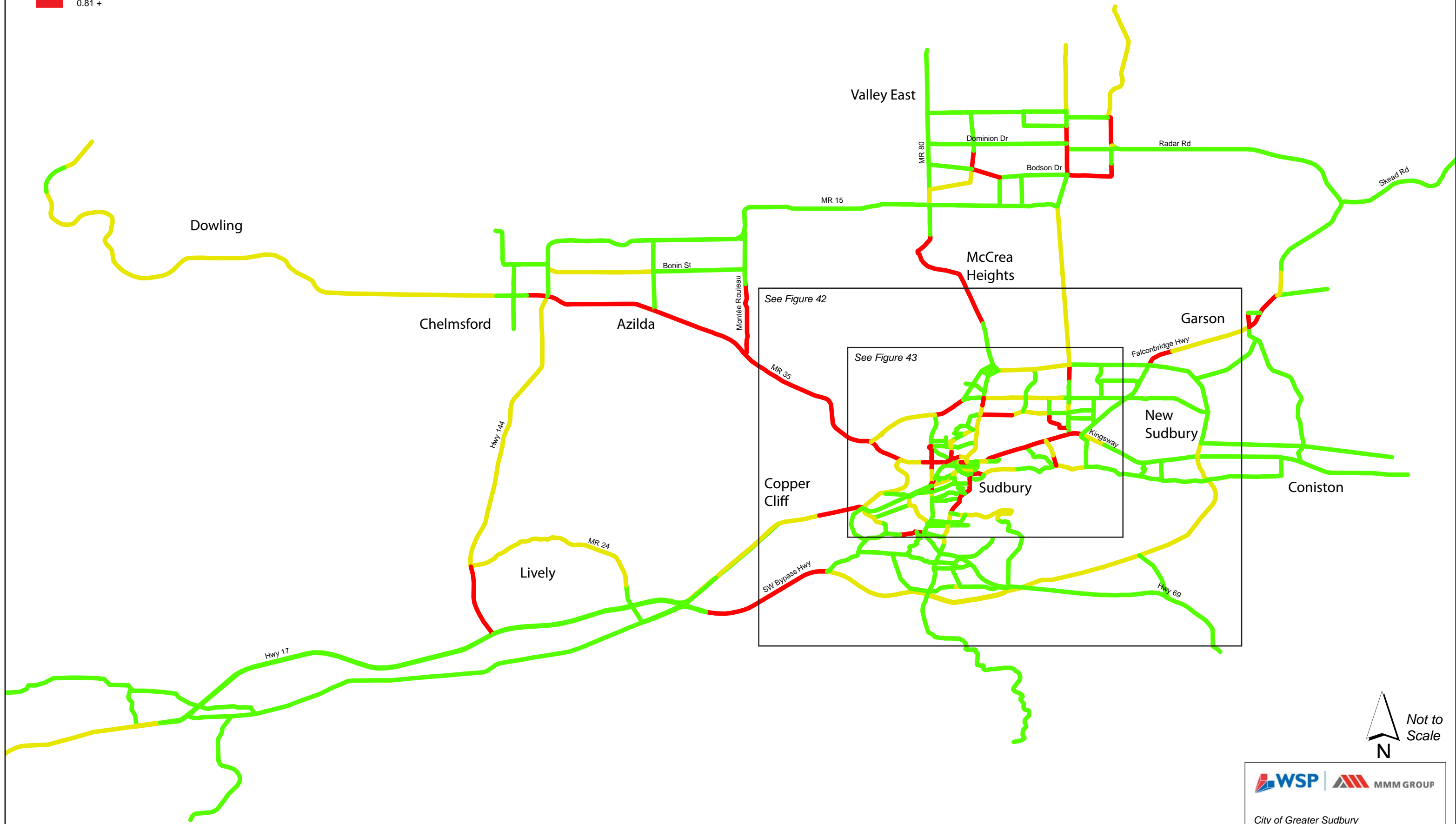


Figure 42: Volume to Capacity Plots - Auto Focused (Intermediate Zoom)

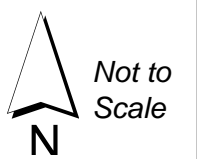
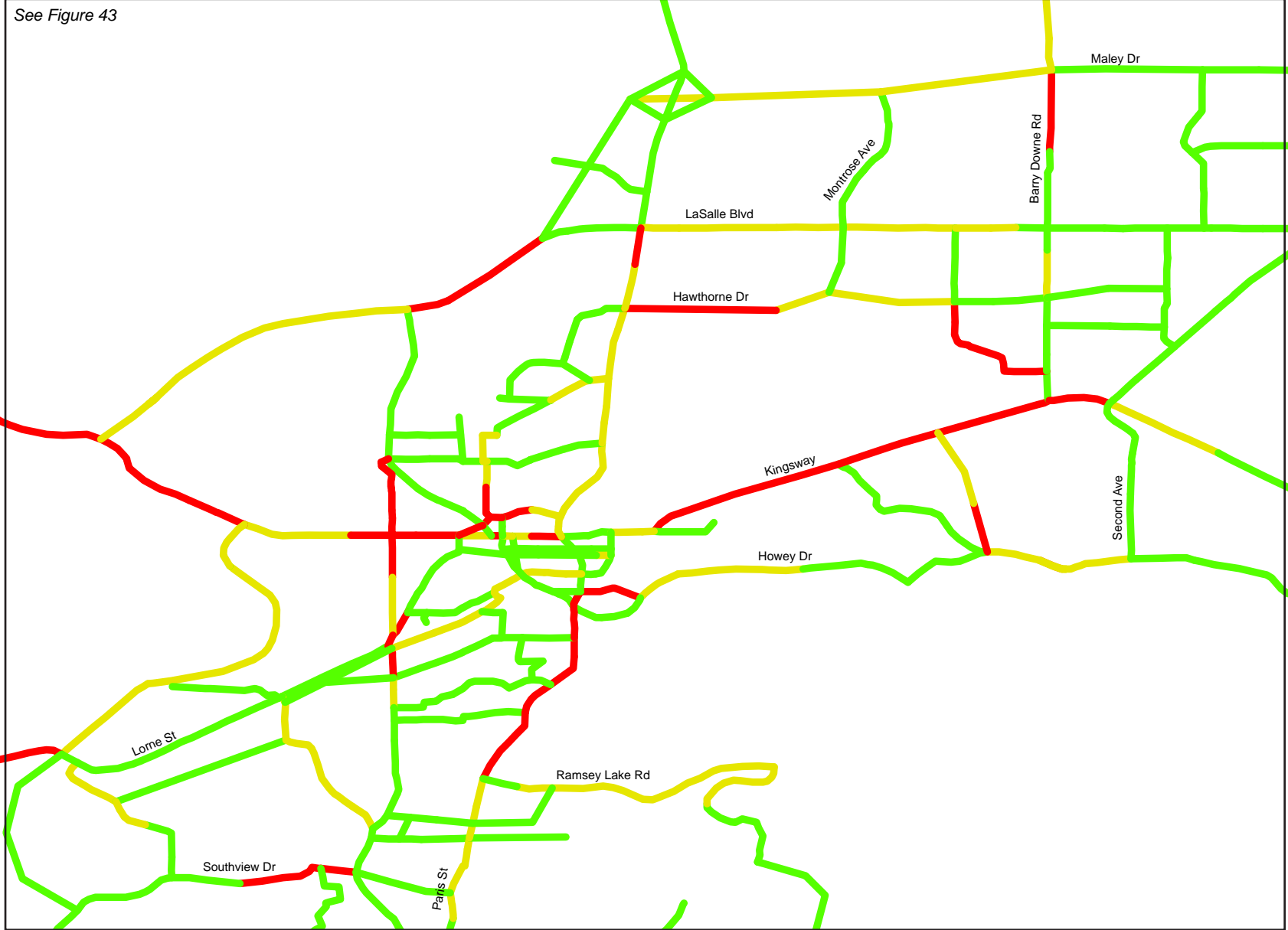
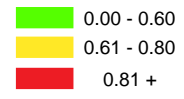
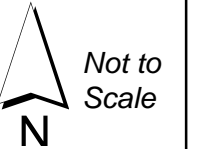
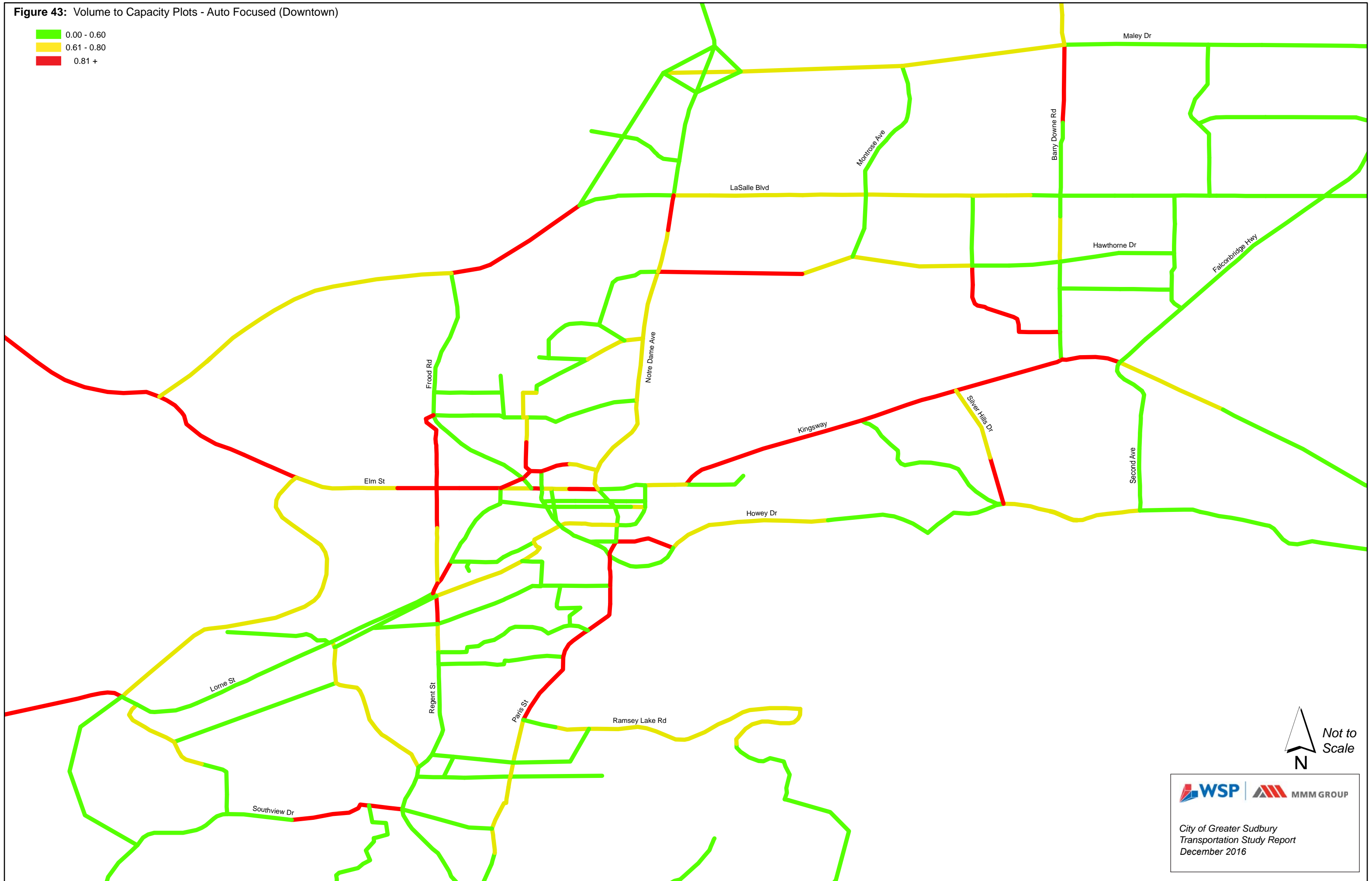


Figure 43: Volume to Capacity Plots - Auto Focused (Downtown)



8.3 Sustainability Focused Alternative

The third alternative is to focus on improvements that can enhance the sustainability of the City’s transportation network. It is a refinement of the ‘Auto Focused’ alternative which, as described in **Section 8.2**, was developed in addition to the ‘Do Nothing’ alternative featured in **Section 8.1**. It aims to respond to the Problem Statement outlined in **Section 5.4** and take advantage of the key opportunities related to these, which included:

- Implementing short-term solutions for intersections and corridors of traffic congestion;
- In the longer term, creating a transportation network which offers more direct routings; and
- Providing the transportation network needed to support intensified land use in designated growth areas.

A fourth opportunity was identified in **Section 5.4** and involves creating transportation choices to better support biking, walking, and transit. By limiting the extent of new road projects and reallocating resources to create a balanced multi-modal system, the ‘Sustainability Focused’ alternative aims to provide the most beneficial solution to the Problem Statement and its related opportunities. It is also the strategy that most closely resembles the recommended option from the 2005 Transportation Study Report, which is to improve the transportation system through the betterment of both the road network and increased use of transit systems, ridesharing, bicycling and walking. Please refer to **Section 9** for details of the recommended active transportation plan that will cater for biking and walking.

To determine which projects to include in the ‘Sustainability Focused’ alternative, the candidate road improvements were considered individually through an additional Multiple Account Evaluation. This assessed whether the projects:

- Enhance network connectivity, by increasing the number of routing options available such that the average distance travelled between given points in the network is reduced;
- Relieve congestion, improving the relative ease of travel through the network and access to truck and commuter corridors;
- Have minimal impact on environmentally-sensitive areas or involve road construction on land that is designated for development; and
- Are cost efficient relative to alternative options.

For each account, one point was awarded where the project demonstrated a benefit or neutral impact. A higher score of two points was applied in the case of a disbenefit. The first three accounts were weighted equally, with a double weighting applied to the ‘cost efficiency’ score. The threshold for further consideration was set at 7 points. This was to allow projects with favourable scoring for every category except cost to be progressed as they are likely to represent good value. Conversely, a project that only scores favourably on cost would not be brought forward to the ‘Sustainability Focused’ alternative, however its alignment would continue to be protected to allow for implementation beyond the 2031 horizon.

The scoring for proposed roadway widening and construction projects is shown in **Table 36** and **Table 37**, respectively.



Table 36: Multiple Account Evaluation for Candidate Roadway Widening Projects

#	PROJECT	ACCOUNTS (Weighting in brackets)					SCORE	INCLUDE IN SUSTAINABILITY FOCUSED ALTERNATIVE?
		Enhance network connectivity (1)	Congestion relief and truck/commuter accessibility (1)	Environmental Protection (1)	Cost efficiency relative to alternative option (2)	Alternative Project		
1	Notre Dame Avenue (M.R. 80) from Main Street to Kathleen Street [four-lane to six-lane]	2	1	1	1	Extend Barry Downe Road	6	YES
4	Maley Drive from Barry Downe Road to Falconbridge Highway [two-lane to four-lane]	2	1	1	1	Widen Lasalle Boulevard	6	YES
5	Falconbridge Highway from Maley Drive to Garson Coniston Road [four-lane to five-lane]	2	1	1	1	New parallel connection	6	YES
7	Second Avenue from Donna Drive to Scarlett Road [two-lane to five-lane]	2	1	1	1	Widen 3rd Avenue	6	YES
8	Barry Downe Road from Westmount Avenue to the Kingsway [five-lane to six-lane]	2	1	1	1	New parallel road or new connection to Falconbridge Road	6	YES
11	The Kingsway east of Lloyd Street [four-lane to five-lane]	2	1	1	1	Widen Van Horne Street	6	YES
13	Howey Drive from Elgin Street to Bancroft Drive [two-lane to four-lane]	2	1	1	1	Widen the Kingsway	6	YES



#	PROJECT	ACCOUNTS (Weighting in brackets)					SCORE	INCLUDE IN SUSTAINABILITY FOCUSED ALTERNATIVE?
		Enhance network connectivity (1)	Congestion relief and truck/commuter accessibility (1)	Environmental Protection (1)	Cost efficiency relative to alternative option (2)	Alternative Project		
15	Ramsey Lake Road from Health Sciences North Road to South Bay Road [two-lane to four-lane]	2	2	1	1	Extend South Bay Road	7	YES
17	Maley Drive from Lasalle Boulevard to M.R. 35 [two-lane to four-lane]	2	1	1	1	New parallel road	6	YES
18	M.R. 35 from M.R. 15 to Notre Dame Street East [two-lane to five-lane]	2	1	1	1	New parallel road	6	YES



Table 37: Multiple Account Evaluation for Candidate Roadway Construction Projects

#	PROJECT	ACCOUNTS (Weighting in brackets)					SCORE	INCLUDE IN SUSTAINABILITY FOCUSED ALTERNATIVE?
		Enhance network connectivity (1)	Congestion relief and truck/commuter accessibility (1)	Environmental Protection (1)	Cost efficiency relative to alternative option (2)	Alternative Project		
2	Maley Drive Extension (Barry Downe Road to Lasalle Boulevard)	1	1	1	1	Widen Lasalle Boulevard	5	YES
3	Montrose Avenue north extension (current terminus to Maley Drive extension)	1	2	1	1	Widen Barry Downe Road / Notre Dame Avenue	6	YES
6	Maley Drive extension / Maley East Bypass	1	1	1	2	Widen Falconbridge Road and the Kingsway	7	YES
9	Montrose Avenue extension south to Hawthorne Drive and Notre Dame Avenue	1	2	2	1	Widen Lasalle Boulevard	7	YES
10	Silver Hills Drive	1	1	2	1	Widen Bancroft Drive / Second Avenue	6	YES
12	Ste. Anne Road extension	1	2	1	1	Area wide improvements	6	YES
14	Larch Street extension	1	1	1	1	Area wide improvements	5	YES
16	Remington Road extension from current terminus to Gateway Drive	1	2	1	1	Area wide improvements	6	YES



#	PROJECT	ACCOUNTS (Weighting in brackets)					SCORE	INCLUDE IN SUSTAINABILITY FOCUSED ALTERNATIVE?
		Enhance network connectivity (1)	Congestion relief and truck/commuter accessibility (1)	Environmental Protection (1)	Cost efficiency relative to alternative option (2)	Alternative Project		
-	South Bay Road Extension	1	2	2	2	Widen Ramsey Lake Road	9	NO
19	Martilla Drive connection to Paris Street	1	2	1	1	Widen Walford Avenue	6	YES
-	Garson connection: Falconbridge Highway Maley East Bypass	1	1	2	2	Widen Falconbridge Road	8	NO
-	Southview Drive connections to Moonrock Avenue / Arnold Street and Treeview Road	1	1	2	2	Widen Southview Drive	8	NO
-	Barry Downe Extension from Maley Drive to Main Street and Bodson Drive	1	1	2	2	Widen Notre Dame Ave or Falconbridge Highway	8	NO
-	Big Nickel Drive extension	1	2	1	2	Widen M.R. 55	8	NO
20	John Street (Valley) extension	1	2	1	1	Widen Old Highway 69 and Dominion Drive	6	YES



For the 'Sustainability Focused' alternative, traffic volumes between the key locations in the region in the p.m. peak period are shown in **Table 38**.

Table 38: 'Sustainability Focused' Traffic Volumes – PM Peak Period (2031)

FROM \ TO	Sudbury	Nickel Centre	Capreol	Valley East	Rayside-Balfour	Onaping Falls	Walden
Sudbury	15,108	1,975	330	2,247	1,268	174	1,402
Nickel Centre	996	64	54	326	135	20	94
Capreol	51	15	7	116	46	5	14
Valley East	415	91	105	577	360	41	111
Rayside-Balfour	233	37	42	336	310	81	117
Onaping Falls	47	8	9	71	157	515	26
Walden	818	106	27	197	185	19	177

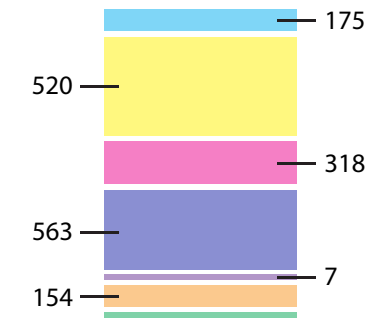
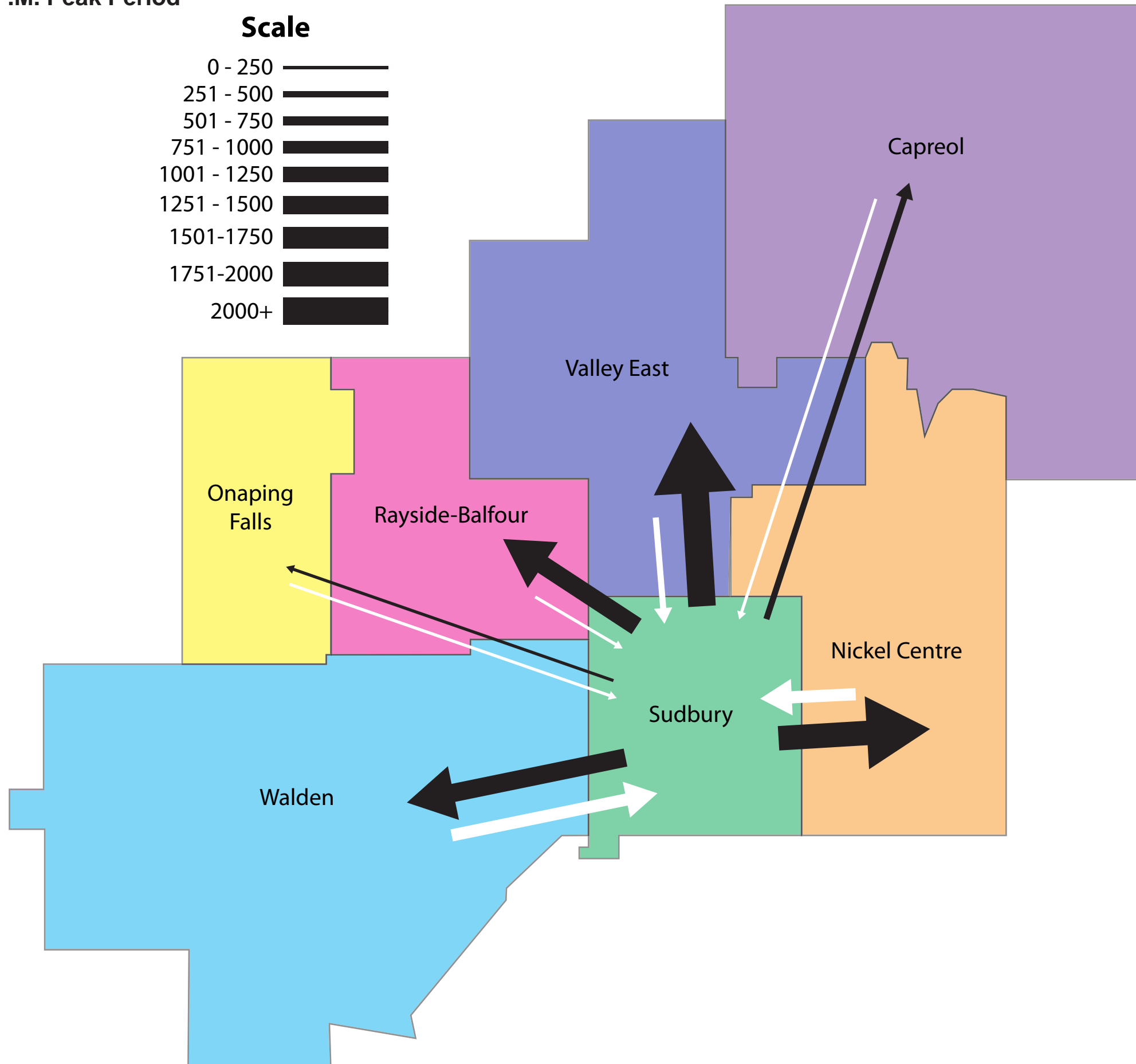
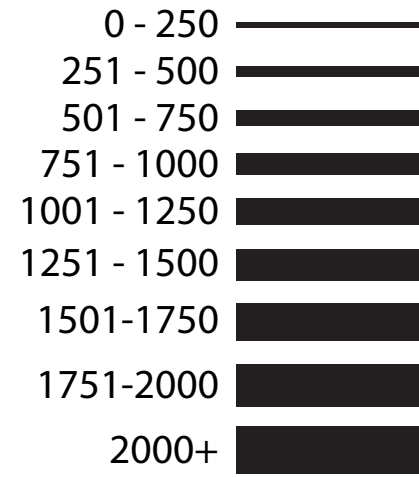
The map diagram in **Figure 44** shows trips to and from the former City of Sudbury. The thickness of the arrows is proportional to the traffic volumes into and out of the former City of Sudbury. Similarly, the bars to the right of the figure represent the internal trips within each area.

Table 39 summarizes the characteristics of the major traffic flows leaving Sudbury bound for the surrounding areas in the 'Sustainability Focused' alternative. It also identifies the main positive and negative impacts of the proposed projects on the ability of the road network to support these movements.



P.M. Peak Period

Scale



Internal Trips

Legend

Direction of Trips

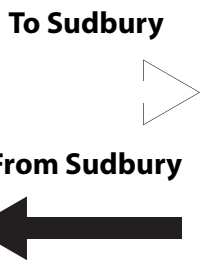


Figure 44
Key Traffic Flows -
'Sustainability Focused'
Alternative



Table 39: Characteristics of Traffic Flow Leaving the Sudbury City Centre – 'Sustainability Focused'

DESTINATION	FLOW CHARACTERISTICS	POSITIVES	NEGATIVES
Valley East	An increase in trip volumes of 20% is expected compared to the 'Do Nothing' case. However, flows are 20% lower than the 'Auto Focused' alternative given the absence of the Barry Downe Road extension in this basket of proposals. Trips to Capreol passing through Valley East are predicted to increase by around 50% compared to the 'Do Nothing' alternative, however they represent a much lower volume.	Despite the lack of an alternative direct north-south route between Sudbury and Valley East, volumes along Notre Dame Avenue south of Lasalle Boulevard are lower in this alternative than with the 'Auto Focused' alternative where the Barry Downe Road extension is proposed as an alternative.	M.R. 86 is more congested northeastbound, particularly on Falconbridge Highway between Spruce Street and Longyear Drive, compared to the 'Auto Focused' alternative in which the Barry Downe Road extension would be available.
Nickel Centre	The volume is expected to be similar to the 'Do Nothing' alternative and slightly higher than the 'Auto Focused' alternatives.	<p>Congestion on the Falconbridge Highway south of Garson will be reduced by the proposed widening of that road and the availability of new alternative routes such as the Garson connection and Highway 17. The latter relieves the congestion on the existing Trans-Canada Highway to the east of Sudbury.</p> <p>The v/c ratio on the section of Falconbridge Road between Lasalle Boulevard and Maley Drive will reduce compared to the 'Do Nothing' alternative as vehicles instead use Maley Drive, which will become a thoroughfare by virtue of its planned extension to the west.</p>	<p>Due to the potential for congestion as mentioned above, M.R. 86 should be monitored as plans to expand the airport are developed and implemented. Widening should be considered where required at a future date, which may be beyond the 2031 horizon.</p> <p>The Southeast Bypass is projected to be congested. The Trans-Canada Highway improvements also attract additional volumes leaving Sudbury. Although the impact of this will be partially mitigated by the proposed widening of sections of both routes, the volume/capacity ratio will increase on the Kingsway between Lloyd Street and Barry Downe Road, where widening is not feasible due to right-of-way constraints, as well as on routes connecting to downtown Sudbury such as Van Horne Street.</p>



DESTINATION	FLOW CHARACTERISTICS	POSITIVES	NEGATIVES
Rayside-Balfour	Northwestbound traffic is channelled along Municipal Road 35. The number of trips from Sudbury to Rayside-Balfour is projected to be 20% more than the 'Do Nothing' case and approximately 25% less than in the 'Auto Focused' alternative.	In the existing conditions, capacity is constrained at Azilda west of Notre Dame Street East where the four-lane highway reduces to two lanes. The proposed widening of this section of M.R. 35 removes this geometric pinch point and is a key factor in attracting the additional trips from Sudbury.	Although the highest volume/capacity ratio in the section to be widened is lower in the 'Auto Focused' alternative than in the 'Do Nothing' case, it is still over the critical 0.8 threshold. Also, the additional traffic pushes the approach to the section proposed to be widened over capacity. However, as the number of trips from Sudbury to Rayside-Balfour is less than in the 'Auto Focused' alternative, so too is the predicted volume/capacity ratio.
Walden	Trips to this area from the southwest of Sudbury are distributed between M.R. 55 and the Trans-Canada Highway (17). There is a marginal decrease in the predicted trips from Sudbury, comparable to that associated with the 'Auto Focused' alternative.	In general, vehicles from downtown Sudbury will use M.R. 55 and journeys originating in southern Sudbury will follow the Trans-Canada Highway. However, there is flexibility for balancing of flows between the two routes whereas drivers heading to most of the communities around Sudbury only have one route option available.	M.R. 55 is approaching capacity east of Balsam Street, where traffic joining from Copper Cliff and Gatchell will cause an increase in the volume/capacity ratio. The Trans-Canada Highway between Southview Drive and M.R. 55 is also operating at a volume/capacity ratio over 0.8.



Similarly, **Table 40** summarizes the characteristics of the major traffic flows entering the Sudbury city centre from the surrounding areas in the 'Sustainability Focused' alternative. It also identifies the main positive and negative impacts of the proposed projects on the performance of the road network in the p.m. peak hour.

Table 40: Characteristics of Traffic Flow Entering the Sudbury City Centre – 'Sustainability Focused'

ORIGIN	FLOW CHARACTERISTICS	POSITIVES	NEGATIVES
Valley East	As this alternative does not include the Barry Downe Road extension, the volumes for this movement are significantly less than those associated with the 'Auto Focused' alternative.	Widening of M.R. 80 provides additional capacity to accommodate demand.	No issue.
Nickel Centre	A small increase in traffic is anticipated compared to the 'Do Nothing' alternative, however volumes are expected to be similar to those for the 'Auto Focused' alternative.	The road improvements proposed on the east side of the Sudbury city centre have sufficient capacity to manage volumes into New Sudbury and the eastern side of the City of Greater Sudbury.	Entering the downtown, the same constraints exist on the Kingsway and Van Horne Street as for travel flows out of Sudbury.
Rayside-Balfour	A significant but manageable increase in Sudbury-bound traffic is expected following the partial widening of M.R. 35.	Widening of M.R. 35 provides additional capacity to accommodate demand.	No issue.
Walden	The volumes for this movement are comparable to the 'Do Nothing' alternative and less than for the 'Auto Focused' alternative.	As with the flow out of Sudbury, the distribution of trips between the Trans-Canada Highway (17) and M.R. 55 gives flexibility. The Trans-Canada Highway (17) is expected to operate well.	M.R. 55 is at capacity east of Balsam Street, where traffic joining from Copper Cliff and Gatchell will cause an increase in the volume/capacity ratio.

Major travel flows within the Sudbury city centre include:

- Commuter and commercial trips between New Sudbury and the remainder of the City. These add to demand on the Kingsway, Lasalle Boulevard, and other links;
- Traffic on Paris Street to and from Laurentian University and Health Sciences North. The South Bay Road extension would give university traffic to and from southern Sudbury and the highway network an alternative route. This would relieve some of the congestion on the only existing route, Paris Street, immediately south of Ramsey Lake Road; and
- Commercial and retail trips to the Paris Street/Long Lake Road/Regent Street intersection, known locally as the Four Corners.

Although some movements within Greater Sudbury but not starting or ending in the City of Sudbury are expected to see significant percentage increases, the volumes are still relatively low. The same movements dominate as in the existing conditions: between Valley East and Rayside-Balfour on M.R. 15, and heading into Valley East along the Radar Road / Skead Road corridor from Nickel Centre.



For the communities surrounding the Sudbury city centre, traffic flows that remain within the same area are lower than in the 'Do Nothing' alternative but the overall predicted decrease is less than that expected for the 'Auto Focused' alternative. Although Nickel Centre, Walden and Valley East can still expect a reduction of around 40%, the predicted decline is 30% for Rayside-Balfour. This indicates that although the proposed improvements to the roads linking the Sudbury city centre to the surrounding areas will encourage existing and future residents to commute over greater distances, the effect is tempered compared to the 'Auto Focused' alternative.

The majority of roadway sections that have been identified as having a volume/capacity ratio of greater than 0.8 in the 'Sustainability Focused' case are also highlighted in the 'Auto Focused' alternative. They are listed below and are shown in red in **Figure 45**, **Figure 46** and **Figure 47**, which uses the same Level of Service designations as shown in **Table 32**:

- Highway 144 westbound between Edward Avenue and M.R. 15;
- M.R. 35 westbound between M.R. 15 and Montée Principale, and Marier Street to Lasalle Boulevard;
- Falconbridge Highway between Maley Drive and Donnelly Drive, and between Garson Coniston Road and Longyear Drive;
- Skead Road between Longyear Drive and Radar Road;
- M.R. 55 between Balsam Street and Big Nickel Drive;
- Elm Street between Lasalle Boulevard and Big Nickel Drive, between Ethelbert Street and Durham Street, and between Lisgar Street and Notre Dame Avenue;
- Lasalle Boulevard between Boreal College and Maley Drive extension;
- The Kingsway between Lloyd Street and approaching Falconbridge Road;
- Silver Hills Drive southern portion connecting to Bancroft Drive;
- Hawthorne Drive extension from Montrose Avenue to Notre Dame Avenue;
- Westmount Avenue / Attlee Avenue between Hawthorne Drive and Barry Downe Road;
- Van Horne Street in both directions between Paris Street and Howey Drive;
- Ste. Anne Road / Mackenzie Street from Ignatius Street to Baker Street;
- Centennial Drive extension between Paris Crescent and South Bay Road;
- Paris Street between Ramsey Lake Road and Van Horne Street;
- Beatty Street between Elm Street and Kathleen Street;
- Regent Street between Victoria Street and Elm Street;
- Southview Drive between Cranbrook Crescent and Regent Street;
- Lorne Street between Regent Street and Douglas Street;
- Hawthorne Drive extension east of Notre Dame Avenue;
- Radar Road between Guenette Drive and Cote Boulevard;
- Church Street in Garson north of Falconbridge Highway; and
- Highway 144 between the Trans-Canada Highway (17) and Highway 24.



Figure 45: Volume to Capacity Plots - Sustainability Focused (Overview)

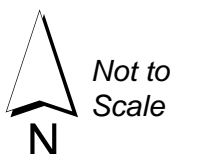
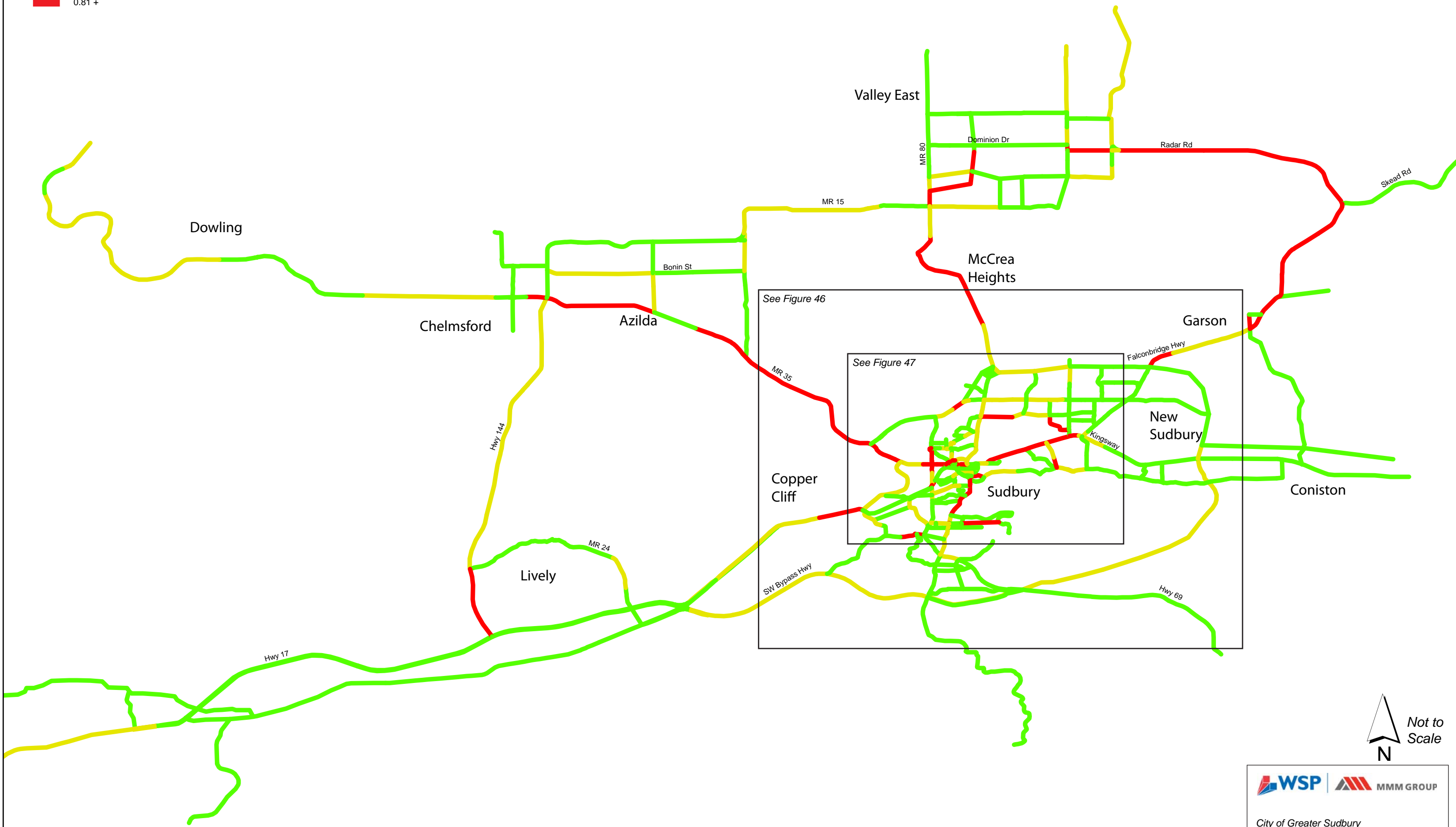
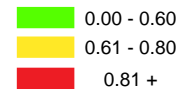


Figure 46: Volume to Capacity Plots - Sustainability Focused (Intermediate Zoom)

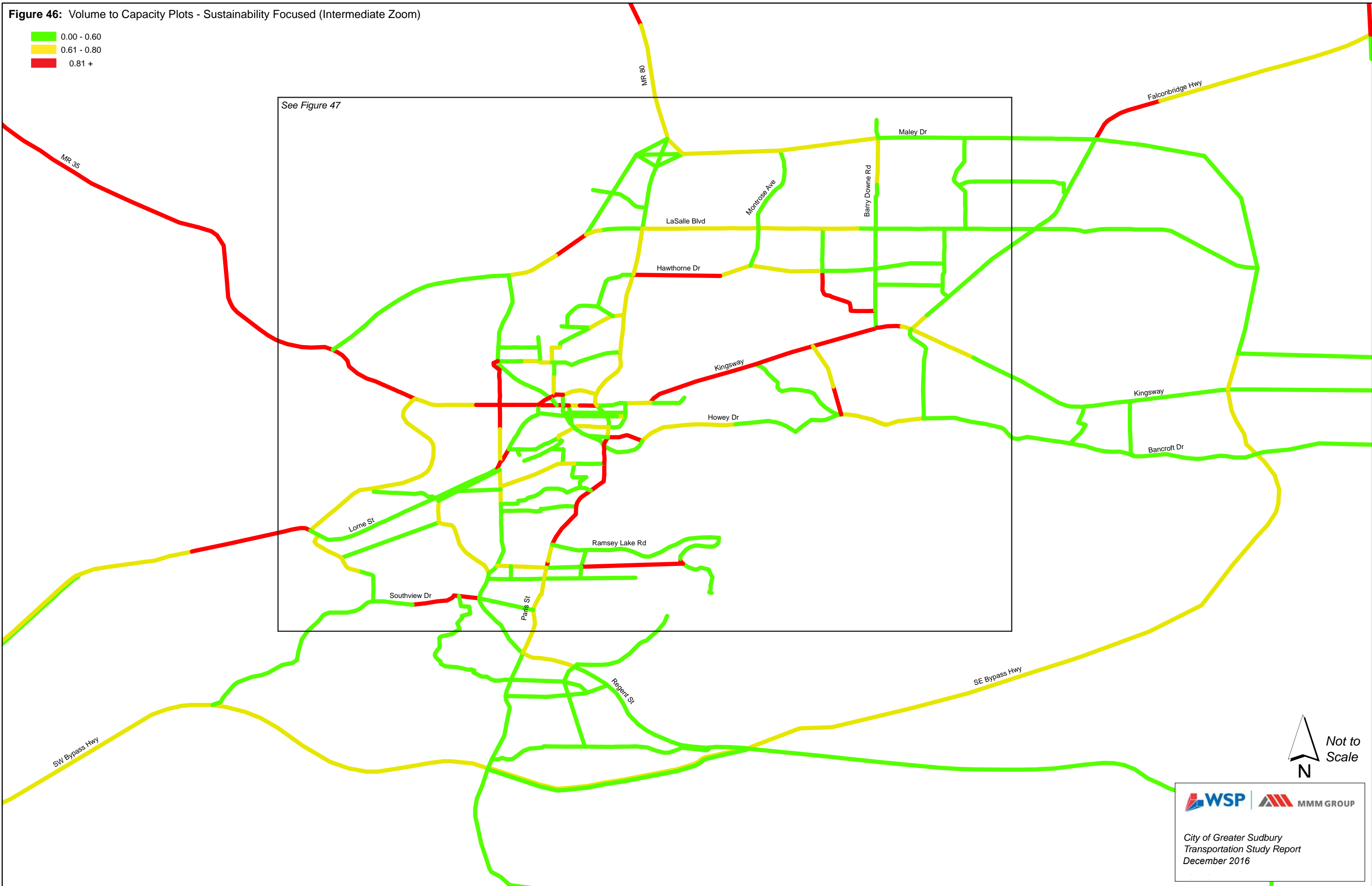
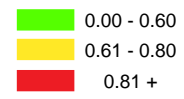
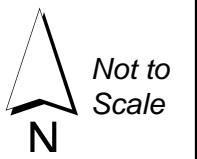
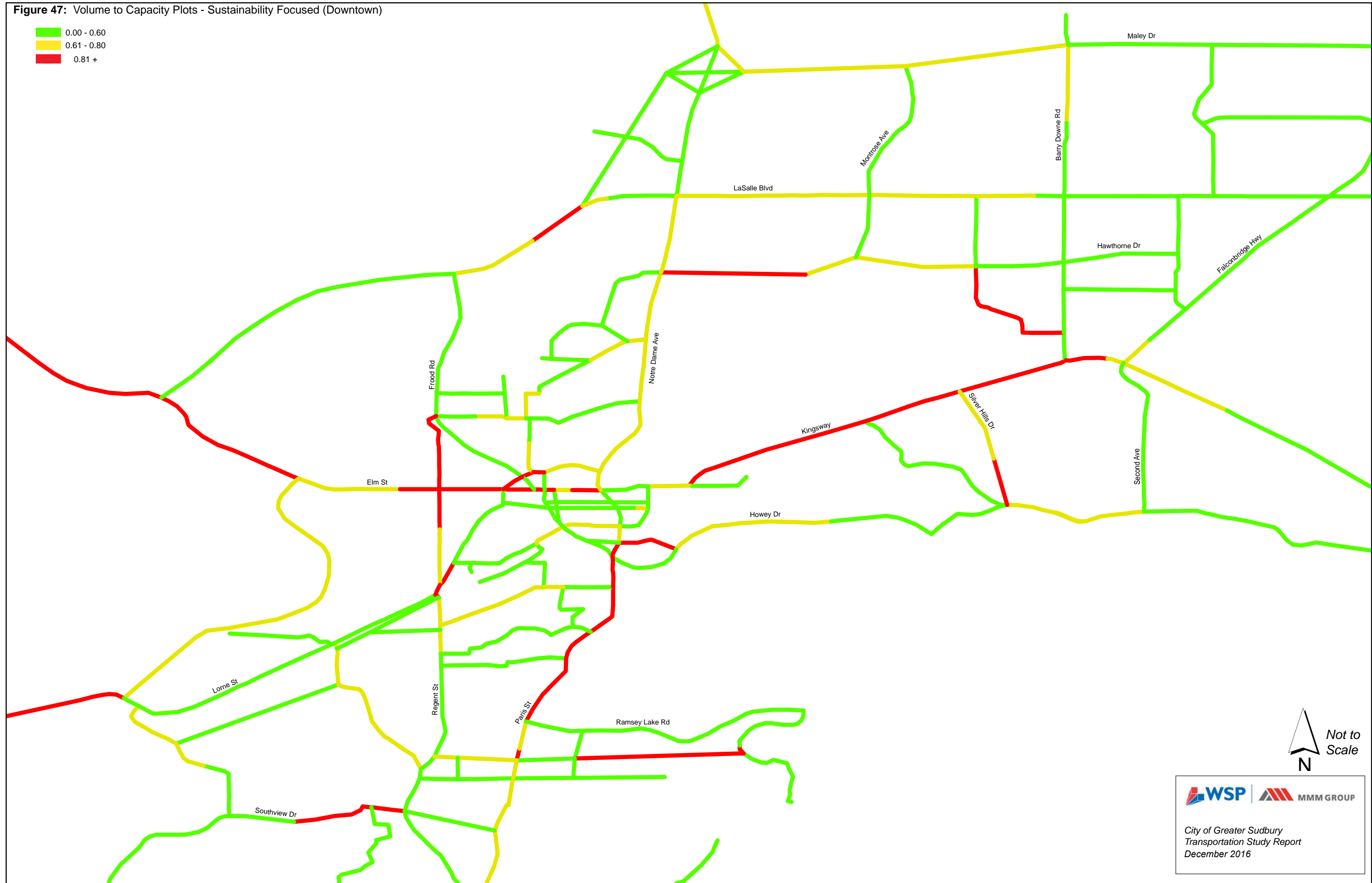
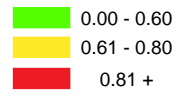


Figure 47: Volume to Capacity Plots - Sustainability Focused (Downtown)

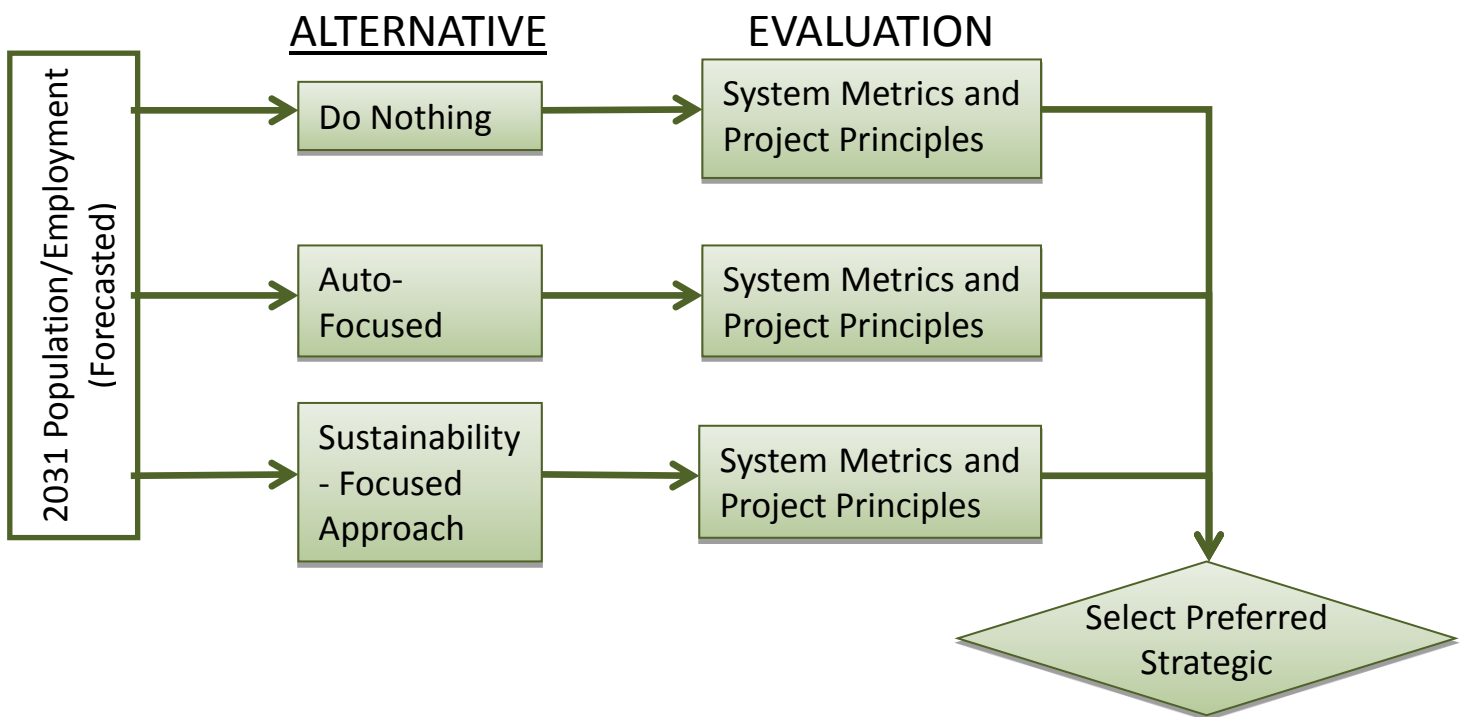


8.4 Process for Alternatives Analysis

In addition to the analysis above, the evaluation of each alternative considered system metrics related to network performance, such as: volume to capacity ratio; vehicle kilometres traveled; vehicle hours traveled and cost. There was also an assessment of the extent to which each alternative satisfies the principles defined for the project. In the City of Greater Sudbury’s case, these are: healthy communities, sustainability and economic vitality.

Based on the evaluation, the preferred strategic alternative was selected. The next step involved a refinement and selection of the specific projects to be included in the preferred network. The process for analyzing the alternatives is shown in **Figure 48**.

Figure 48: Alternatives Analysis



8.5 Evaluation Framework

An evaluation framework was developed to analyze the three alternatives based upon system metrics extracted from the travel demand model as well as quantitative and qualitative measures related to the project principles.

8.5.1 Project Principles Evaluation

Project principles were developed in consultation with the public and key stakeholders to consider other factors aside from those reported by the travel demand model. These principles form evaluation criteria and can be quantitative such as vehicle kilometres traveled or new kilometres of bike lanes, or qualitative such as increased connectivity or protection of environmentally-sensitive areas. They guide the evaluation of the alternatives and the selection of the preferred solution. The set of study-specific principles were developed through a review of:



- The City’s 2005 Transportation Study Report and other related planning documents;
- Sustainable transportation principles developed by other agencies, such as Transport Canada, and the National Cooperative Highway Research Program; and
- Input received during the public consultation sessions held in the City on January 11, 2012 and June 19, 2013.

The set of Principles developed for this project recognizes the strong connection between transportation, healthy communities, a sustainable natural environment, and economic vitality. They also recognize the need to develop meaningful ways to engage the public in the planning process and to foster cooperation and coordination.

The project principles are to:

- Relieve congestion;
- Enhance network connectivity;
- Protect the environment; and
- Relative cost efficiency.

Goals and objectives were developed for each principle along with key performance measures that could be used to consider how the alternative addressed them for each of the three alternatives. These are shown in **Table 41** along with the key performance indicators; those that may be obtained from modelling outputs are shown in bold. The remainder should be monitored on an ongoing basis.



Table 41: Project Principles Evaluation Framework

Principle	Goals	Objectives	Key Performance Measure for Alternatives Analysis	Healthy communities	Sustainability	Economic vitality
Enhance Network Connectivity	<ul style="list-style-type: none"> • Create a transportation network which offers more direct routings 	<ul style="list-style-type: none"> • Providing more direct routings and increasing the number of routing options available. In this way, the average distance travelled between given points in the network is reduced for all road users, be they drivers, transit riders or cyclists • Each transportation trip begins and ends with a pedestrian trip hence active transportation network connectivity will promote an active lifestyle and community well-being 	<ul style="list-style-type: none"> • Mean trip length / Vehicle Kilometres Travelled (VKT) • Amenities within walking distance of residential and employment centres 	✓	✓	
Congestion relief and truck/commuter accessibility	<ul style="list-style-type: none"> • Integrate transportation and land use planning • Implement and Support Transportation Demand Management Initiatives 	<ul style="list-style-type: none"> • Integrating transportation planning into an urban form that is compact, mixed-use and creates a sense of community • Transportation planning as one component of a growth management system that also includes human services, the environment, the economy and fiscal capacity • Reducing single-occupant vehicle trips and promoting a preference for sustainable transportation choices by providing more reliable and convenient alternative modes of travel • Improving truck access to high capacity and high speed roads for efficient goods movement 	<ul style="list-style-type: none"> • Self-containment in existing Urban Area • Mean trip travel time / Vehicle Hours Travelled (VHT) • Average vehicle occupancy • Inclusion of improvements that support higher vehicle occupancy (e.g. queue jump lanes, HOV lanes) • Access to high capacity and high speed roads for trucks • Capacity constraints along truck corridors 		✓	✓



Principle	Goals	Objectives	Key Performance Measure for Alternatives Analysis	Healthy communities	Sustainability	Economic vitality
Protect Environment	<ul style="list-style-type: none"> Protect and enhance our environment and cultural heritage 	<ul style="list-style-type: none"> Protect, restore and enhance the natural environment through integrated growth, system planning, and advanced construction and operations practices Respect and protect its cultural heritage, particularly with regard to First Nations 	<ul style="list-style-type: none"> Estimate of road construction avoided (lane-km) in environmentally sensitive areas 		✓	
Relative Cost Efficiency	<ul style="list-style-type: none"> Support our economic well-being Ensure fiscal sustainability and equitable funding Implement and Support Transportation Supply Management Initiatives 	<ul style="list-style-type: none"> Ensuring that its transportation systems support economic development Providing full cost accounting for all transportation infrastructure projects and services Achieving value-for-money in delivering transportation services Managing its transportation system in an efficient and cost-effective, socially and environmentally responsible manner Improving travel connections between communities and major urban areas within the municipality 	<ul style="list-style-type: none"> Overview comparison of capital and operating costs for road improvements to costs of sustainable network improvements and other programs and services Length of new roadway required per additional resident 			✓



8.5.2 System Metrics Evaluation

System metrics extracted from the travel demand model included:

- Vehicle Kilometres Travelled (VKT) in the peak hour;
- Vehicle Hours Travelled (VHT) in the peak hour;
- Daily VKT per Capita;
- Daily VHT per Capita;
- Lane kilometres with volume to capacity ratios greater than 0.9; and
- Percentage of lane kilometres that are congested ($v/c > 0.9$); and
- Average travel time in the peak hour.

The results of the evaluation by each of the metrics are reported for each alternative in **Table 42**. Relevant project and transportation principles are shown as identified in **Section 8.5.1**.

Table 42: Transportation Alternatives Analysis Using System Metrics

Metric	Alternative			Relevant Project Principles	Relevant Transportation Principle(s)
	Do Nothing	Auto Focused	Sustainability Focused		
Vehicle Kilometres Traveled (VKT) – Peak Hour	450,527	528,673	511,939	<ul style="list-style-type: none"> • Enhance Network Connectivity • Protect Environment 	<ul style="list-style-type: none"> • Healthy Communities • Sustainability
Vehicle Hours Traveled (VHT) – Peak Hour	7,476	5,451	5,190		
Daily VKT per Capita	33.37	39.16	37.92	<ul style="list-style-type: none"> • Relieve Congestion • Protect Environment 	<ul style="list-style-type: none"> • Sustainability • Economic Vitality
Daily VHT per Capita	0.55	0.40	0.38		
Lane kilometres with volume to capacity (v/c) ratios greater than 0.9	48.1	61.7	64.2	<ul style="list-style-type: none"> • Relative Cost Efficiency 	<ul style="list-style-type: none"> • Economic Vitality
Percentage of lane kilometres that are congested ($v/c > 0.9$)	3.8%	4.1%	4.5%		
Average Travel Time – Peak Hour	46.1	17.7	25.4	<ul style="list-style-type: none"> • Enhance Network Connectivity • Relieve Congestion 	<ul style="list-style-type: none"> • Sustainability • Economic Vitality

While the ‘Do Nothing’ alternative shows fewer daily vehicle kilometres travelled (VKT) per capita than the ‘Auto Focused’ or ‘Sustainability Focused’ alternatives, the daily vehicle hours travelled (VHT) is much higher. This shows that in the absence of new road projects, congestion will increase and people will spend more time in traffic.

In the ‘Sustainability Focused’ alternative, the number of vehicle kilometres traveled and the vehicle hours traveled (both in per capita and absolute terms) is lower than for the ‘Auto Focused’ alternative, indicating that residents are commuting over shorter distances on average and are more likely to stay within their home area. They also are spending less time on the



road. Although the absolute number of vehicle hours travelled is higher in the 'Sustainability Focused' alternative than in the 'Do Nothing' alternative, the vehicle hours traveled is less.

Congested lane kilometres is greatest in the 'Sustainability Focused' alternative, however, the percentage of lane kilometres that is congested, 4.5%, is a very small percent of the overall road network.

The Sustainability Focused alternative balances road investments and achieves reasonable average travel times in the p.m. peak hour. This alternative exhibits the lowest number of vehicle hours traveled per capita of the three alternatives and exhibits fewer vehicle kilometres traveled and vehicle hours traveled than the Auto Focused alternative. Implementation of the Sustainability Focused alternative would be expected to result in the best overall network performance.

The analysis of Project Principles favours the 'Sustainability Focused' alternative. This alternative has been designed with the Project Principles in mind and scores "Supportive" on almost all of the evaluation criteria shown in **Table 43**.



Table 43: Evaluation of Transportation Planning Alternatives

Principle	Criterion Goal	Transportation Planning Alternative					
		Alternative 1 – Do Nothing		Alternative 2 – Auto Focused		Alternative 3 – Sustainability-Focused	
Relieve Congestion	Integration of transportation and land use planning.	3	Not supportive – no new transportation investments to support changes in land use.	2	Transportation planning would be focused on land uses reliant on the personal automobile.	1	Supportive – land use and transportation decisions would be made hand-in-hand.
	Implementation and Support of Transportation Demand Management (TDM) Initiatives.	3	Not supportive – new TDM initiatives would not be developed.	2	Some TDM measures could be adopted, but would not be considered a major component of future mobility.	1	Supportive – TDM would be an integral part of future transportation solutions.
Enhance Network Connectivity	Increasing the number of routing options available such that the average distance travelled between given points in the network is reduced.	3	Not supportive – no new transportation investments to improve access and mobility.	1	All of the proposed additional road links would be implemented.	2	Many of the proposed additional road links would be implemented.
	Provision of access and mobility for everyone by putting pedestrians, cyclists and transit first.	3	Not supportive – pedestrian and transit systems remain as-is with no future investments to provide new links or enhance / expand service networks.	3	Pedestrians, cyclists and transit second, behind cars, in terms of the focus of the improvements program.	1	Supportive – emphasis on “complete streets” with balanced investments for all users. Pedestrian and transit systems are key to a sustainability-focused transportation system.
Protect Environment	Protection and enhancement of our environment and cultural heritage.	1	A lack of new investments in transportation infrastructure would limit further encroachment on the environmental and cultural heritage; however, future congestion could result in worsening air quality, which would have a negative effect on the environment.	2	Continued road widening and new road construction could encroach on environmentally and culturally-sensitive lands.	2	Seeks to maintain the integrity of the environmental and cultural heritage with a focus on sustainable development of transportation and land use.
	Adoption of energy efficient (Carbon Neutral) transportation systems.	3	Not supportive, transportation systems will become more congested without investments in infrastructure. The added congestion will lead to increased emissions from cars, trucks and buses.	2	This alternative could ease congestion but could also contribute to a higher number of vehicle kilometres travelled (VKT).	1	Supportive – balanced focus between private vehicles and active transportation provides options to travel in ways that reduce a person’s carbon footprint.
Relative Cost Efficiency	Supporting our economic well-being.	3	Not supportive, mobility will be hampered by a lack of investment in transportation infrastructure.	1	Supports economic industries reliant on the automobile.	2	Supportive – provides transportation investments to support the economy.
	Ensuring fiscal sustainability and equitable funding.	1	No funding needed for transportation investments.	3	Funding would focus on roads and improvements for vehicles, with a lesser emphasis on alternative modes of transportation.	2	Supportive – costs associated with road building are less than the ‘Auto Focused’ alternative and funding would be distributed to support a variety of modes of transportation.
	Implementation and Support of Transportation Supply Management Initiatives.	2	No funding needed for transportation supply management initiatives.	2	Funding would focus on providing auto-focused transportation supply.	1	Supportive – a balance would be sought to provide funding for a multi-modal transportation network.
Overall		22		18		13	

Evaluation Ranking System:

1 = Supportive; 2 = Somewhat supportive; 3 = Not supportive



8.5.3 Discussion of Residual Congested Road Links

Even with the implementation of the projects in the recommended ‘Sustainability Focused’ alternative, some links are predicted to operate with a volume-to-capacity ratio over 0.8. This is generally due to the topographical constraints associated with Sudbury’s rugged terrain, which limits the number of available and potential entry points into the Sudbury city centre. The physical barrier formed by Ramsey Lake also funnels trip from the southern section of the city through the constrained downtown core. In some cases, there are mitigating measures that may be considered beyond the year 2031.

In both the ‘Do Nothing’ and ‘Sustainability Focused’ alternatives, the heaviest movement between areas is from the former City of Sudbury to Nickel Centre. The most direct route for those leaving or passing through the downtown core will include one of the following road sections:

- Notre Dame Avenue between Elm Street and Kathleen Street;
- The Kingsway between Fabbro Street and Falconbridge Road; or
- Van Horne Street and Howey Drive between Paris Street and Bancroft Drive.

The widening of each of these three road sections is restricted by the presence of buildings, rocky outcrops or both. The construction costs and consultation requirements associated with improvements at these pinch points are significant and potentially prohibitive. Each of these sections exhibits a volume/capacity ratio over 0.8 in all future alternatives tested. The route along Elgin Street and Howey Drive is a fourth option, however it is less direct and has limited connectivity due to grade separations at Paris Street and Brady Street.

For the movement that is expected to show the second-highest volume, northbound from the former City of Sudbury to Valley East, the only direct option for leaving downtown Sudbury is via the aforementioned section of Notre Dame Avenue between Elm Street and Kathleen Street. To the west is M.R. 38 (Beatty Street and Regent Street) which is the only direct north/south route outside of the downtown core.

Elm Street connects the Sudbury city centre to Rayside-Balfour to the northwest and, along with Beatty Street and Regent Street, is predicted to have a volume-to-capacity ratio over 0.8 in the vicinity of their intersection. Opportunities for widening are limited due to restricted roadway width and the proximity of the property line to the back of the sidewalk.

There are two ways to reduce volume/capacity ratios: if increasing capacity is not feasible, this may be achieved by reducing traffic volumes. Encouraging active transportation, as outlined in **Section 9**, will have an effect. However, it is not anticipated that the numbers of drivers transferring to cycling and walking modes will be sufficient on its own. Consequently, it is recommended that a Transit Master Plan study be undertaken to investigate opportunities and quantify the potential benefits of improved public transit for the transportation network as a whole.

8.5.4 Intersection Capacity Analysis for the Preferred Transportation Alternative

Traffic operations for the same intersections analyzed in existing conditions in **Section 3** were also analyzed for the 2031 horizon year to determine the forecast future levels of service during the weekday p.m. peak hour based on the preferred ‘Sustainability Focused’ alternative. This



analysis was undertaken to determine if any of the intersections may experience congestion beyond current levels, if any intersections should be monitored in the coming years and if any intersection improvements might need to be considered for implementation. Turning movement volumes were estimated by applying the Furness method to projected 2031 model link volumes. The results of the intersection capacity analysis are summarized in **Table 44**. The overall level of service for each intersection is reported. Any movements with a forecast volume to capacity ratio of 0.85 or greater are highlighted. These movements are forecast to be approaching capacity and, in some instance, over capacity in the year 2031.

Table 44: LOS Results – 2031 Sustainability Focused Alternative

Intersection	Control Type	P.M. Peak Hour	
		LOS (Delay in seconds)	Critical Movements (v/c)
Main Street at M.R. 80	Signalized	C (27)	NB-L (0.86)
Lasalle Boulevard at Barry Downe Road	Signalized	C (28)	--
The Kingsway at Barry Downe Road	Signalized	D (36)	--
The Kingsway at Silver Hills Drive	Signalized	B (10)	--
The Kingsway at Bancroft Drive	Signalized	B (16)	--
Bancroft Drive at Second Avenue	Signalized	B (17)	--
Lloyd Street at Brady Street	Signalized	B (17)	--
Lloyd Street/Elm Street at Notre Dame Avenue/Paris Street	Signalized	E (65)	EB-L (1.53) NB-T (0.85)
<i>Lloyd Street/Elm Street at Notre Dame Avenue/Paris Street (Improved)</i>	<i>Signalized</i>	<i>E (60)</i>	<i>EB-L (1.35)</i> <i>SB-L (1.15)</i>
Paris Street at Brady Street	Signalized	D (48)	EB-L (1.06) EB-T (0.89) WB-L (1.03)
<i>Paris Street at Brady Street (Improved)</i>	<i>Signalized</i>	<i>D (44)</i>	<i>EB-L (0.88)</i> <i>EB-T (0.86)</i> <i>WB-L (0.88)</i> <i>NB-L (1.05)</i>
Douglas Street at Regent Street	Unsignalized	F (162)	WB-L (0.42) NB-LTR (1.07) SB-LTR (1.25)
<i>Douglas Street at Regent Street (Improved)</i>	<i>Signalized</i>	<i>B (12)</i>	--
Ramsey Lake Road at Paris Street	Signalized	C (29)	WB-R (0.94)
Regent Street at Paris Street Intersection (Four Corners)	Signalized	D (38)	--
M.R. 24 at M.R. 55	Signalized	C (25)	--



The majority of the intersections analyzed are anticipated to operate at acceptable levels of service (LOS D or better). For most intersections, it is expected that reserve capacity will be available and that there will be no critical movements (volume/capacity > 0.85).

It is recognized that the traffic volumes used in this analysis were derived from a combination of existing traffic volumes and the traffic volumes reported in the strategic model for the preferred 2031 transportation alternative. A limiting factor of the model is that only major roads are represented, therefore, volumes at major intersections could see additional volume that would otherwise actually be captured by a nearby minor intersection not included in the model. Where traffic congestion is reported, no physical improvements, such as dual left turn lanes, are recommended at this time. Intersections with reported deficiencies should be monitored by the City through regularly scheduled traffic counts in order to determine whether or not physical improvements are needed in the future.

The intersection of Lloyd Street/Elm Street at Notre Dame Avenue/Paris Street is projected to operate at LOS E with the eastbound left-turn movement over capacity. An alternate scenario was analyzed where the signal timings were optimized by adjusting the green time splits, while keeping the cycle length at 110 seconds. In this improved scenario, the average vehicle delay is reduced by 10 seconds, however, the eastbound left-turn is still projected as over capacity. No physical improvements are recommended at this time; however, signal timing optimization and further monitoring of the intersection is warranted.

At the intersection of Paris Street at Brady Street, it is expected that multiple movements will be over capacity with the overall intersection operating at LOS F. An improved scenario was analyzed which included signal timing optimization. In the alternate scenario, the intersection is anticipated to operate at LOS E with the average delay per vehicle reducing by 25 seconds. However, the eastbound through and northbound left-turn movements would still be expected to operate over capacity. Future monitoring of these movements is warranted. It is recommended that signal timing optimization be performed.

The Douglas Street at Regent Street intersection is anticipated to operate at LOS F with multiple critical movements. The intersection was analyzed with a traffic signal, following the timing of the adjacent intersection of Lorne Street at Regent Street, improving the expected operation to LOS B with no critical movements. As previously mentioned in Section 2.2.6 regarding existing conditions, a signal is still warranted at the intersection for future conditions based on the methodology from Book 12 of the Ontario Traffic Manual. It is recommended that the intersection of Douglas Street at Regent Street be signalized to mitigate anticipated capacity concerns.

8.6 Recommended 2031 Road Network of the Preferred Transportation Alternative

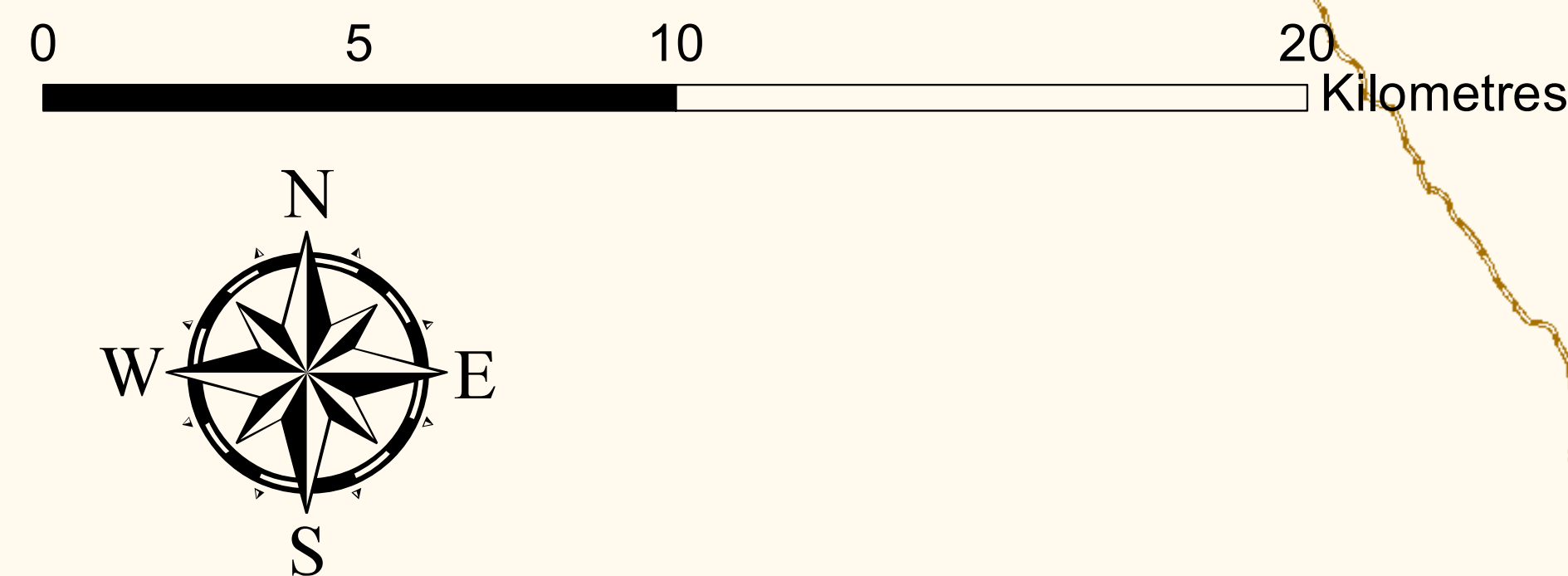
The preferred transportation alternative is presented graphically in one city-wide map and four maps zoomed in to specific parts of the city. The maps include:

- **Figure 49:** Recommended 2031 Road Network;
- **Figure 50:** Downtown Enlargement;
- **Figure 51:** New Sudbury Enlargement;
- **Figure 52:** South End Enlargement; and
- **Figure 53:** Enlargement Areas.



Legend

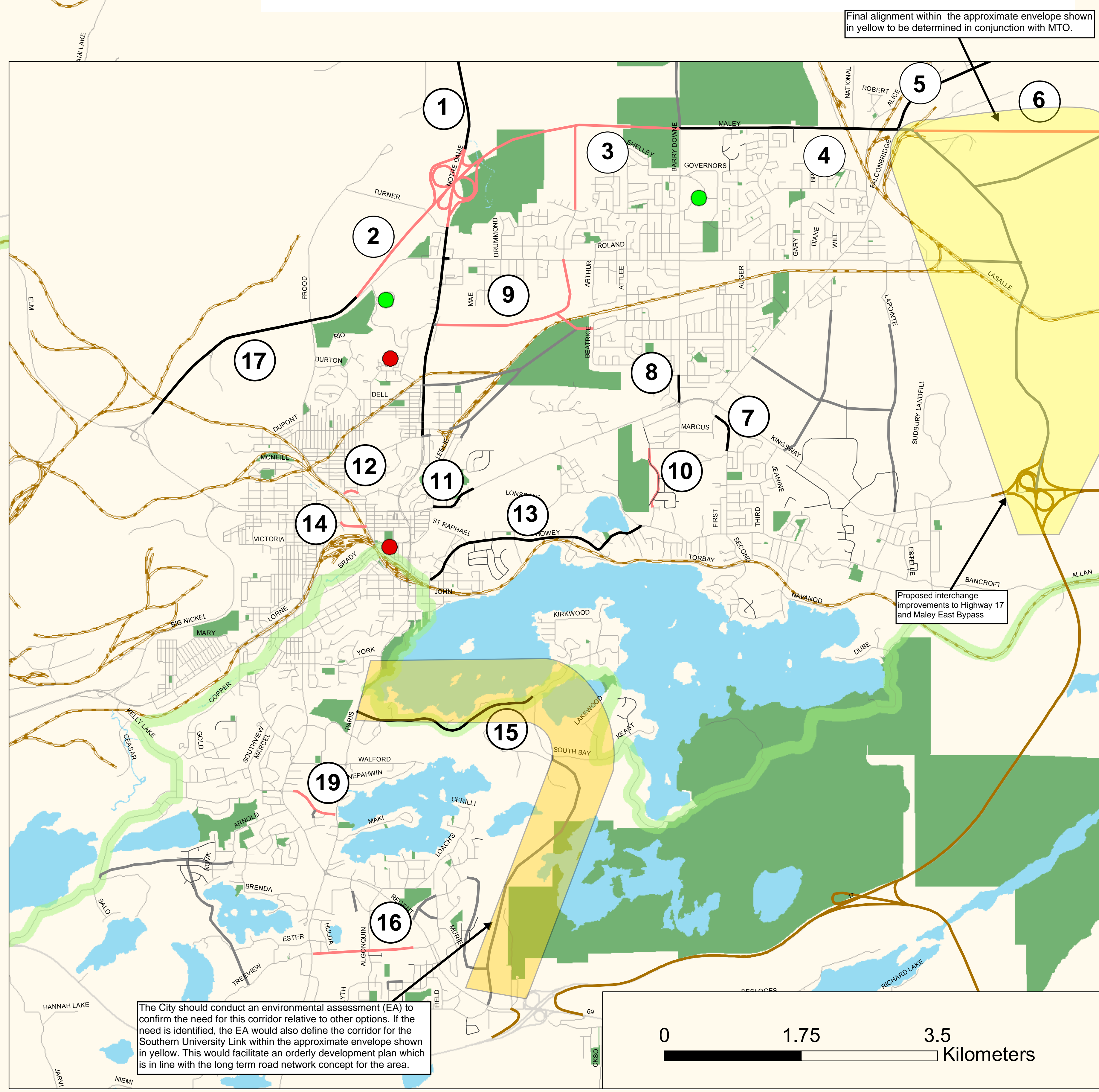
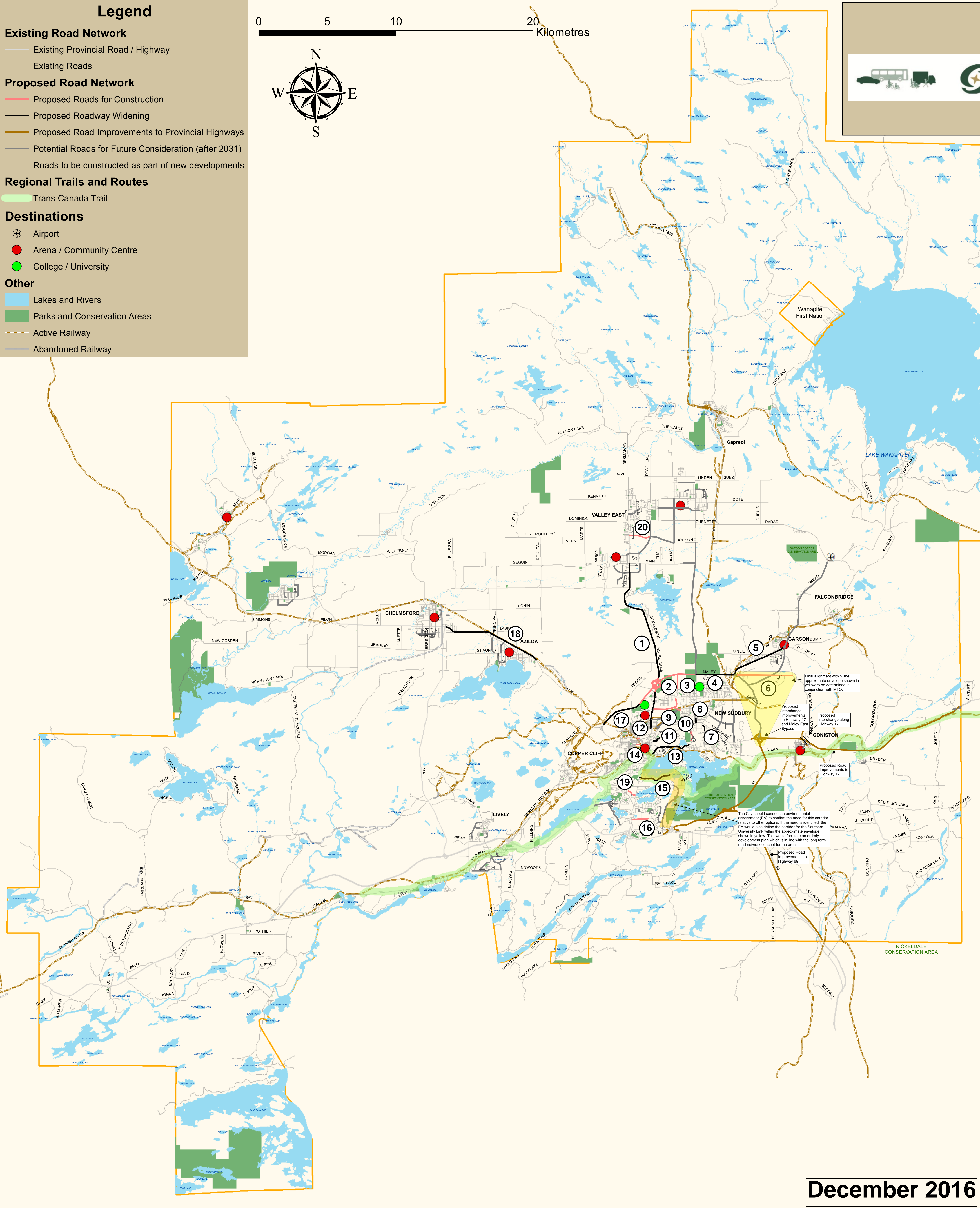
- Existing Road Network**
 - Existing Provincial Road / Highway
 - Existing Roads
- Proposed Road Network**
 - Proposed Roads for Construction
 - Proposed Roadway Widening
 - Proposed Road Improvements to Provincial Highways
 - Potential Roads for Future Consideration (after 2031)
 - Roads to be constructed as part of new developments
- Regional Trails and Routes**
 - Trans Canada Trail
- Destinations**
 - Airport
 - Arena / Community Centre
 - College / University
- Other**
 - Lakes and Rivers
 - Parks and Conservation Areas
 - Active Railway
 - Abandoned Railway



**Figure 49
Greater Sudbury
Transportation Study
Recommended 2031 Road Network**

List of Proposed Road Network Improvements

1. Notre Dame Ave. widening (4-lane to 6-lane, Main St. to Kathleen St.)
2. Maley Dr. extension (Lasalle Blvd. to Barry Downe Rd.)
3. Montrose Ave. north extension (current terminus to Maley Dr. extension)
4. Maley Dr. widening (2-lane to 4-lane, Barry Downe Rd. to Falconbridge Highway)
5. Falconbridge Highway widening (4-lane to 5-lane, Maley Dr. to Garson Coniston Rd.)
6. Maley Dr. extension (Falconbridge Highway to Garson Coniston Rd.)
7. Second Ave. widening (2-lane to 4-lane, Donna Dr. to Scarlett Rd.)
8. Barry Downe Rd. widening (5-lane to 6-lane, Westmount Ave. to Kingsway)
9. Montrose Ave. extension south from Notre Dame Ave. to Lasalle Blvd.
10. Proposed road for construction in Silver Hills Development
11. Widening of the Kingsway east of Lloyd St. (4-lane to 5-lane)
12. St. Anne Rd. extension
13. Howey Dr. widening (2-lane to 4-lane, Elgin St. to Bancroft Dr.)
14. Larch Street extension
15. Ramsey Lake Rd. widening (2-lane to 4-lane, Paris St. to South Bay Rd.)
16. Remington Road extension from current terminus to Gateway Dr.
17. Lasalle Blvd. widening (2-lane to 4-lane, Maley Dr. extension to south of rail corridor)
18. Municipal Rd. 35 widening (2-lane to 4-lane, Municipal Rd. 15 to Notre Dame St.)
19. Martilla Drive connection to Paris Street
20. John Street (Valley) extension



December 2016

The City should conduct an environmental assessment (EA) to confirm the need for this corridor relative to other options. If the need is identified, the EA would also define the corridor for the Southern University Link within the approximate envelope shown in yellow. This would facilitate an orderly development plan which is in line with the long term road network concept for the area.

Final alignment within the approximate envelope shown in yellow to be determined in conjunction with MTO.

Proposed interchange improvements to Highway 17 and Maley East Bypass

Figure 50 Greater Sudbury Transportation Study Recommended 2031 Road Network Downtown Enlargement

- List of Proposed Road Network Improvements**
- 1. Notre Dame Ave. widening (4-lane to 6-lane, Main St. to Kathleen St.)
 - 11. Widening of the Kingsway east of Lloyd St. (4-lane to 5-lane)
 - 12. St. Anne Rd. extension
 - 13. Howey Dr. widening (2-lane to 4-lane, Elgin St. to Bancroft Dr.)
 - 14. Larch Street extension
 - 17. Lasalle Blvd. widening (2-lane to 4-lane, Maley Dr. extension to south of rail corridor)

Legend

Existing Road Network

- Existing Provincial Road / Highway
- Existing Roads

Proposed Road Network

- Proposed Roads for Construction
- Proposed Roadway Widening
- Proposed Road Improvements to Provincial Highways
- Potential Roads for Future Consideration (after 2031)
- Roads to be constructed as part of new developments

Destinations

- Airport
- Arena / Community Centre
- College / University

Regional Trails and Routes

- Trans Canada Trail

Other

- Lakes and Rivers
- Parks and Conservation Areas
- Active Railway
- Abandoned Railway

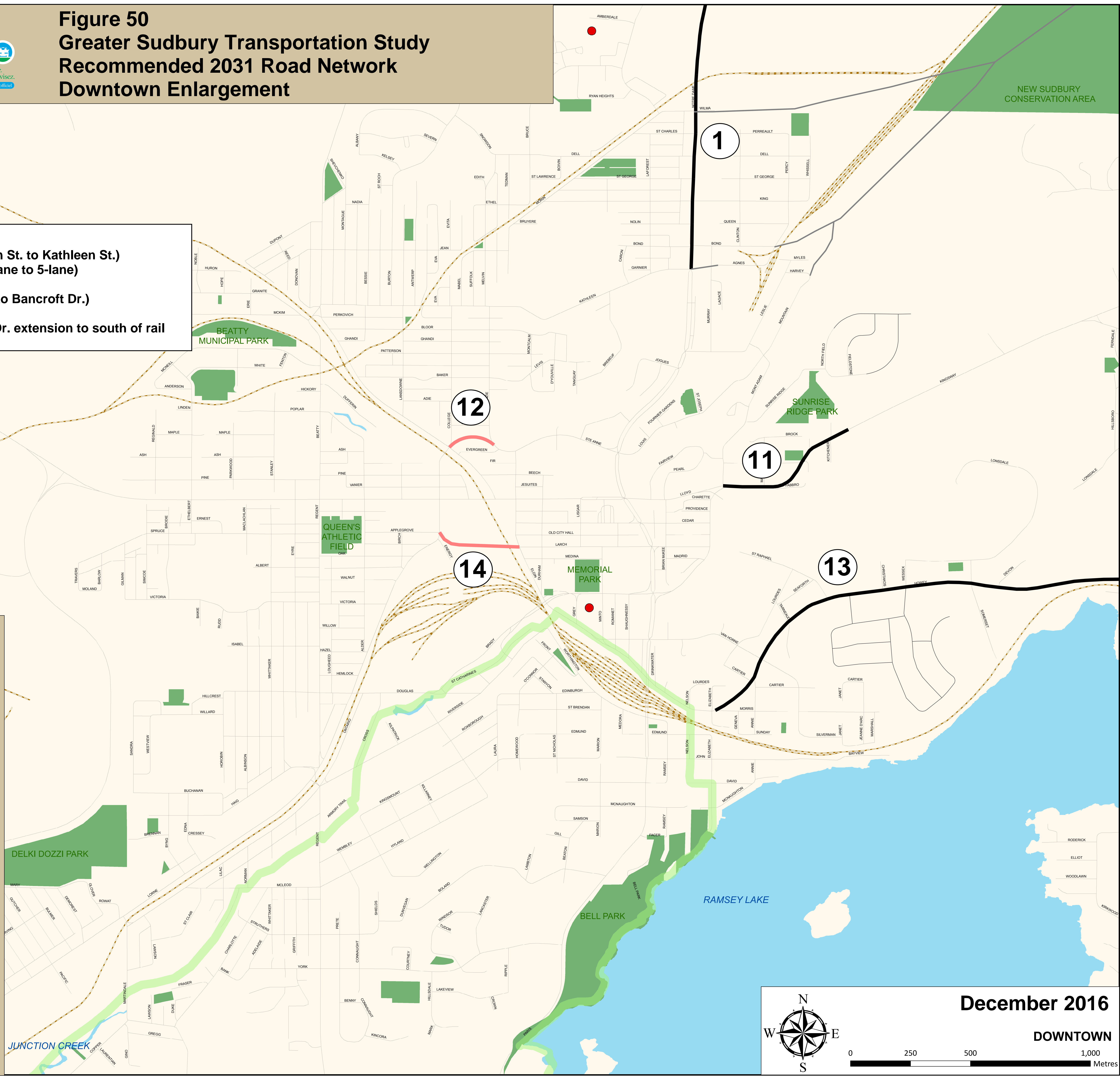


Figure 51 Greater Sudbury Transportation Study Recommended 2031 Road Network New Sudbury Enlargement

- List of Proposed Road Network Improvements**
2. Maley Dr. extension (Lasalle Blvd. to Barry Downe Rd.)
 3. Montrose Ave. north extension (current terminus to Maley Dr. extension)
 4. Maley Dr. widening (2-lane to 4-lane, Barry Downe Rd. to Falconbridge Highway)
 5. Falconbridge Highway widening (4-lane to 5-lane, Maley Dr. to Garson Coniston Rd.)
 6. Maley Dr. extension (Falconbridge Highway to Garson Coniston Rd.)
 7. Second Ave. widening (2-lane to 4-lane, Donna Dr. to Scarlett Rd.)
 8. Barry Downe Rd. widening (5-lane to 6-lane, Westmount Ave. to Kingsway)
 9. Montrose Ave. extension south from Notre Dame Ave. to Lasalle Blvd.
 10. Proposed road for construction in Silver Hills Development

Legend

Existing Road Network

- Existing Provincial Road / Highway
- Existing Roads

Proposed Road Network

- Proposed Roads for Construction
- Proposed Roadway Widening
- Proposed Road Improvements to Provincial Highways
- Potential Roads for Future Consideration (after 2031)
- Roads to be constructed as part of new developments

Regional Trails and Routes

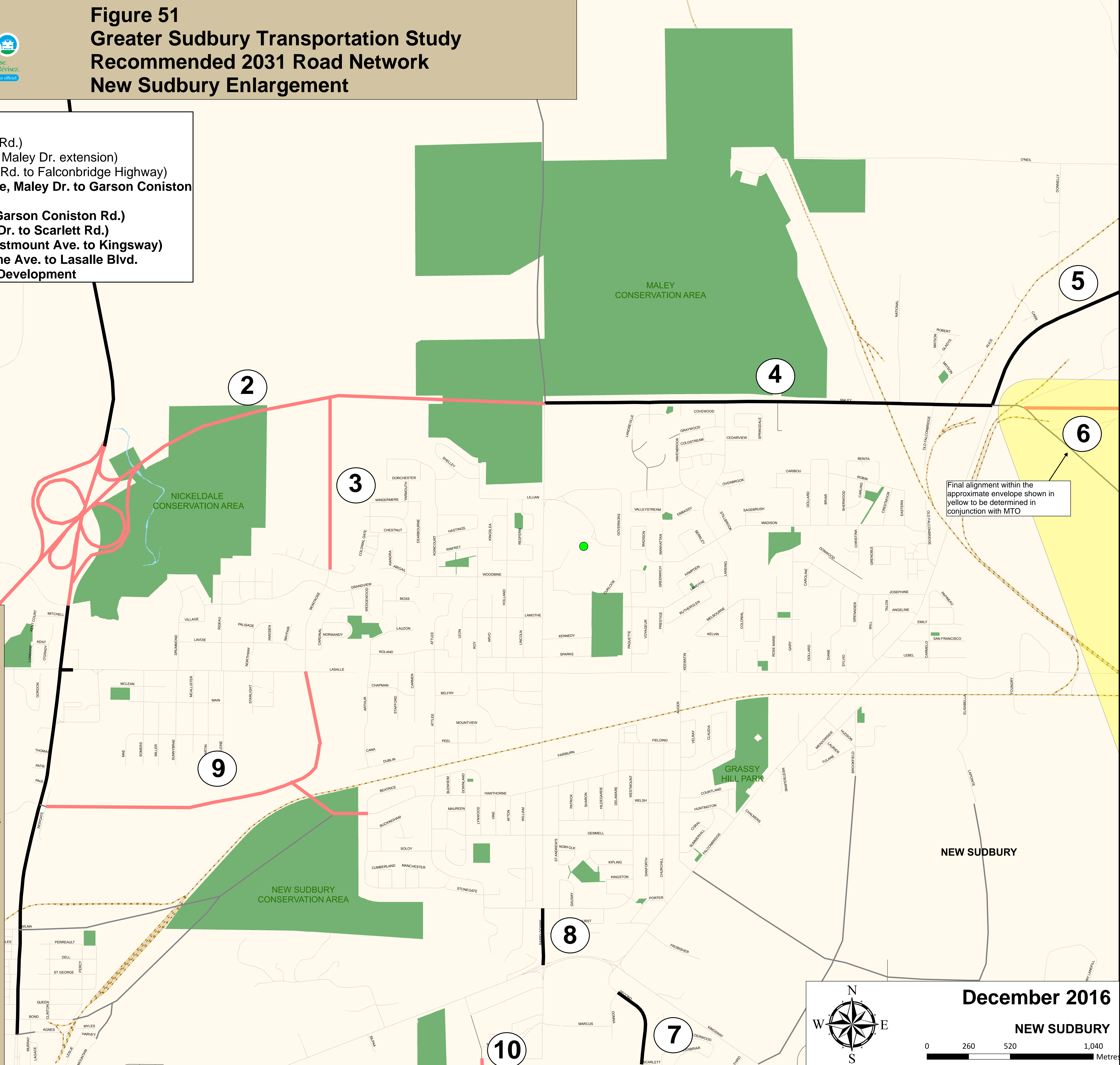
- Trans Canada Trail

Destinations

- Airport
- Arena / Community Centre
- College / University

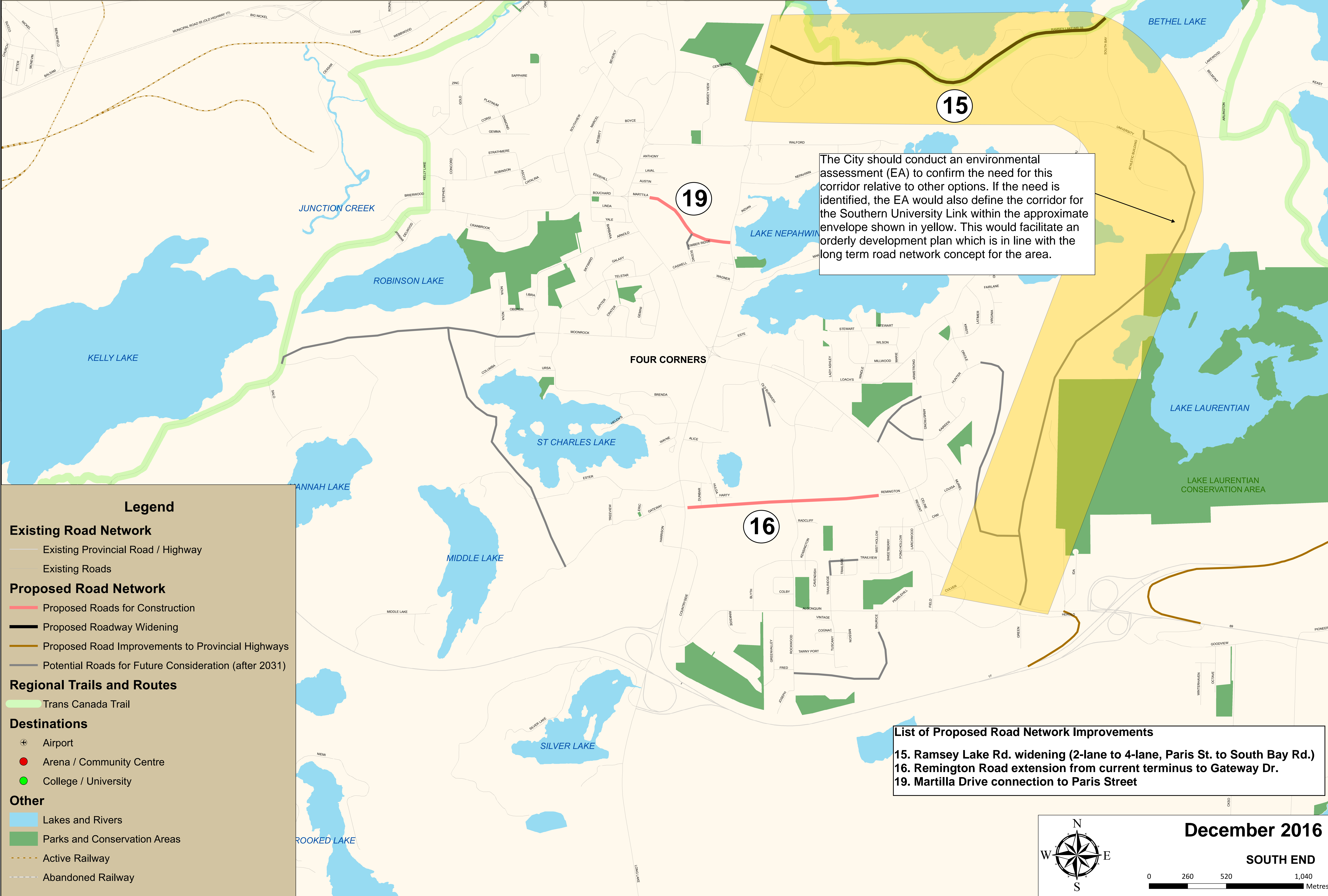
Other

- Lakes and Rivers
- Parks and Conservation Areas
- Active Railway
- Abandoned Railway



Final alignment within the approximate envelope shown in yellow to be determined in conjunction with MTO

Figure 52
Greater Sudbury Transportation Study
Recommended 2031 Road Network
South End Enlargement



The City should conduct an environmental assessment (EA) to confirm the need for this corridor relative to other options. If the need is identified, the EA would also define the corridor for the Southern University Link within the approximate envelope shown in yellow. This would facilitate an orderly development plan which is in line with the long term road network concept for the area.

Legend

Existing Road Network

- Existing Provincial Road / Highway
- Existing Roads

Proposed Road Network

- Proposed Roads for Construction
- Proposed Roadway Widening
- Proposed Road Improvements to Provincial Highways
- Potential Roads for Future Consideration (after 2031)

Regional Trails and Routes

- Trans Canada Trail

Destinations

- Airport
- Arena / Community Centre
- College / University

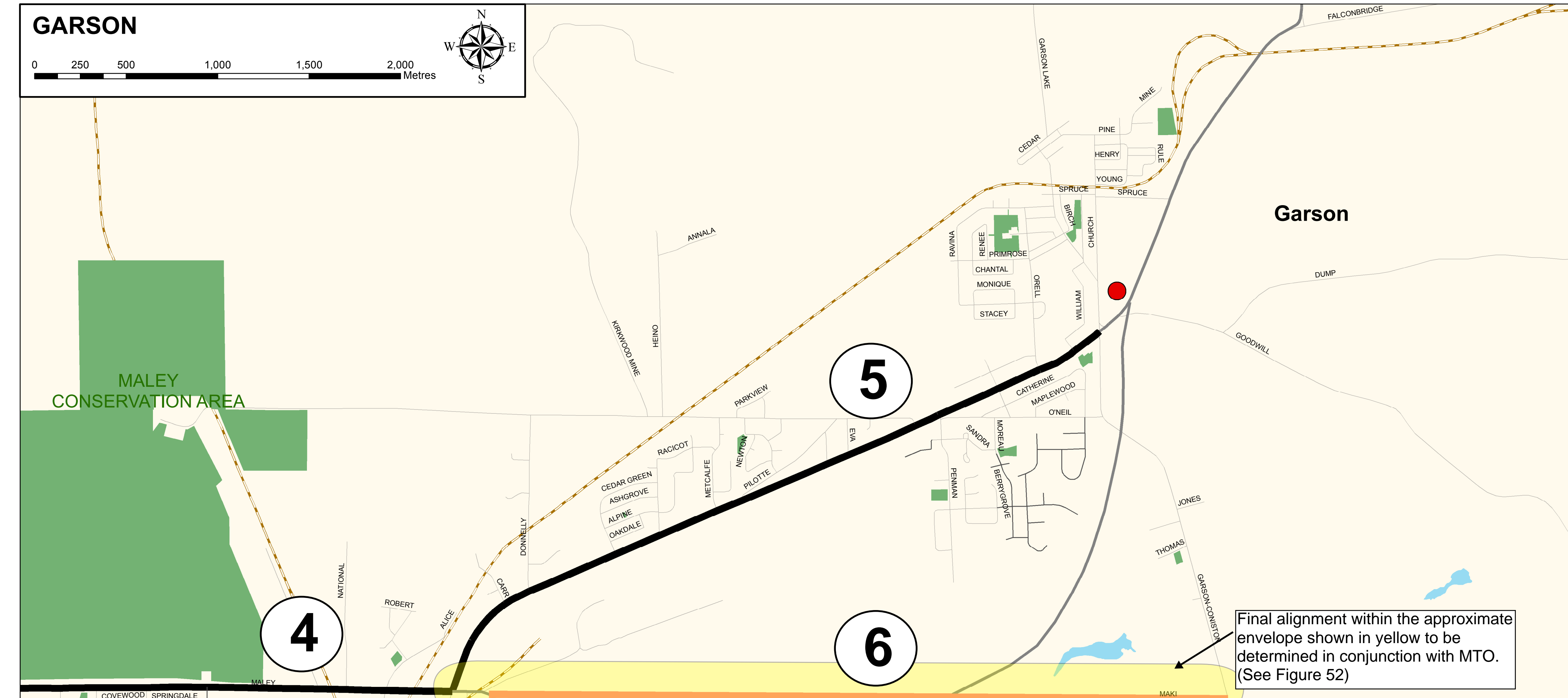
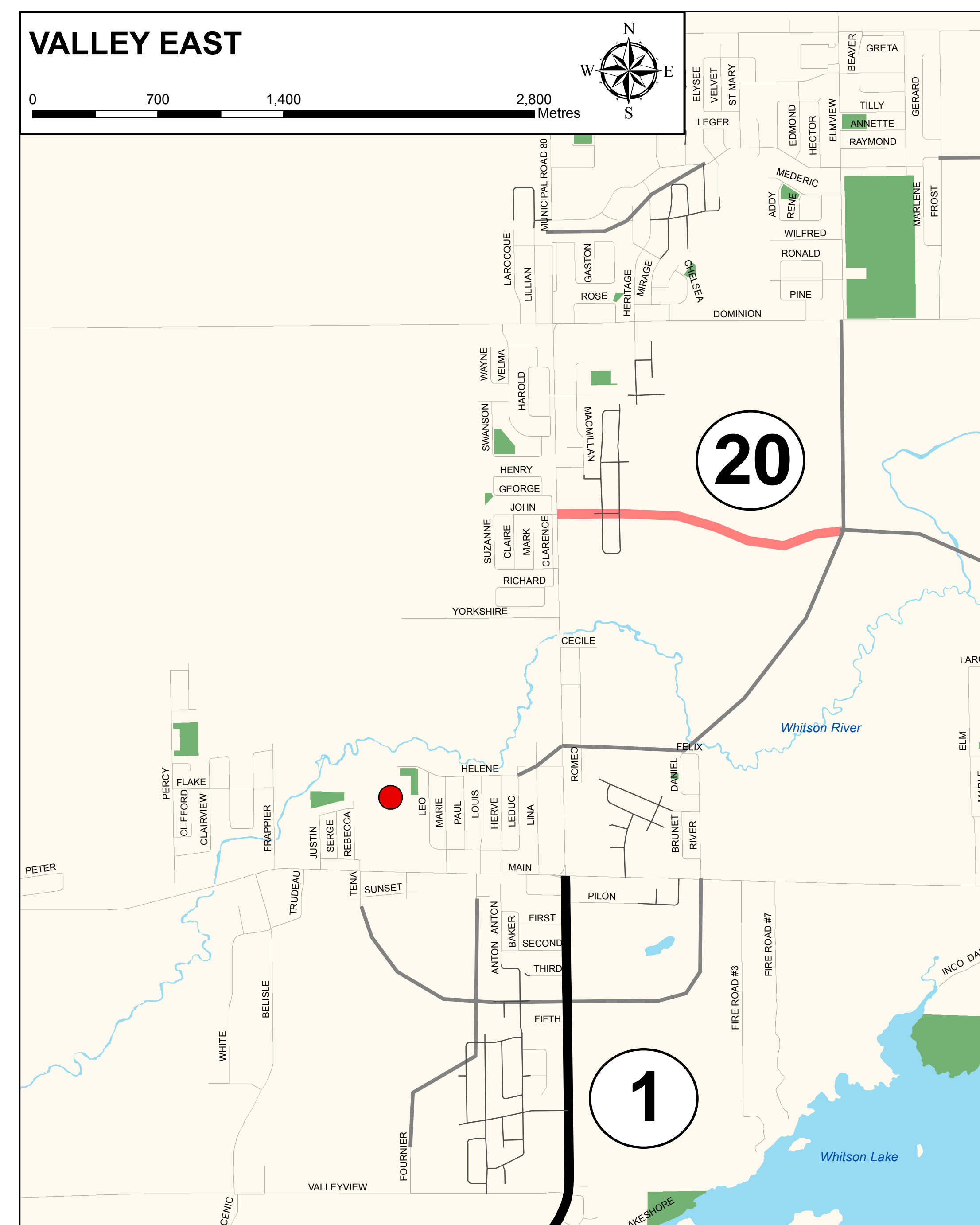
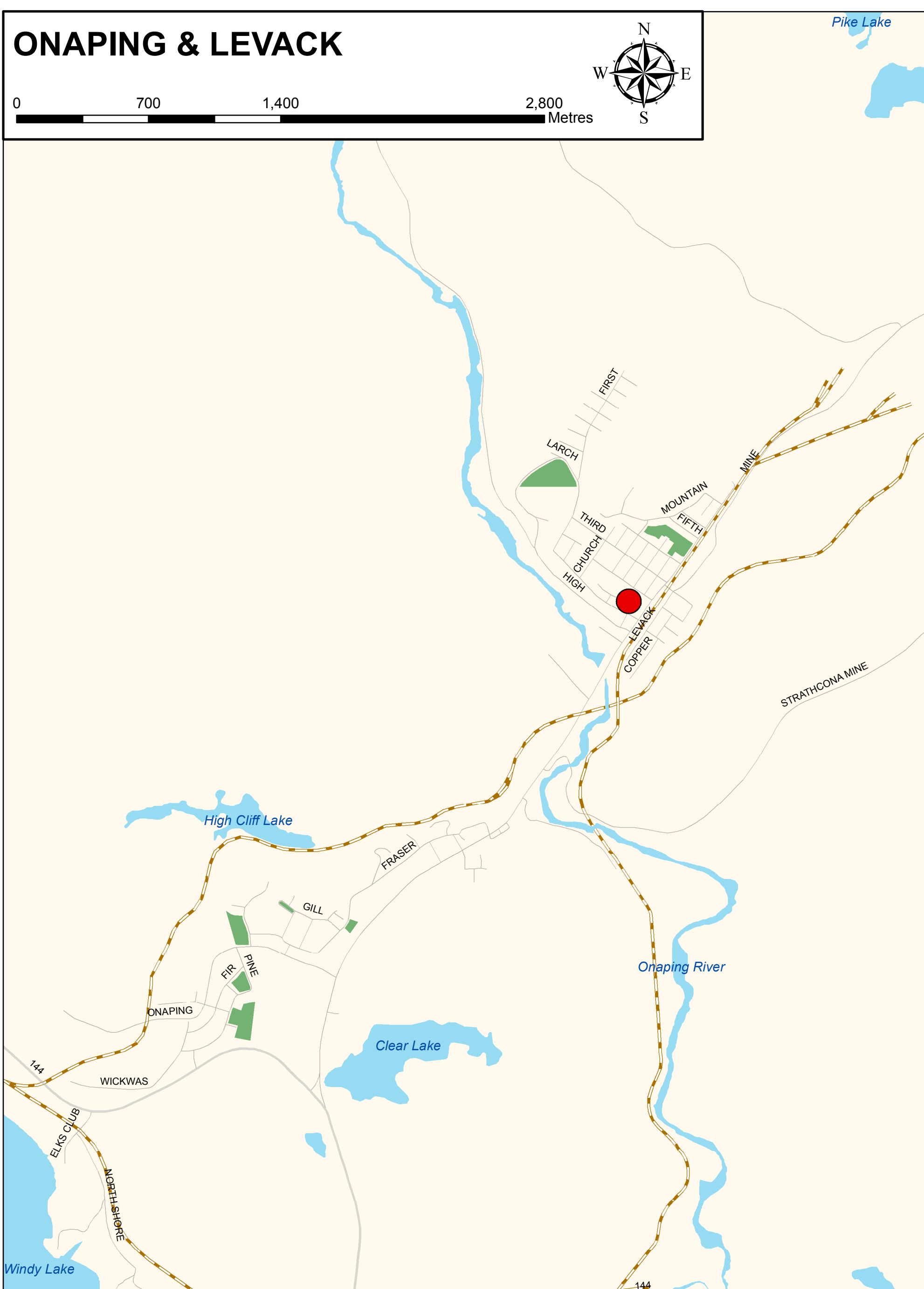
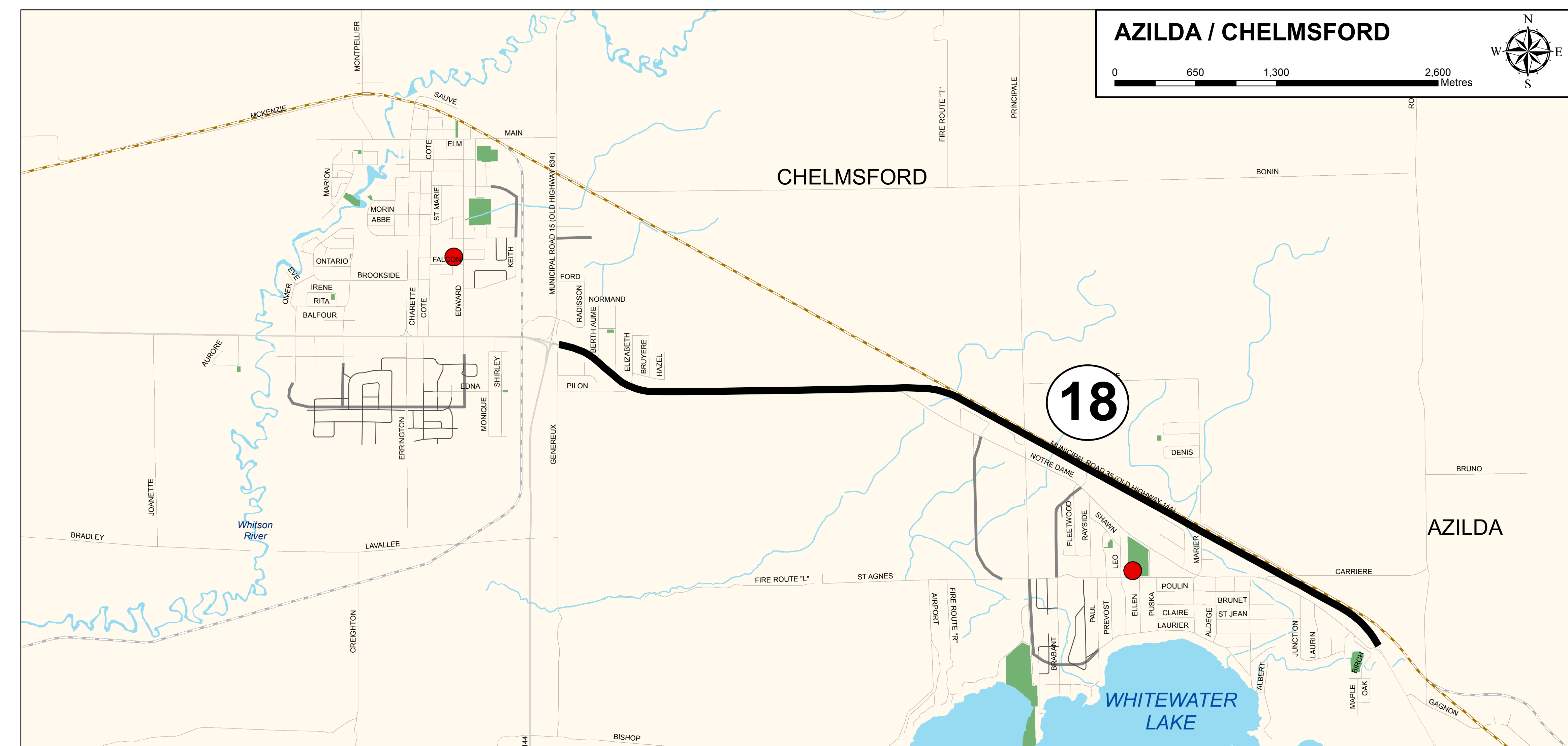
Other

- Lakes and Rivers
- Parks and Conservation Areas
- Active Railway
- Abandoned Railway

- List of Proposed Road Network Improvements**
- 15. Ramsey Lake Rd. widening (2-lane to 4-lane, Paris St. to South Bay Rd.)
 - 16. Remington Road extension from current terminus to Gateway Dr.
 - 19. Martilla Drive connection to Paris Street



Figure 53 Greater Sudbury Transportation Study Recommended 2031 Road Network Enlargement Areas



Legend

Existing Road Network

- Existing Provincial Road / Highway
- Existing Roads

Proposed Road Network

- Proposed Roads for Construction
- Proposed Roadway Widening
- Proposed Road Improvements to Provincial Highways
- Potential Roads for Future Consideration (after 2031)
- Roads to be constructed as part of new developments

Regional Trails and Routes

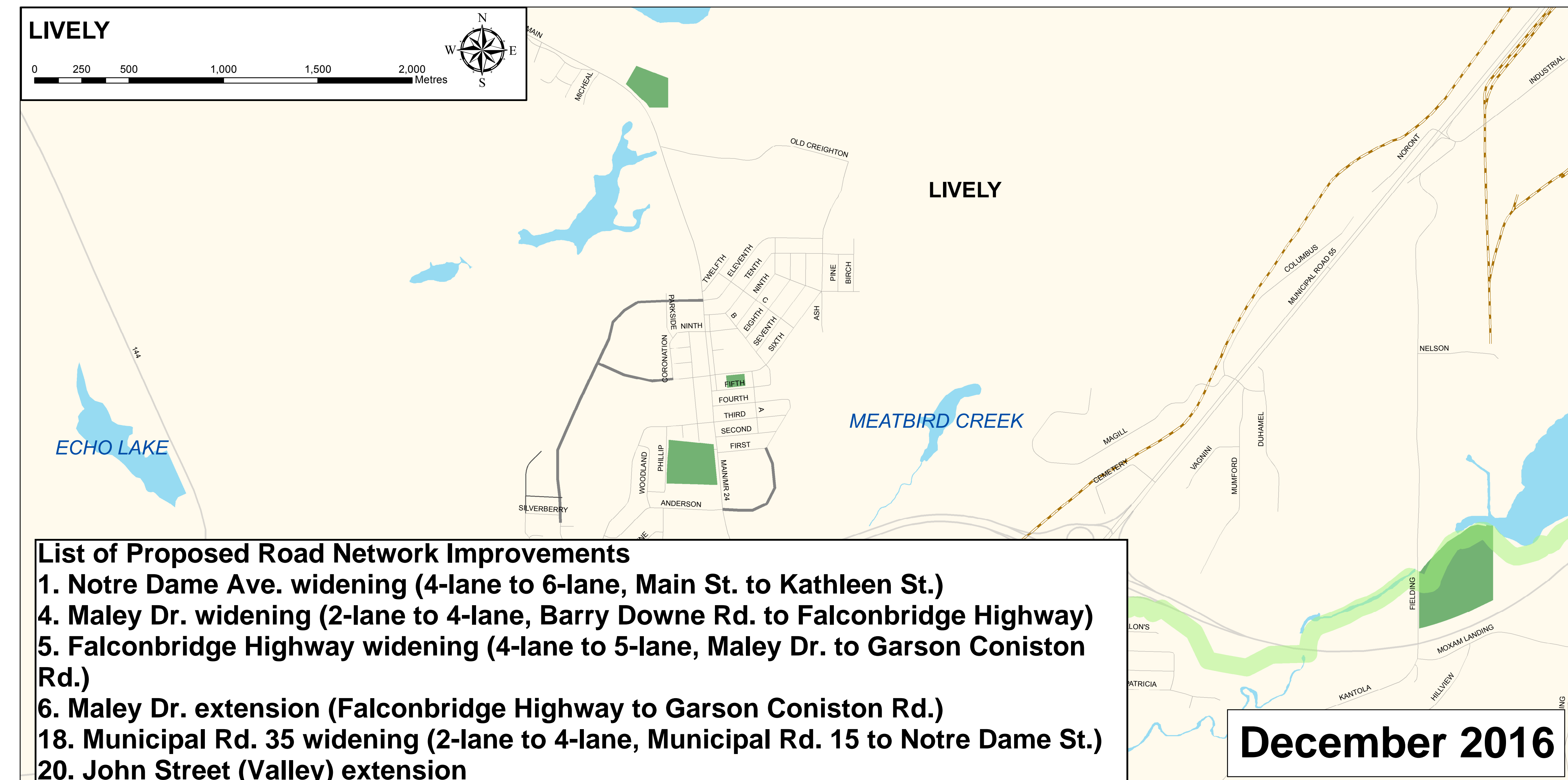
- Trans Canada Trail

Destinations

- Airport
- Arena / Community Centre
- College / University

Other

- Lakes and Rivers
- Parks and Conservation Areas
- Active Railway
- Abandoned Railway



- List of Proposed Road Network Improvements**
1. Notre Dame Ave. widening (4-lane to 6-lane, Main St. to Kathleen St.)
 4. Maley Dr. widening (2-lane to 4-lane, Barry Downe Rd. to Falconbridge Highway)
 5. Falconbridge Highway widening (4-lane to 5-lane, Maley Dr. to Garson Coniston Rd.)
 6. Maley Dr. extension (Falconbridge Highway to Garson Coniston Rd.)
 18. Municipal Rd. 35 widening (2-lane to 4-lane, Municipal Rd. 15 to Notre Dame St.)
 20. John Street (Valley) extension

December 2016

8.7 Discussion Regarding Proposals for Individual Road Links

There are multiple road projects recommended for construction by the year 2031, some of which have generated considerable public debate, particularly:

- Maley Drive;
- South Bay Road;
- Municipal Road 80;
- Montrose Avenue North;
- Martilla Drive Extension;
- Remington Road;
- John Street, Val Caron;
- Ste. Anne Road;
- Montrose Avenue South;
- Frood / Regent;
- Big Nickel Drive; and
- Falconbridge Community Truck By-pass.

Each of these road projects is discussed in the subsections below in order to present the pertinent issues and to better explain the rationale for the recommended action.

8.7.1 Maley Drive

Maley Drive has been the City’s number one road construction priority since at least 1991 and should remain at the top of the priority list. The Maley Drive project includes widening existing segments and constructing missing segments to create a new east-west corridor along the northern edge of New Sudbury. The extensions and widening of segments of Maley Drive are indicated in **Figure 54**.

Figure 54: Maley Drive Proposed Extensions and Widening



Maley Drive offers benefits to multiple segments of the City by providing an east-west truck route. This by-pass would reduce the number of heavy, slow moving vehicles in the residential and commercial areas of New Sudbury, which currently contribute to the congestion there. The greatest alleviation of traffic would be expected to be along Lasalle Boulevard.

The City has received approval from the Province of Ontario and the Government of Canada to proceed with Phase I of the Maley Drive Extension Project, outlined in Figure 54 in orange. The first tender was issued in May 2016 and construction commenced August 2016. This contract will extend to the end of 2017 with the remaining work to be tendered in the following years and completed in 2019.



8.7.2 South Bay Road Extension (Southern University Link)

The South Bay Road Extension, connecting Laurentian University in the north with Regent Street in the south, as shown conceptually in **Figure 55**, has been proposed for many years. This road link was re-examined as part of this Transportation Study.

Figure 55: South Bay Road Extension



From a traffic capacity perspective, the road link is not essential to accommodate traffic volumes and would not help to alleviate congestion at the Paris Street and Ramsey Lake Road intersection. It is recognized that the majority of traffic on Ramsey Lake Road has origins and

destinations north, not south of the road. The South Bay Road extension will do little to address this travel pattern.

While the South Bay Road extension does not solve capacity concerns on Ramsey Lake Road, it does have several merits. From a safety point of view, the South Bay Road extension would provide a secondary access to Laurentian University and the entire peninsula, which is currently served solely by Ramsey Lake Road. The extension could help accommodate planned future growth at Laurentian University, as well as development pressures toward the south end of the extension near Regent Street. It could become a new gateway to Greater Sudbury for traffic arriving from the south and could be designed as a parkway with trails on each side.

Based on public feedback collected as part of this study, there is strong opposition to proposals for South Bay Road to be extended. Residents have stressed the value of the open spaces and the multiple trails that exist in this area. These trails are seen as a major selling point for Greater Sudbury, attracting students and staff to Laurentian University as well as drawing people to settle in the wider City. It is perceived that the extension will irreversibly compromise this community asset.

Members of the public have suggested several alternatives in lieu of this road, such as widening Ramsey Lake Road, creating reversible lanes on Ramsey Lake Road to accommodate peak traffic flow and realigning the South Bay Road extension to reduce its impact on the trail network.

As part of this Transportation Study, additional road links to address capacity concerns on Ramsey Lake Road were tested. A road link from Laurentian University connecting to either Centennial Drive or Walford Road was tested in the transportation model. Such a connection is shown in the transportation model to attract a considerable number of trips and to help mitigate traffic concerns on Ramsey Lake Road. Such a connection could open room for university expansion and could foster greater interaction between the University and Health Sciences North.

The South Bay Road extension and improvements to Ramsey Lake Road are recommended for further study through one Environmental Assessment (EA). The EA needs to address not only access but also capacity. The EA would allow for robust analysis of multiple alternatives to be considered in defining the road corridor for development. The EA process would also require additional public input giving the opportunity for review and comment on the alternatives, which would include a 'Do Nothing' alternative. Once the preferred option has been identified, assuming that it involves construction, the appropriate number of lanes and the precise alignment of the road can be determined. The recommended road alignment could be the South Bay Road extension but also could be widening Ramsey Lake Road, a new road connecting to Centennial Drive or Walford Road, no road construction, or another alternative not considered as part of this report. It is recommended that candidate corridors be protected to allow for potential future construction pending this EA process. For the purposes of the analysis in this report, South Bay Road extension was included in the Auto-Focused alternative only. Widening Ramsey Lake Road was included in the Auto Focused and Sustainability Focused alternatives.



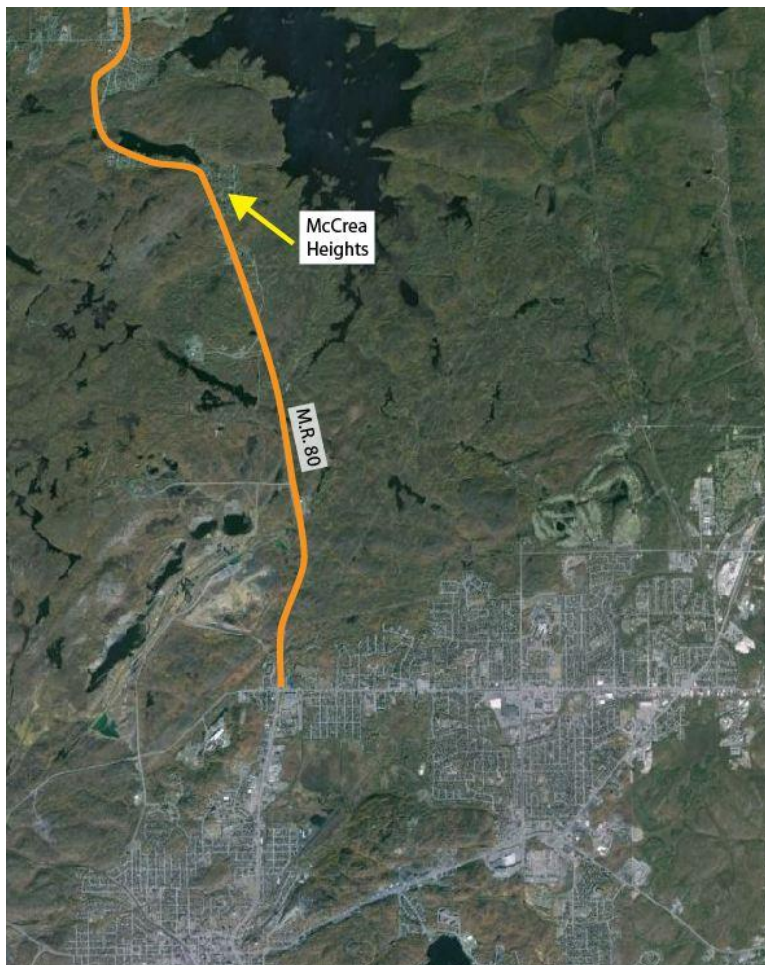
8.7.3 Municipal Road 80

Municipal Road (M.R.) 80 is the main connection between the Valley and central Sudbury. It experiences heavy southbound traffic flows in the a.m. peak hour and heavy northbound traffic flows in the p.m. peak hour. As part of this Transportation Study, M.R. 80 is recommended to be widened to accommodate these existing and future forecast traffic volumes. The M.R. 80 corridor for widening is shown in **Figure 56**.

Before widening could occur, an Environmental Assessment will need to be completed to verify the alignment and confirm the suitability of this recommendation. It is recognized that widening could be constrained in the McCrea Heights neighbourhood.

Alternatives to widening would be explored as part of the Environmental Assessment. The main alternative identified would be the extension of Barry Downe Road from its present terminus in New Sudbury north to the Valley. This was considered as part of this Transportation Study but is not recommended for construction by the year 2031. Through the multiple account evaluation process, widening M.R. 80 was determined to be more appropriate than constructing a new road extension. However, land for the Barry Downe Road extension should be protected in case future conditions warrant construction of this extension.

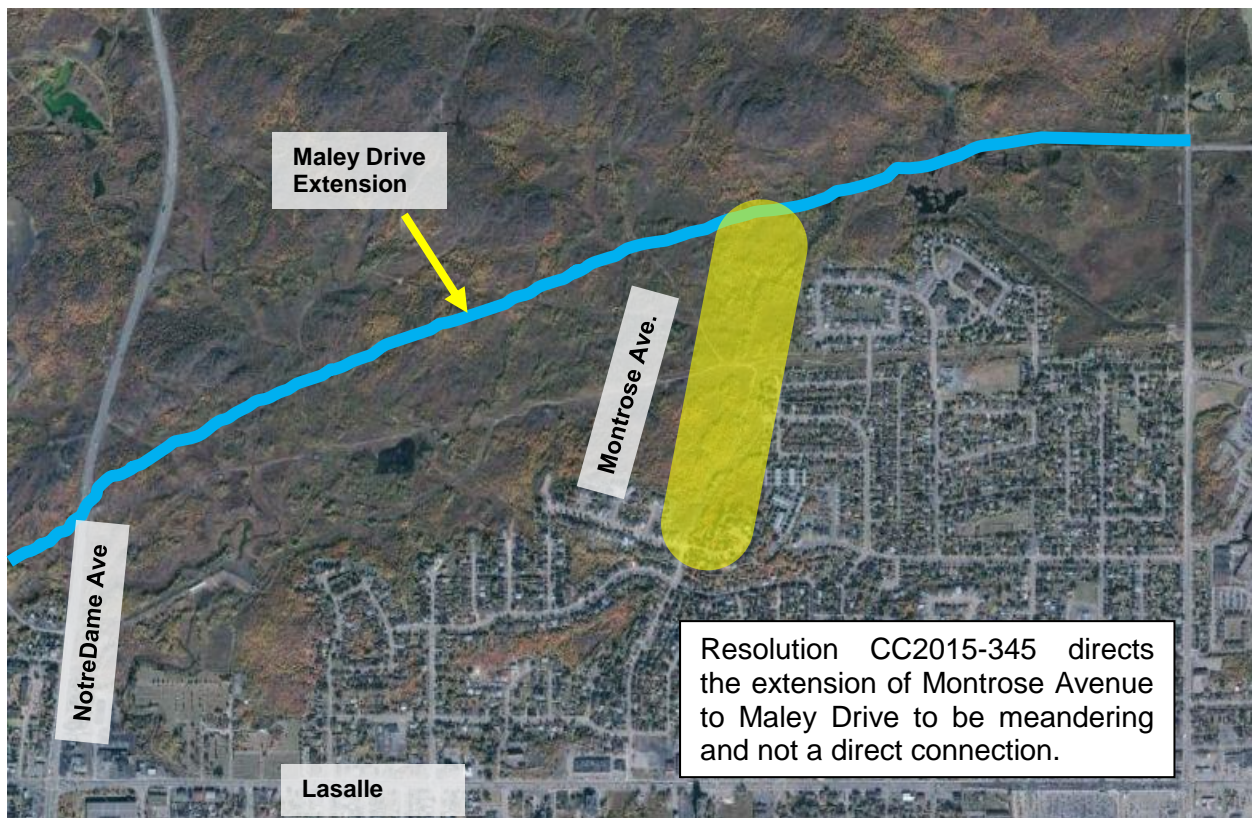
Figure 56: Municipal Road 80 Widening



8.7.4 Montrose Avenue North

Montrose Avenue is a residential street that runs between Lasalle Boulevard on the south and Forestdale Drive and Thorncliffe Court on the north. In order to accommodate further development north of the road's current terminus, Montrose Avenue has been shown on subdivision plans to extend north and eventually connect to the proposed Maley Drive extension, as shown in **Figure 57**. Montrose Avenue previously had been classified as a secondary arterial road. As part of this Transportation Study, Montrose Avenue is being reclassified as a collector road to meet the intention of the road as collecting local traffic in this residential area and distributing the local traffic to Maley Drive in the north or Lasalle Boulevard in the south.

Figure 57: Montrose Avenue North Extension



Public input received through the development of the Transportation Study has indicated that the community along Montrose Avenue is very concerned that if Montrose Avenue is connected to Maley Drive, Montrose Avenue will become a short cut for commuter traffic and shoppers accessing the retail areas on Lasalle Boulevard east of Montrose Avenue, as well as trucks servicing these same shopping areas. The community is strongly opposed to the direct connection of Montrose Avenue to Maley Drive.

The modeling analysis suggests that the total volume using this extension in the peak hour, including both northbound and southbound traffic, will be no more than 300 vehicles. This is a moderate volume appropriate for a collector road. The modeling results further suggest that



through traffic will not use this link as a short cut and will stay on the major arterials such as Notre Dame Avenue, Maley Drive and Lasalle Boulevard.

A separate model run was undertaken with the Maley Drive extension but without the Montrose Avenue connection to Maley Drive. In this scenario, Montrose Avenue actually performed worse, with higher traffic volumes, than in the scenario with Montrose Avenue connected to Maley Drive. Without the connection, all neighbourhood traffic is forced south on Montrose Avenue. With the connection, the traffic redistributes, with some traffic traveling north to Maley Drive and some traffic traveling south to Lasalle Boulevard. Even if there is some short cutting traffic, it does not have as great an effect as sending all Montrose Avenue-specific traffic south to Lasalle Boulevard in the “No Connection” scenario.

The development of Maley Drive and Montrose Avenue will occur independently, as Maley Drive is a City-driven project and Montrose Avenue is a development-driven project. The City should continue to monitor traffic volumes in this part of the city prior to the ultimate connection. In time, public perception might change and a connection could be desired in order to provide greater connectivity and travel routes for this neighbourhood.

The connection between the Maley Drive extension and Montrose Avenue should be designed such that the road maintains its residential nature; the mid-block cross sections and intersection connection with Maley Drive should be appropriate for a collector road to help encourage use only by Montrose Avenue-area traffic. The new portion of Montrose Avenue should be designed as a collector road with a bike lane and sidewalks on both sides of the road in order to create a “complete street.”

At the October 20, 2015 City Council meeting, Council passed a motion for Resolution CC2015-345 that “City staff be directed to incorporate a meandering design of Montrose Avenue to the Maley Drive Extension, such as is illustrated in Appendix “A”, into the Transportation Master Plan.” A meandering Montrose Avenue is not recommended from a technical perspective because it will result in a change of the function of the road. The road will no longer serve a neighbourhood-wide function as a collector road. Instead of neighbourhood traffic distributing north and south, most traffic likely will travel south toward Lasalle Boulevard, adding further congestion to the Lasalle at Montrose intersection and increasing traffic volumes for those who live on Montrose Avenue closest to Lasalle Boulevard. The meandering portion of Montrose Avenue likely will need traffic calming measures as drivers will become frustrated with the increased travel time introduced by the meander and will try to make up for the lost time through speeding. While some type of road connection between Montrose Avenue and Maley Drive is better than no connection at all, the meandering Montrose Avenue connection is expected to result in an increase in traffic volumes on the existing portion of Montrose Avenue and on Lasalle Boulevard.

The meandering Montrose Avenue is an effort to reduce traffic volumes on the existing portion of Montrose Avenue. It is likely that this action will have the exact opposite effect, with increased volumes and increased speeds on the existing portion of Montrose Avenue, and the need for traffic calming on the new meandering portion of Montrose Avenue.

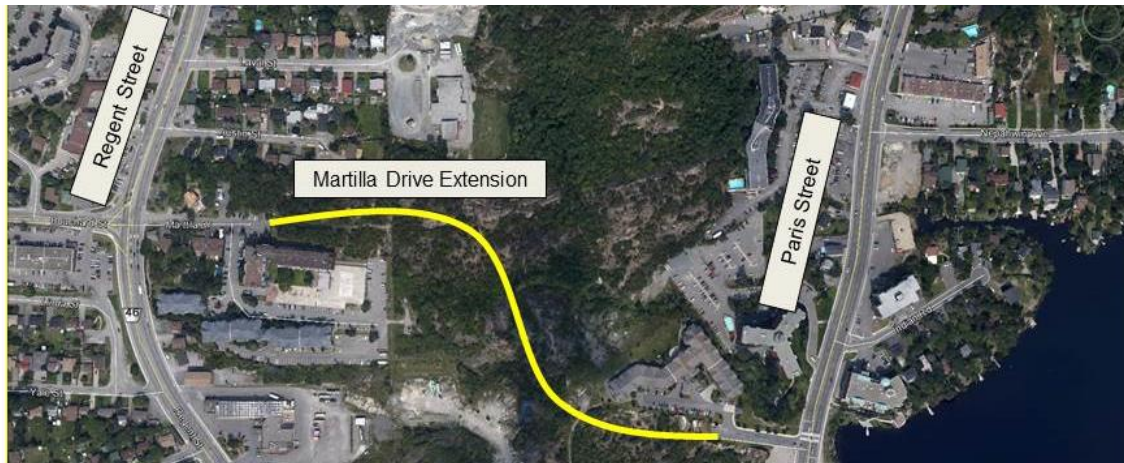
It is recognized that Council has directed that the Montrose Avenue extension north to Maley Drive meander. Associated negative impacts of increased vehicle volumes on other roads and speeding on Montrose Avenue will be accepted in order to address concerns of the perceived potential of shortcutting traffic on Montrose Avenue between Maley Drive and Lasalle Boulevard.



8.7.5 Martilla Drive

Martilla Drive presently is a dead end road that serves a housing complex east of Regent Street. In order to accommodate future development, Martilla Drive is required to be extended east to connect to Paris Street, as shown in **Figure 58**.

Figure 58: Martilla Drive Extension



In addition to facilitating further land development, this extension would provide a new east-west link in an area where mobility is limited and could help balance the traffic between Regent Street and Paris Street. The connection could provide some traffic relief to the Four Corners intersection by providing an alternate route between Regent Street and Paris Street.

8.7.6 Remington Road

Remington Road is a short local road which services two commercial plazas that front Regent Street. In order to facilitate future development, Remington Road could be extended west to connect to Gateway Drive, as shown in **Figure 59**. This extension would improve connectivity in the southern portion of the city.

Figure 59: Remington Road Extension



8.7.7 John Street, Val Caron

John Street in Val Caron has been proposed to be extended east to Bodson Drive through currently vacant land east of M.R. 80 in order to accommodate land development. An extension of John Street would facilitate future development and could connect to future north-south road links between Dominion Drive on the north and Yorkshire Drive on the south. The extension is shown in **Figure 60**.

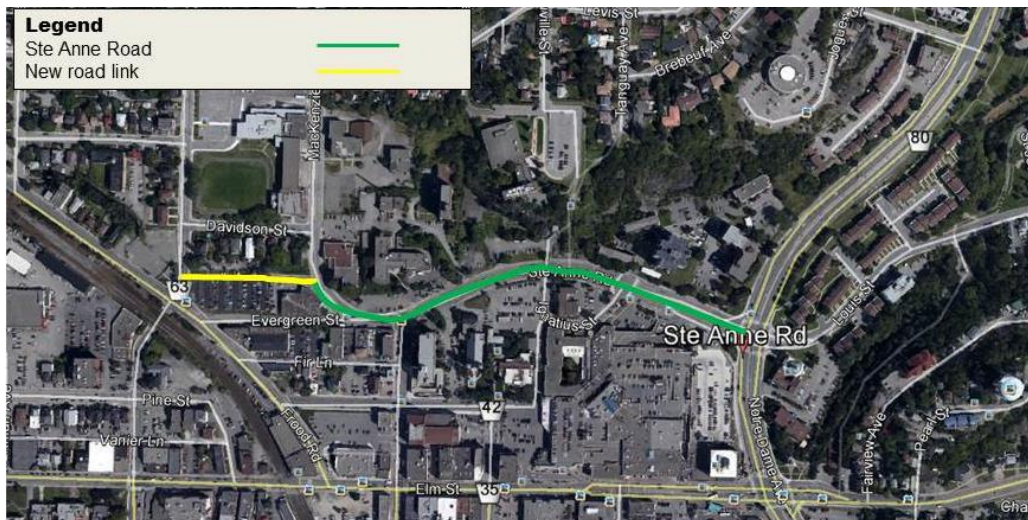
Figure 60: John Street Extension, Val Caron



8.7.8 Ste. Anne Road

St. Anne Road is an east-west road between Notre Dame Avenue and Froid Road. An extension of this road underneath the railroad tracks to connect to Pine Street or College Street was considered in the 1992 and 2005 Transportation Studies. There is an existing underpass of the railroad tracks at College Street. The new road link, shown in yellow on **Figure 61**, is proposed for construction along with the reconstruction of the existing underpass at College Street. Doing so would remove the existing vertical restriction.

Figure 61: Ste. Anne Extension



8.7.9 Montrose Avenue South

Montrose Avenue is a residential street that runs between Lasalle Boulevard on the south and Forestdale Drive and Thorncliffe Court on the north. As part of the Transportation Study, Montrose Avenue was analyzed to extend south of Lasalle Boulevard to Notre Dame Avenue and extend to Hawthorne Drive, as shown in **Figure 62**, in order to facilitate future development. The Montrose Avenue south extension would serve as a collector road for the local roads south of Lasalle Boulevard and should only be constructed in conjunction with further development in this area. Due to existing environmental constraints, further study of this road link would be needed to determine if environmental concerns could be mitigated to permit construction of this road link and development of adjacent lands. Environmental constraints were echoed by the public through the consultation process.

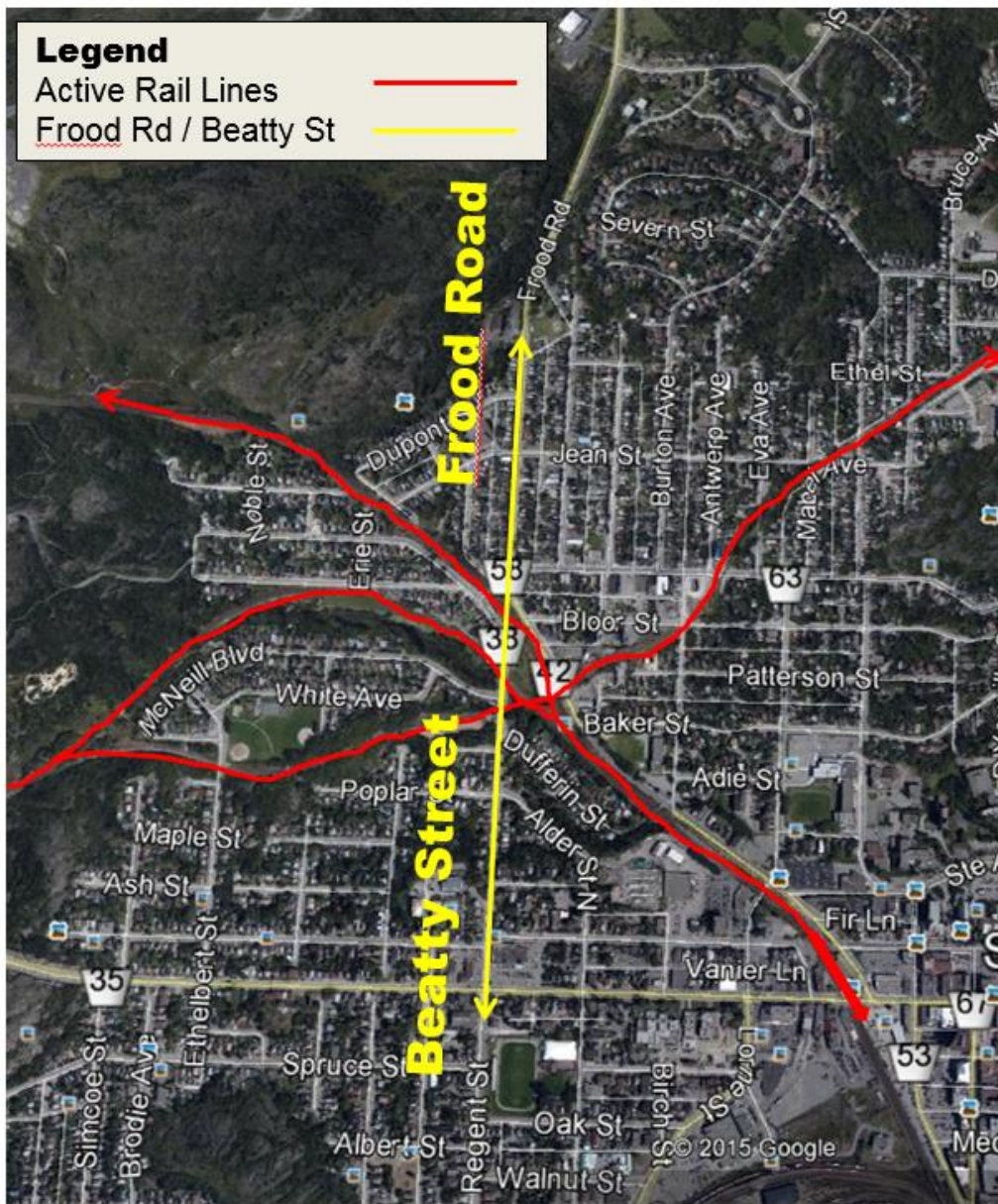
Figure 62: Montrose Avenue South Extension



8.7.10 Flood Road / Beatty Street

The Flood Road / Beatty Street corridor, shown in **Figure 63**, has been analyzed in past Transportation Studies as a possible alternative north-south arterial in the city. The main concern has been the rail crossings near the intersection of Flood Road and Beatty Street. A grade-separated interchange would disrupt the urban fabric of the residential neighbourhoods on either side of the railroad track and would encounter another railroad track on Beatty Street just north of McNeill Boulevard, as well as topographical challenges due to a hill. While roadway operational improvements could result from an improved connection by way of a grade separated crossing, the costs, both financial and community-based, have led to no further study of this corridor at this time.

Figure 63: Flood Road / Beatty St



8.7.11 Big Nickel Drive

Big Nickel Drive could be extended south from M.R.55 to Southview Drive, as diagrammed in **Figure 64**. This extension was analyzed in the 2005 Transportation Study and was forecast to attract a low volume of traffic and traverse a long stretch of undisturbed natural environment. Since the 2005 report, there have not been new growth-related pressures that would suggest that this road link is needed. The benefit of the new connection would not be expected to justify the cost. Further analysis of this road link was not conducted as part of this study.

Figure 64: Big Nickel Drive Extension



8.7.12 Falconbridge Community Truck By-Pass

A privately-constructed truck by-pass of the Falconbridge community is being considered as the current truck route on Longyear Drive divides the community almost in half and results in conflicts between truck through movements and pedestrians attempting to cross from one side of the community to the other. The City continually receives complaints about trucks idling in front of residences. There have also been complaints regarding speeding, which have been confirmed to be an issue through speed studies conducted by the City.

A truck by-pass would improve the quality of life and improve safety in the Falconbridge community by removing trucks from the residential portion of the community. As part of the road works, a portion of Longyear Drive would be eliminated to remove cars and trucks traveling through the s-curve section of Longyear Drive, which is an existing safety concern.

The truck by-pass would intersect Edison Road at a proposed roundabout. A new road link would connect Edison Road to Longyear Road. The general concept for the by-pass and associated road works are shown in **Figure 65**.

Roundabouts can have many advantages from a traffic operations perspective, with reduced impacts on the environment as well. When used at appropriate locations, roundabouts can improve safety and cut vehicular delay, thus improving travel times and reducing greenhouse

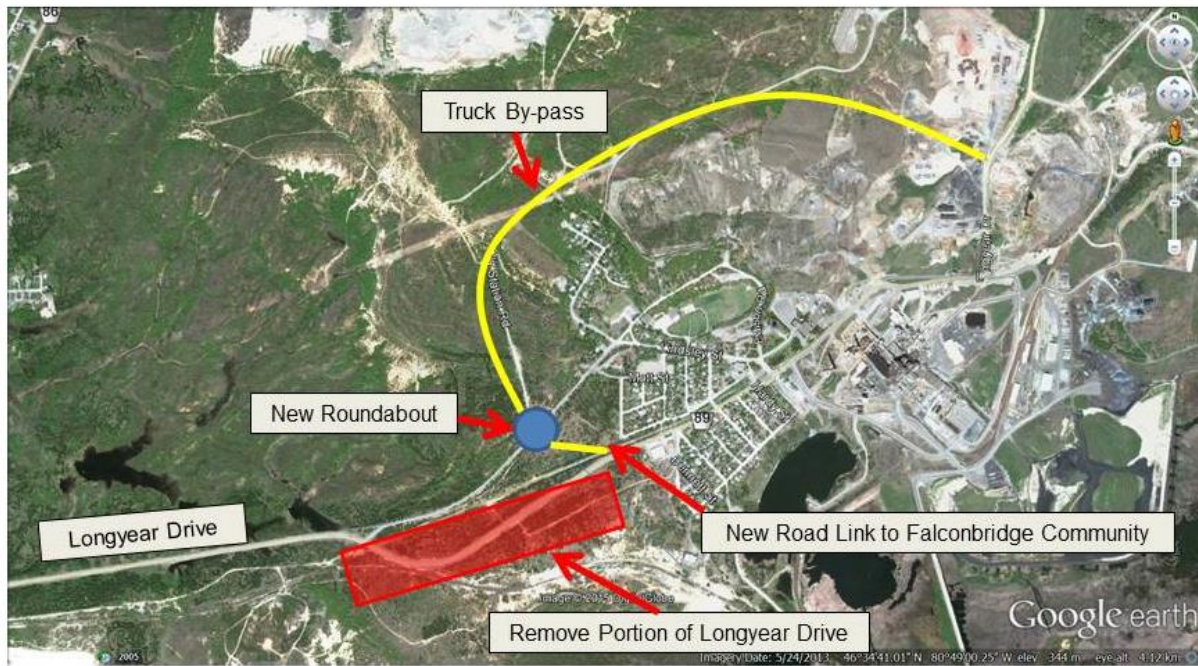


gas emissions. By avoiding installation of traffic signals, they can also reduce long-term ongoing expenses as well.

The following steps should be taken to confirm that a roundabout is suitable for this location on Edison Road:

- Assess the existing conditions of a potential site by looking at traffic volume and collision data to evaluate safety and operational issues;
- Compare the predicted performance and cost of a roundabout to that of other means of traffic control; and
- Identify the appropriate number of lanes for the roundabout and the associated land requirements.

Figure 65: Falconbridge Community Truck By-pass



8.7.13 Intersection of Capreol Road and Cote Boulevard

The intersection of Capreol Road and Cote Boulevard is an off-set intersection, with the northbound and southbound approaches situated to the east and west of the train tracks, respectively. To the north of the intersection, Capreol Road crosses the train tracks just to the north of the Linden Drive intersection. It is the only road connection from the Capreol community to the rest of Greater Sudbury to the south; if it were to be blocked by a stopped or disabled train, there would be no way in or out of Capreol for vehicular traffic, which poses a safety concern.

To mitigate this, the section of Capreol Road between Cote Boulevard and Linden Drive should be relocated from its current alignment on the west side of the train tracks over to the east side, as illustrated conceptually in **Figure 66**. Linden Drive should be extended across the train tracks to form a new intersection with Capreol Road, maintaining access for the properties to the west.

Figure 66: Conceptual Realignment of Capreol Road

