

10 POLICIES TO SUPPORT THE PREFERRED TRANSPORTATION ALTERNATIVE

A number of policies have been developed as part of the Transportation Study Report to help facilitate the development of a more interconnected, multi-modal transportation network in the city. These policies support the preferred transportation alternative and include:

- Complete Streets;
- Road Classifications;
- Appropriate Implementation of Urban Cross Sections; and
- Sidewalk Priority.

Each of these policies is described in more detail below.

10.1 Complete Streets

The concept of ‘Complete Streets’, introduced in **Section 1.4**, focuses on the design, construction and maintenance of a street for all modes of transportation and all users. Although the benefits of complete streets vary by travel mode and user, they:

- Provide appropriate facilities for cars, trucks, transit, cyclists and pedestrians;
- Are safer for all users;
- Support liveable communities;
- Bring positive impacts for public health; and
- Induce economic benefits as people are attracted there.

10.1.1 Purpose and Goals

The purpose of this policy is for the City to embrace the concept of complete streets and meet the following three goals:

- Ensure that the needs of all transportation users are balanced throughout the surface transportation network;
- Create a balanced, comprehensive, integrated, fully interconnected, functional and visually attractive surface transportation network; and
- Encourage the use of the appropriate Complete Streets design standards, principles, policies and guidelines within the context of the community.

10.1.2 Policy Directions

The policy direction for the City of Greater Sudbury is to plan, design, construct, operate and maintain the transportation network to accommodate each mode of transportation and all types of system users. It should be consistent with and supportive of the local community, recognizing that all streets are different and that the needs of various users should be balanced in a flexible manner. Additional policy directions include:

- Transportation infrastructure making up the network, such as: roadways, sidewalks, street crossings, pedestrian signals, signs, street furniture, transit stops and associated infrastructure, bicycling facilities, multi-use trails and connections shall be planned, designed, constructed, operated and maintained for all transportation users.
- The planning and design of street projects will consider bicycle, pedestrian and transit facilities from the very start of the planning and design work. This will apply to all roadway projects, including those involving new construction, reconstruction, re-paving or rehabilitation of transportation infrastructure.



- Where not all users can be accommodated, reasonable efforts shall be made to identify adjacent alternative routes or methods of travel to form a safe, reliable, integrated and interconnected transportation network.
- The implementation of this policy shall reflect the context and character of the surrounding built and natural environments, enhancing their appearance. Reasonable efforts should be made to avoid and minimize impacts on those features.
- The design and development of transportation infrastructure shall be in accordance with appropriate City ordinances, codes, plans, policies and guidelines.

10.2 Road Classifications

Greater Sudbury presently has five road classifications: primary, secondary and tertiary arterial roads, collector roads and local roads. Proposed road classification criteria are provided in **Table 47**. Historically, the criteria for road classification have been based on three main elements; the function of the road and its role in facilitating vehicle travel between points of origin and destination (roadway service function), land access, and vehicle traffic flow characteristics.

10.2.1 Revised Classification – Focus on Complete Streets

In line with the vision for Complete Streets that are designed, built, maintained and operated for all modes of transportation and for all types of users, we recommend that these existing road classifications be slightly modified and also expanded to include transit, cycling and pedestrian travel modes. The road classification table has been expanded to include three new columns for provision related to transit, cycling and pedestrians, respectively.

Right-of-way widths have been revised to better define the classifications by narrowing the width to what is available today as well as what is considered to be needed in the future.

In the Transit Provision column, bus services should be considered on all except local roads. This may take the form of a rapid bus service that stops at major intersections only and may have one kilometre or more between stops, or a local bus service that would be expected to provide service at every intersection. Heavily traveled bus routes could have a combination of rapid bus and local bus service.

On secondary and tertiary arterials with a daily traffic volume in excess of 15,000 vehicles, a separated cycling facility such as a cycle track, separated bike lane or in-boulevard facility is suggested; if these are not feasible, alternate routes should be investigated. On secondary and tertiary arterials with fewer than 15,000 vehicles a day, designated cycling operating space, such as a conventional bike lane or paved shoulder, may be sufficient.

In urban areas, sidewalks should be provided on both sides of the road for arterial and collector roads and at least one side of local roads. Please refer to the sidewalk priority criteria outlined in **Section 10.4** for more details on how to prioritize constructing new sidewalks to fill in missing links in the urban sidewalk network.

One of three categories of cycling facility type has been included with representative examples of facilities for each road classification under the Cycling Provision column. The facility types include:



- Separated Facility or Alternate Routes;
- Designated Cycling Operating Space; or
- Shared Roadway.

The facility type is based on the average annual daily traffic and the design speed of the road. The nominated facility types and examples are the first step in a selection process. These are provided for general guidance in the road classification scheme. The suitability of cycling facility types for any given road should be assessed on a case by case basis to reflect context sensitive conditions.

It should be recognized that bicycles are vehicles under the Highway Traffic Act and are therefore permitted on all public roads unless restricted by the Ministry of Transportation or by a municipal bylaw. Consequently, accommodation of cycling on roads of all classifications should be considered, even when a desired facility type for specific class of roadway is not practical. For example, if a separated bike lane is suggested for a specific road class, but existing conditions reduce the feasibility of implementing this type of facility, other facility types may be considered in an effort to improve conditions for cycling. These may include a conventional bike lane, an in-boulevard active transportation path or wide curb lanes with sharrows combined with bike route signing depending on the characteristics of the route. Safety should always be a key determining factor, hence it is recommended not to formally designate and promote a bike route along arterial road classes that cannot accommodate an appropriate facility type for the context assessed.

All road classifications include sidewalks in the Pedestrian Provision column. On the higher order roads, such as primary arterials, or on any type of road in rural locations, sidewalks may not be appropriate. However, in urban areas where development is present sidewalks on both sides of the road are appropriate in order to create a complete street that provides transportation infrastructure for all road users, including pedestrians.



Table 47: Proposed Road Classifications

Class of Road	Function	Access	Right-of-Way Width (Metres)	Daily Traffic Volume	Posted Speed (km/hr)	Minimum Intersection Spacing (Metres)	Other Regulations	Transit Provision	Potential Cycling Provision	Pedestrian Provision
Primary Arterial	<ul style="list-style-type: none"> Connect the City with other major centres outside the City and/or separate communities within the City Facilitate long distance person or goods movement travel through the City or between major activity areas within the City Traffic movement primary consideration. 	<ul style="list-style-type: none"> Intersections with other arterial roads or collector roads Driveways to major regional activity centres 	<p>35-45 in urban areas</p> <p>45-90 in rural areas</p>	15,000 – 50,000	60 – 100	400	<ul style="list-style-type: none"> No on-street parking Buffers between the roadway and adjacent uses in rural areas 	Considered/ Reviewed for Bus service	<p>Separated Facility or Alternate Routes¹ in urban areas</p> <p>Buffered paved shoulders in rural areas</p>	Sidewalks on both sides of the road in urban areas
Secondary Arterial	<ul style="list-style-type: none"> Connect two or more communities or major activity centres Connect two primary arterial roads Connect a community or activity centre with a primary arterial road Traffic movement primary consideration. 	<ul style="list-style-type: none"> Intersection with other roads Access from adjacent property strictly regulated and kept to a minimum 	30-36	5,000 – 35,000	50 – 80	200	<ul style="list-style-type: none"> No on street parking 	Considered/ Reviewed for Bus service	<p>Separated Facility / Alternate Route for roads with AADT greater than or equal to 15,000¹</p> <p>Designated Cycling Operating Space for roads with AADT less than 15,000²</p>	Sidewalks on both sides of the road in urban areas
Tertiary Arterial	<ul style="list-style-type: none"> Connect small / rural communities Connect communities to primary or secondary arterial roads 	<ul style="list-style-type: none"> Intersections with other roads Access from adjacent property strictly regulated and kept to a minimum 	30-36	5,000 – 15,000	50 – 80	200	<ul style="list-style-type: none"> No on street parking 	Considered/ Reviewed for Bus service	<p>Separated Facility / Alternate Route for roads with AADT greater than or equal to 15,000¹</p> <p>Designated Cycling Operating Space for roads with AADT less than 15,000²</p>	Sidewalks on both sides of the road in urban areas
Collector	<ul style="list-style-type: none"> Connect properties within neighbourhoods Connect a neighbourhood with an arterial road Provide direct access to adjacent lands 	<ul style="list-style-type: none"> Intersections with other roads Regulated access from adjacent property 	20 – 30	1,000 – 12,000	50 – 70	60	<ul style="list-style-type: none"> On street parking may be permitted 	Considered/ Reviewed for Bus service	Designated Cycling Operating Space ²	Sidewalks on both sides of the road in urban areas
Local	<ul style="list-style-type: none"> Provide direct access to adjacent lands Connect properties within a neighbourhood to collector roads 	<ul style="list-style-type: none"> Intersections with collectors or other local roads Access from adjacent property permitted 	+ / - 20	Less than 1,000	40 – 50	60	<ul style="list-style-type: none"> On-street parking is generally permitted Goods movement restricted except for that having origin or destination along the road 	Generally no regularly scheduled transit service	Shared Roadway ³	Sidewalks on at least one side of the road in urban areas

1. Options may include: buffered paved shoulders in rural areas; active transportation path in rural or urban areas; separated bicycle lanes / cycle tracks in urban areas; or alternate route

2. Options may include: paved shoulders or buffered paved shoulders in rural areas; exclusive bicycle lanes or separated bicycle lanes / cycle tracks in urban areas

3. Options may include: shared lane markings (rural or urban areas); standard or wide curb lanes (rural or urban areas)



10.2.2 Road Cross Sections

New road cross sections for each road classification have been prepared to illustrate how the concept of Complete Streets can be applied to roads in Greater Sudbury. Pedestrian and cycling facilities have been shown for each classification. Road cross sections are provided in:

- **Figure 77:** Proposed Primary Arterial Road Cross Sections;
- **Figure 78:** Proposed Urban Secondary or Tertiary Arterial Road Cross Section;
- **Figure 79:** Proposed Rural Secondary or Tertiary Arterial Road Cross Section; and
- **Figure 80:** Proposed Collector Road Cross Section.

10.2.3 Reassignment of Roads to Classifications

As part of the process of revising the road classifications to incorporate Complete Streets, the current classification of roads also was reviewed to determine whether the classification met the road's intended function. In two cases, changes were made to the road classification. These include:

- New Collector Roads
 - Montrose Avenue (from Secondary Arterial)
 - Elmview Drive (from Tertiary Arterial)

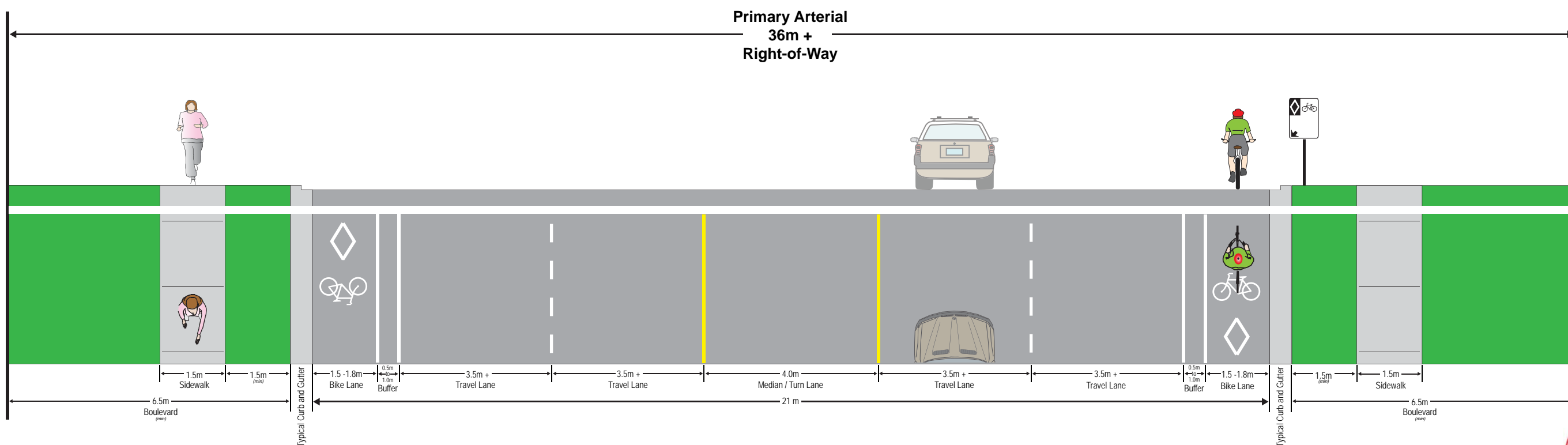
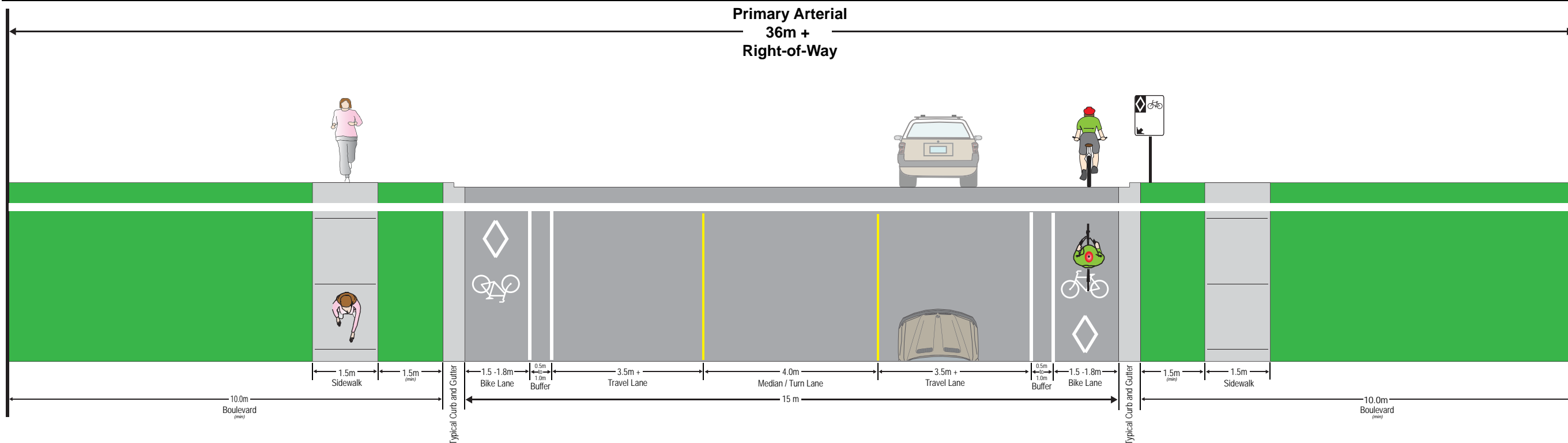
Montrose Avenue presently functions as a collector road in a residential neighbourhood. It is planned to be connected to the Maley Drive extension. Even after this new connection, the road would continue to function as a collector road. The reassignment of this road to the Collector Road classification meets the current and planned use of the road.

Elmview Drive is constructed with an urban cross section. This road was reclassified as a Collector Road as it primarily acts to collect traffic from residential streets in Val Therese.

A revised road classifications map is shown in **Figure 81**.

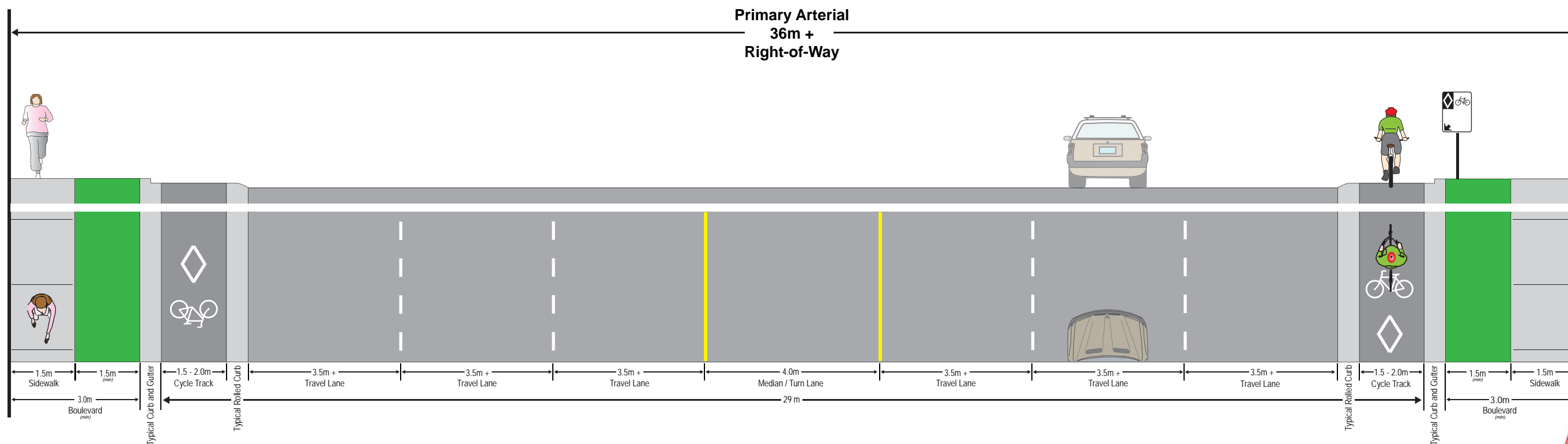
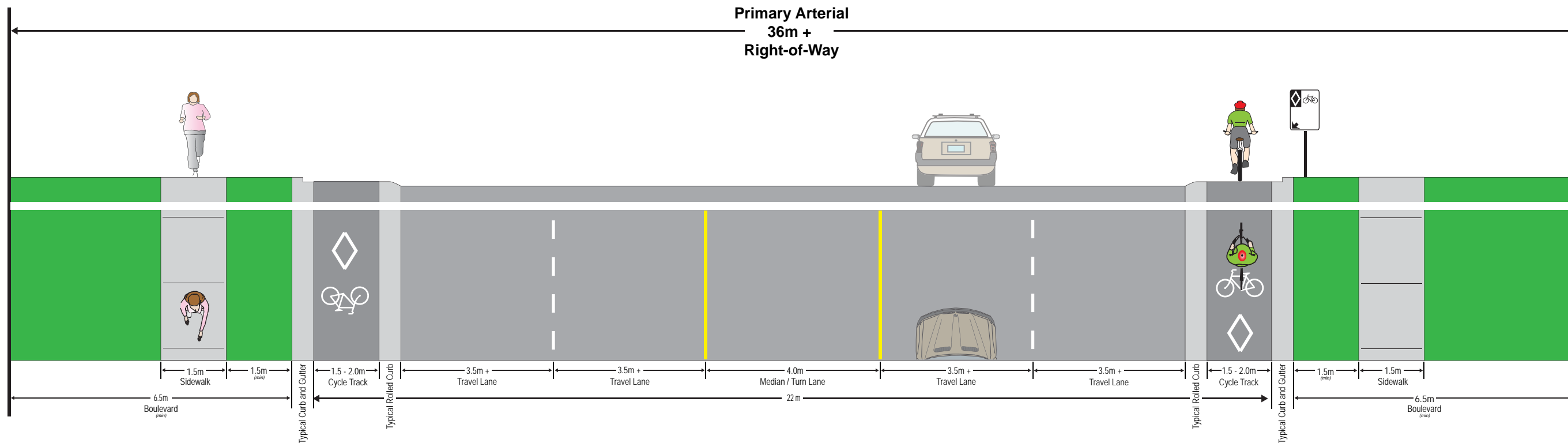


Function	Access	Right-of-Way Width (m)	Addition / Subtraction
<ul style="list-style-type: none"> Connect the City with other major centres outside the City and/or separate communities within the City Facilitate long distance person or goods movement travel through the City or between major activity areas within the City Traffic movement primary consideration 	<ul style="list-style-type: none"> Intersections with other arterial roads or collector roads Driveways to major regional activity centres 	36+	



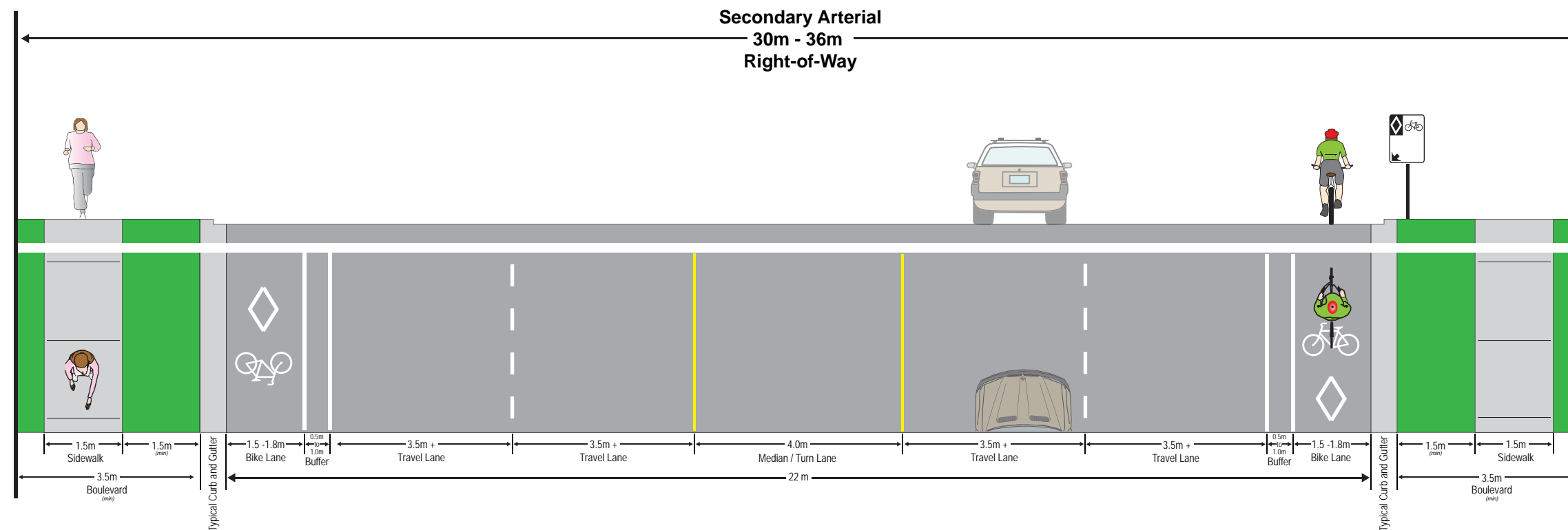
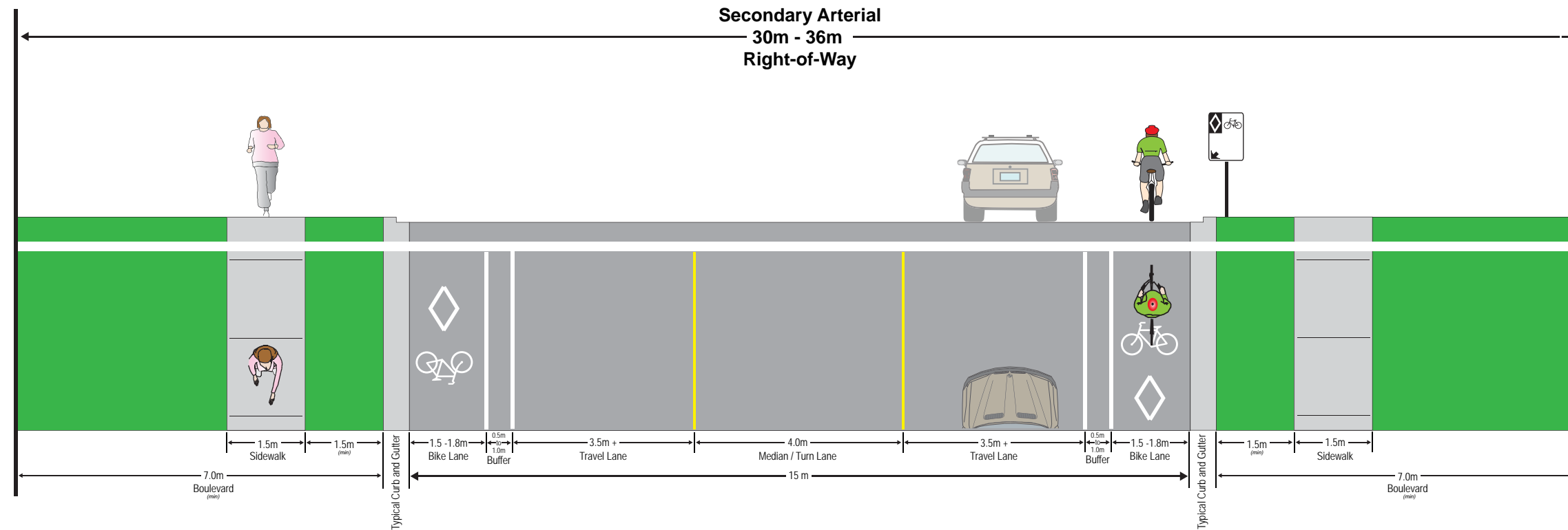
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Function	Access	Right-of-Way Width (m)	Addition / Subtraction
<ul style="list-style-type: none"> Connect the City with other major centres outside the City and/or separate communities within the City Facilitate long distance person or goods movement travel through the City or between major activity areas within the City Traffic movement primary consideration 	<ul style="list-style-type: none"> Intersections with other arterial roads or collector roads Driveways to major regional activity centres 	36+	



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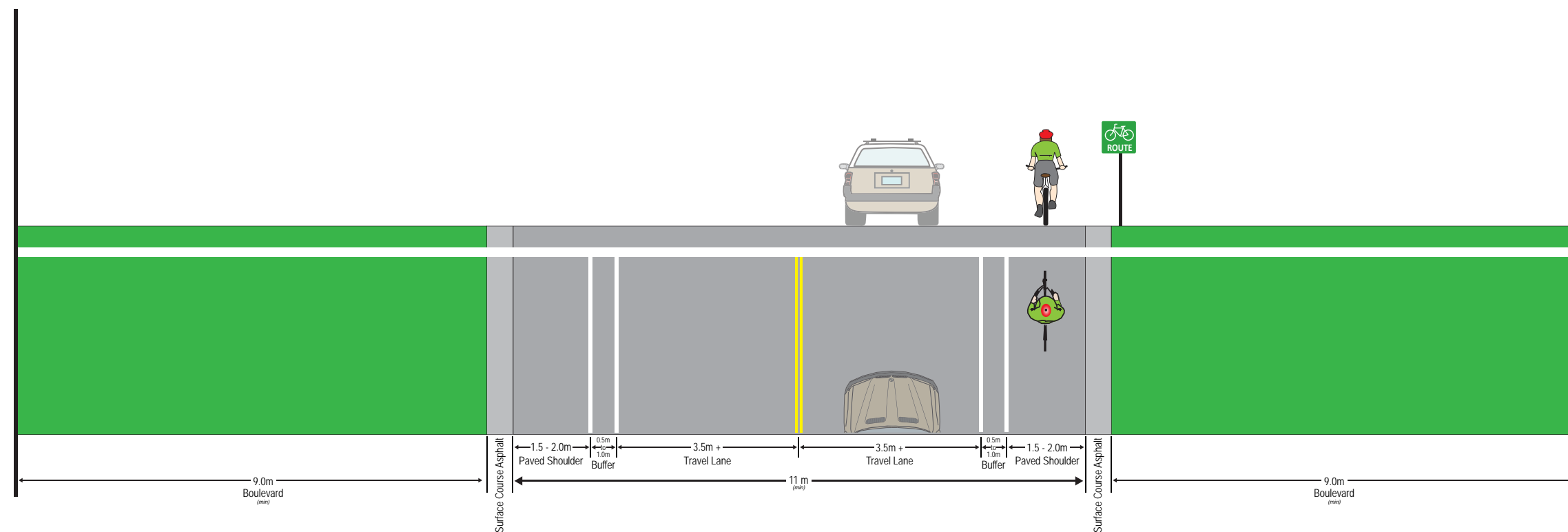
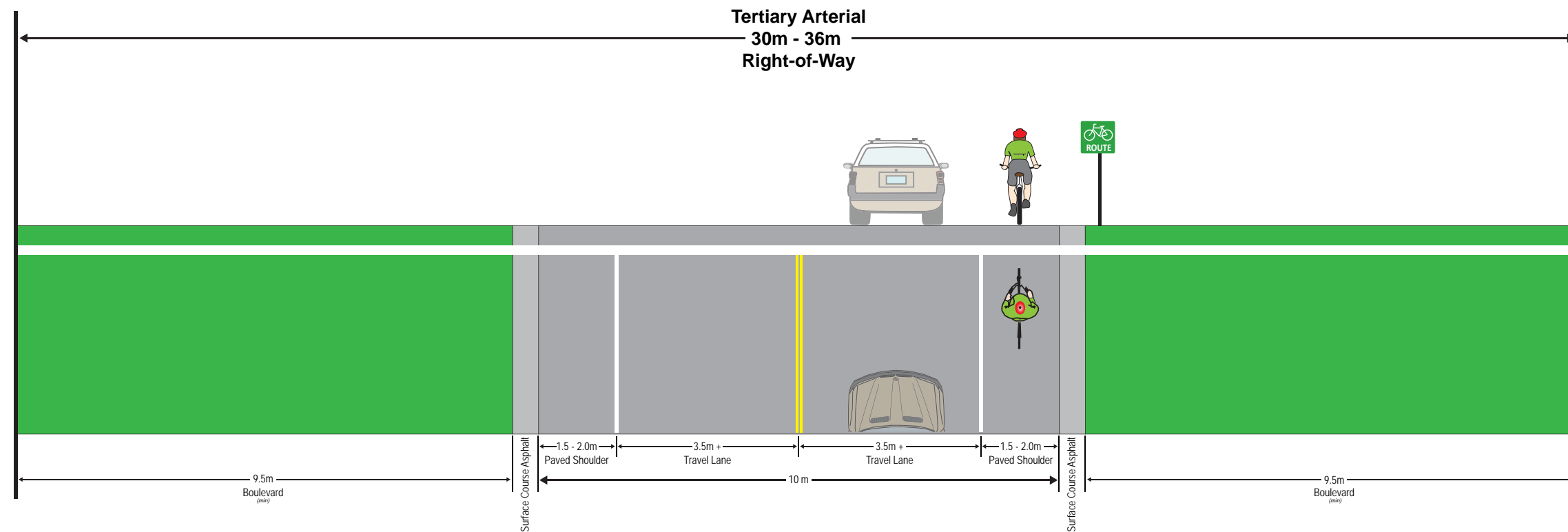
Function	Access	Right-of-Way Width (m)	Addition / Subtraction
<ul style="list-style-type: none"> Connect two or more communities or major activity centres Connect two primary arterial roads Connect a community or activity centre with a primary arterial road Traffic movement primary consideration 	<ul style="list-style-type: none"> Intersections with other roads Access from adjacent property strictly regulated and kept to a minimum 	30-36 (Urban Area)	<ul style="list-style-type: none"> Montrose Avenue (to Collector Road) Elmview Drive (to Collector Road)



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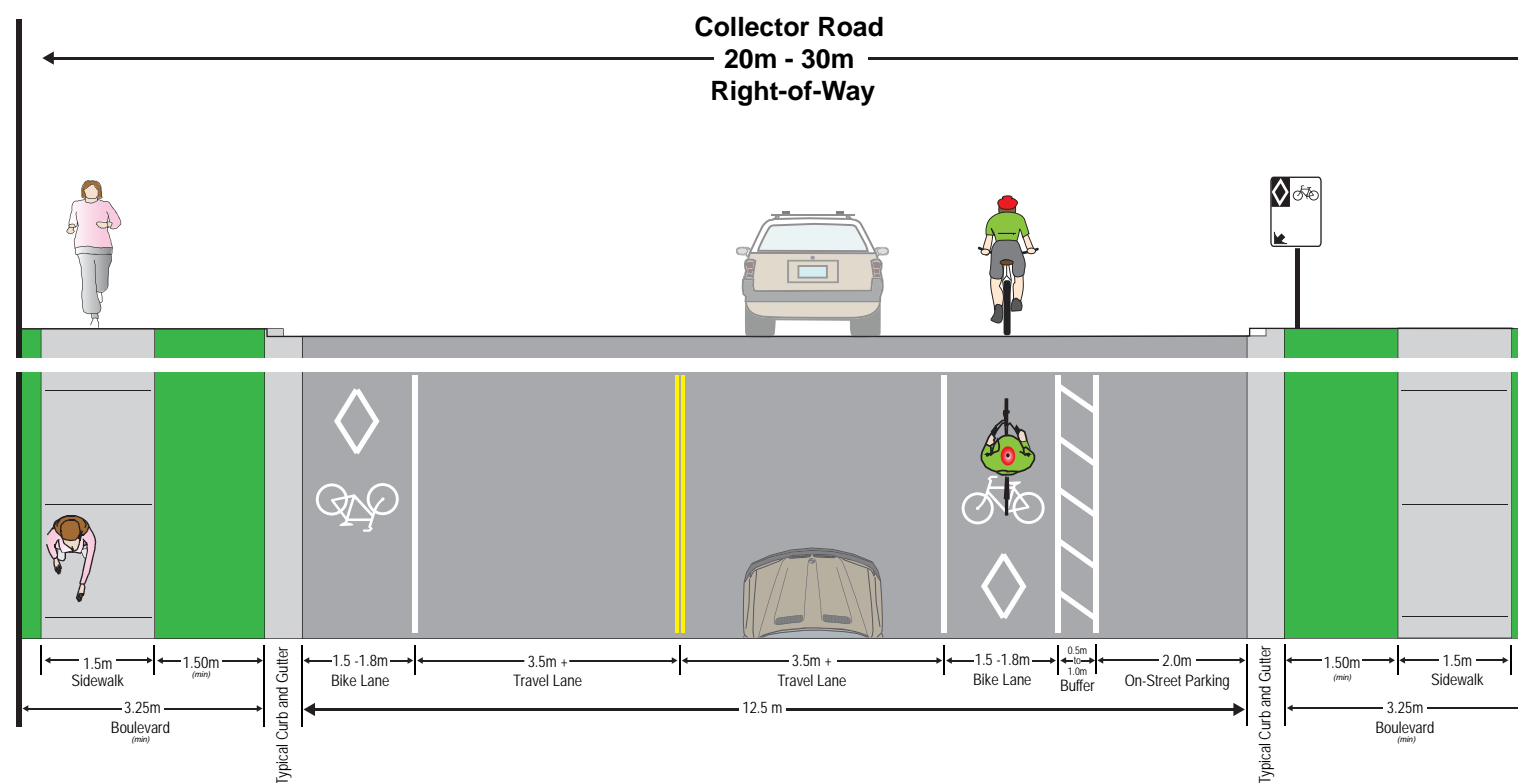
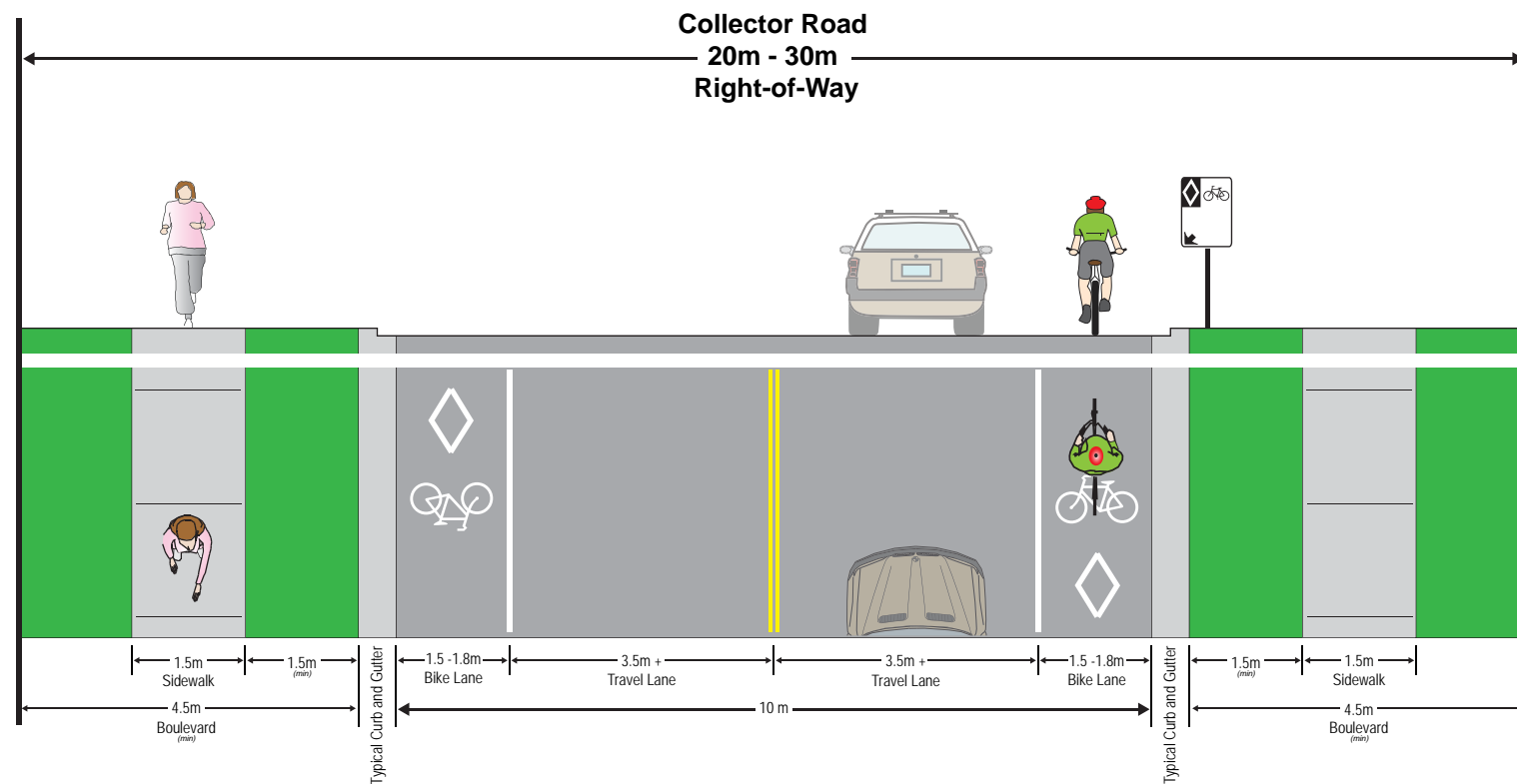
Figure 79

Function	Access	Right-of-Way Width (m)	Addition / Subtraction
<ul style="list-style-type: none"> Connect small / rural communities Connect communities to primary or secondary arterial roads 	<ul style="list-style-type: none"> Intersections with other roads Access from adjacent property strictly regulated and kept to a minimum 	30-36 (Rural Area)	



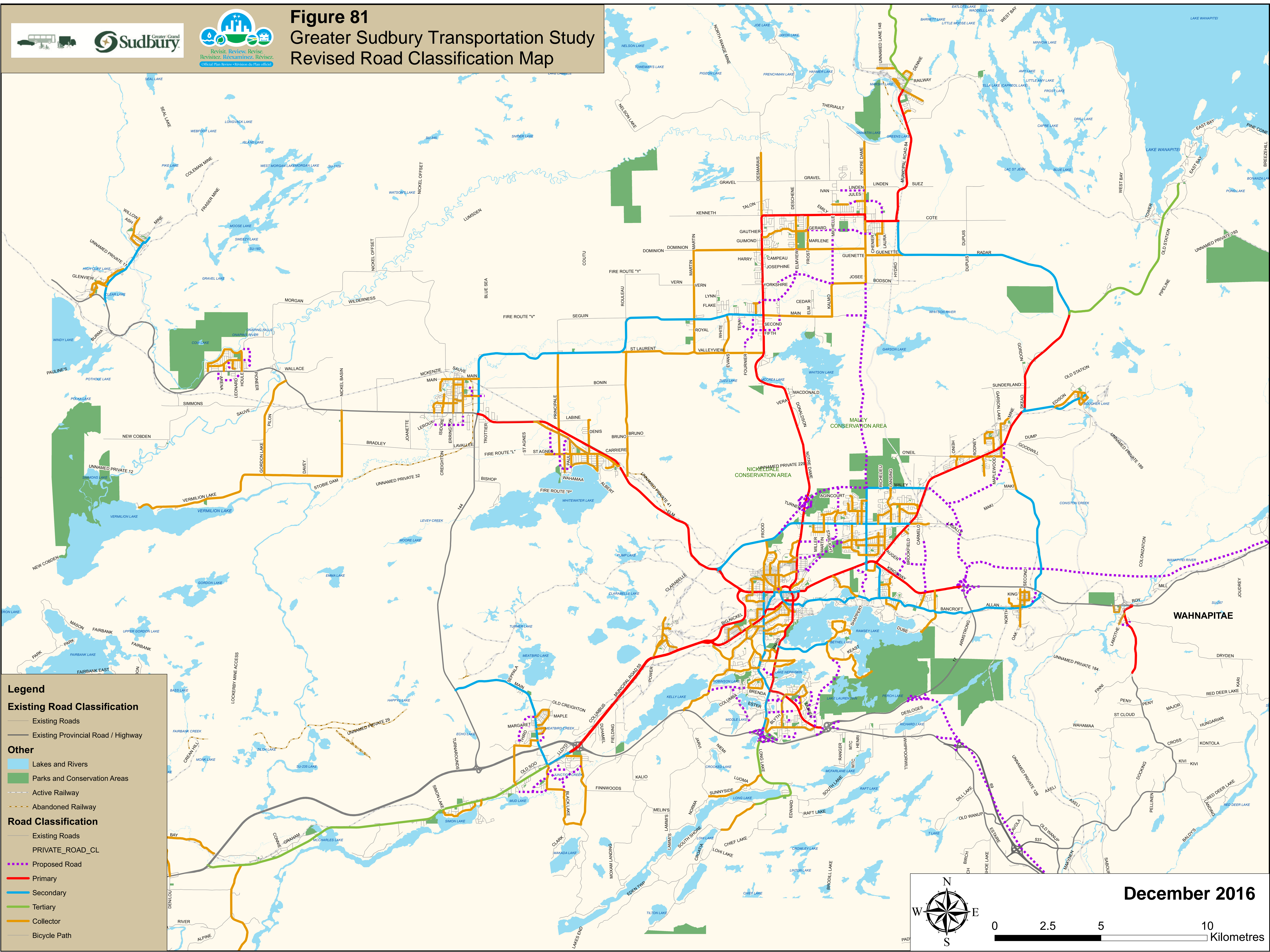
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Function	Access	Right-of-Way Width (m)	Addition / Subtraction
<ul style="list-style-type: none"> • Connect properties within neighbourhoods • Connect a neighbourhood with an arterial road • Provide direct access to adjacent lands 	<ul style="list-style-type: none"> • Intersections with other roads • Regulated access from adjacent property 	20-30	<ul style="list-style-type: none"> • Montrose Avenue (from Secondary Arterial) • Elmview Drive (from Tertiary Arterial)



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Figure 81
Greater Sudbury Transportation Study
Revised Road Classification Map



Legend

Existing Road Classification

- Existing Roads
- Existing Provincial Road / Highway

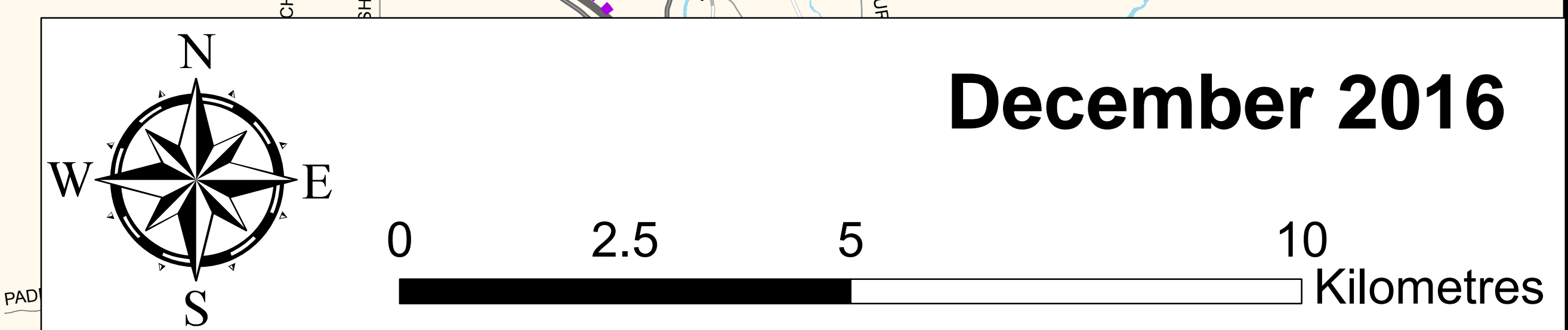
Other

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

Road Classification

- Existing Roads
- PRIVATE_ROAD_CL
- Proposed Road
- Primary
- Secondary
- Tertiary
- Collector
- Bicycle Path

December 2016



10.3 Appropriate Implementation of Urban Cross Sections

The conversion from rural to urban roadway cross sections is important to sustainable mobility in the City of Greater Sudbury. This will help the City achieve the goal of constructing Complete Streets that are designed, built, operated and maintained for all types of transportation and for all types of transportation network users. In addition to travel lanes for vehicles, the conversion from rural to urban cross sections provides the opportunity for the City to supply transportation infrastructure for all other transportation modes and all transportation system users, such as:

- Bus stops and bus lay-bys for transit;
- On- or off-street cycling lanes for cyclists; and
- Sidewalks for pedestrians.

To conform to the Official Plan, cross sections should only be converted in land use areas designated as ‘Living Area’, ‘Employment Area’ or ‘Industrial Area.’ These areas are fully-serviced by municipal sewer and water and are the primary focus of residential development. They also include the majority of the designated employment areas. The non-urban settlements, as well as the rural and waterfront areas, are typified by low density development. In many cases, the City does not currently, or plans to, provide infrastructure services for these areas and rural cross sections are expected to remain.

10.3.1 Criteria for Rural to Urban Conversion

The justification for road segments to be converted from rural to urban cross sections can be evaluated using a series of criteria, including:

- Land use of the nearby area and associated pedestrian trips;
- High average annual daily traffic (AADT) values, since this can pose a safety concern for pedestrians;
- Bus routes which, even when passing through an area with few pedestrian attractors, should be accessible by potential passengers without the need to walk in the roadway;
- Nearby existing sidewalks and curbed segments; and
- The installation of non-transportation related infrastructure to expand a utility network or convey a water course, for example.

10.4 Sidewalk Priority

The provision of sidewalks on both sides of urban roads is significant for sustainable mobility in the City of Greater Sudbury and will help the City achieve the goal of constructing ‘Complete Streets’ that are designed, built, operated and maintained for users of all types of transportation, including pedestrians.

10.4.1 Criteria for High Priority Road Segments for Sidewalk Implementation

Several factors should be considered to determine whether conversion to an urban cross section alone may not be sufficient and sidewalk implementation may be warranted. These include:

- Identification as a link for the provision of pedestrian or cycling facilities as part of the development of the active transportation network;
- The formal classification of the road, such as arterial, collector or local;



- The proximity to, and potential connectivity between, generators of pedestrian traffic such as hospitals, libraries, transit terminals, retirement or nursing homes, high-density housing, tourist attractions, arenas or places of work;
- The degree of commercial land use in the area;
- Existing or proposed bus routes along or bisecting the segment, where providing safe access for potential passengers will encourage more people to take transit;
- The proportion of local residents who are seniors or belong to other vulnerable groups and who, compared to residents of other areas, are less agile as pedestrians and less likely to have access to an automobile;
- The distance from an elementary, secondary, or post-secondary school, which is inversely proportional to the number of children to be expected and the resultant need to separate pedestrians from traffic;
- The presence of nearby public green spaces;
- The potential of a new link to reduce local automobile trips undertaken due to its impact on cutting walking distances to nearby attractors;
- Whether the link will complete an otherwise continuous sidewalk or create an isolated segment;
- The number of alternative connections with a reasonable degree of directness, particularly where physical barriers such as highways, rivers and railway lines are present;
- Whether sight lines are affected by topography or physical obstructions that could increase the risk of motor vehicles colliding with any pedestrians forced to walk in the roadway; and
- The potential for redevelopment which, if anticipated to occur in the near term, may provide the opportunity for developers to fund the facilities through the site plan process.

10.5 Policy Recommendations for Rural to Urban Conversion and Sidewalks

Based upon available funding and consultation with the community, road segments can be identified and programmed for conversion to urban cross-section or for sidewalk installation. As policy in ‘communities’, these upgrades should:

- Seek to improve facilities for transit users, cyclists and pedestrians in order to create more ‘Complete Streets’;
- Engage the existing community to promote the benefits of the ‘Complete Streets’ concept and, in the case of the urban cross section, evaluate the level of enthusiasm for the conversion;
- Consider the road classification since, for example, rural arterials would not be prime candidates for conversion;
- Be coordinated with regularly scheduled maintenance and road works planned in the capital improvement program;
- Be tied to development charges in the case of new development; and
- Consider the 5-year capital budgets prepared by the City of Greater Sudbury Roads and Transportation Services and ratified by the City Council.

10.6 Transit

Transit is an important part of Greater Sudbury’s transportation network. The transportation improvements in this Transportation Study Report will help Greater Sudbury Transit maintain reliable schedules because the recommended improvements help address congestion and connectivity. The active transportation network planned complements the road improvements



and will help extend the reach of transit by providing appropriate cycling and pedestrian facilities that can be used to access transit routes. The recommendation for transit is to build upon this Transportation Study Report with a detailed Transit Master Plan that leverages the planned road and active transportation improvements to encourage increased ridership and expanded coverage of the transit network.

Recommendation: Develop a Transit Master Plan to leverage the road and active transportation plans recommended in the Transportation Study Report.

10.7 Greater Sudbury Airport

Greater Sudbury Airport services city residents and businesses and is a hub for air travel to parts of Northern Ontario. The Transportation Study Report recommends improvements to Falconbridge Highway, the key arterial road linking the airport with the major population centres in Greater Sudbury. The Maley Drive widening and extension would help facilitate access to the airport from population and employment centres and the Kingsway widening could improve access into and out of the downtown. Overall, the Transportation Study Report supports Greater Sudbury Airport by providing a surface transportation network that is convenient and reliable in which to access the airport.

Recommendation: Implement road improvements that will improve travel time and access to Greater Sudbury Airport.

10.8 Rail

Rail has played a vital role in Greater Sudbury’s history and continues to play an important role in the movement of goods and people. The Transportation Study Report reaffirms the Official Plan policy for the City to work with rail companies to implement any feasible relocation of existing rail lines or rail yards. Relocation would ideally enable greater road network connectivity in the city, such as the proposed Larch Street extension to Lorne Street. Relocating rail lines also could facilitate realignment of roads, such as the Frood – Regent corridor. Relocating rail lines could have transportation safety benefits in the elimination of some at-grade rail crossings. Rail lines often create barriers to surface transportation due to limited crossing points. Rail line relocation could encourage greater multi-modal connectivity when these barriers are removed.

Recommendation: Should the rail companies consider the relocation of rail lines or rail yards, the City should work with them throughout the relocation process.

10.9 Roundabouts

Roundabouts are circular intersections with unique characteristics that are defined by their distinct design and operation. They have been widely accepted as a more operationally efficient and environmentally friendly method of traffic control when supported by robust engineering analysis. In addition, roundabouts are generally safer than signalized or stop-controlled intersections due to slower operational speeds and fewer vehicular conflicts.

Recommendation: The City should develop roundabouts guidelines that could be used to help determine the appropriateness of installing roundabouts at new intersections in the city, or at existing intersections where the method of traffic control is being reconsidered.



10.10 Transportation Demand Management

Transportation Demand Management (TDM) is defined as a wide range of policies, programs, services and products that influence how, why, when and where people travel. The intent is to encourage more efficient and effective use of the existing transportation infrastructure while discouraging single-occupant vehicle trips. TDM programs have resulted in many benefits within communities where they are deployed and are the basis for developing sustainable travel initiatives. The reasons for developing a TDM Plan are often rooted in the need to decrease the volumes of traffic on roadways which in turn can reduce the need to expand existing infrastructure; reducing the negative consequences of transportation on the environment; and promoting more sustainable and healthy ways to travel. Through a TDM Plan, the focus can be on moving people rather than vehicles, which in turn will lead to increases in mobility and accessibility for all members of the community. A complete program that offers a suite of options which is institutionalized in a formal TDM program will ensure that there will be long-term use of sustainable modes.

Successful TDM programs require partnerships, individualized travel programs, information dissemination, marketing and on-going support. They also require a champion who can lead the program and provide the necessary guidance to ensure that the program meets the goals and objectives of the City. As a result, TDM, can provide the City of Greater Sudbury with many benefits found in other municipalities, including the following:

- The Region of Peel has shown a decrease in greenhouse gas (GHG) emissions as a result of the implementation of their TDM program which has led to a decrease in the number of single-occupant vehicle trips. Peel Region has also developed a website promoting active modes of transportation thereby also reducing the number of trips which cause pollution, further reducing their GHG emissions. (Region of Peel, Air Quality Progress Report, 2011); and
- Seattle, Washington has eliminated parking minimums for office, commercial and residential uses in the downtown and has implemented parking maximums. This is considered a TDM support mechanism which by reducing the supply of parking resulting can lead to more people carpooling and taking transit trips (City of Seattle, Best Practices: Transportation Demand Management, January 2008).

In fact, many jurisdictions across North America have been looking at how effective their TDM programs have been overall. Specific initiatives are not generally evaluated as it is difficult to determine which ones have impacted specific travel behaviours. The following are results from a small sample of programs:

1. City of Alexandria, Virginia has provided TDM programs to the community for over 25 years. They were one of the original members of the Metropolitan Washington Council of Governments program called Commuter Connections. The City has also developed its own program, called Local Motion which provides services to the businesses and residents of Alexandria in order to reach its mobility goals, air quality targets and reductions in single-occupant vehicle travel. In 2011, the City released the following information:
 - A survey that was undertaken in 2010 indicated that more than half of the respondents stated using or increasing their use of a sustainable mode (cycling (up 31%), transit (up 18%) and walking (up 18%).
 - Others sought more travel information from their employer (16%), transit operators (11%) and other commute organizations (11%).



- Fifteen percent of respondents said that they made a change due to the Local Motion program services.
2. Bellevue, Washington has had a TDM program in place that began for a number of years beginning in the 1980's. It is directed primarily at workplaces (due to State requirements), with different types of programs depending upon the size of the workplace. The City is relatively small (population of about 132,000) with a large employment base (139,000). The City released its first progress report on TDM in 2014. The results posted by the City of Bellevue include:
 - Daily transit ridership increases of 145% between 2003 and 2013;
 - A city-wide reduction of 11.5% in drive alone trips between 1997 and 2014 which is equal to about 2000 fewer car trips on the road each day.
 3. Smart Commute is a program of Metrolinx which delivers workplace commuter options programs to 340 workplaces in the Greater Toronto and Hamilton Area (GTHA) through 13 Transportation Management Associations (TMA's). The program provides support, information and initiatives such as the Smart Commute Tool to its member workplaces. It has resulted in many benefits such as reduced traffic congestion and commute times in the GTHA, lower commuter operating costs and improved health. The results for 2015 are :
 - An annual reduction of 2.4 million single occupant vehicle trips;
 - An annual increase of 2.9 million walking and cycling trips and 2.2 million carpool trips;
 - Creates long-lasting partnerships between the public and private sectors; and
 - Provided other benefits including:
 - Businesses saw reduced costs and reduction in parking demand;
 - Flexible work arrangements allow for continuity of business operations;
 - Improvements to employee morale, retention, recruitment and commute satisfaction; and
 - For commuters, there was a decrease in commuting costs; increased options resulted in more travel flexibility and improvements to both mental and physical health.

Components of a TDM Plan should be selected to meet the needs of the community. As such, it is possible that not every component listed below will be appropriate for Greater Sudbury. A much more detailed analysis of the components will need to be undertaken as part of a detailed TDM Plan for Greater Sudbury to determine the types of programs that will be most beneficial to the City. The most common components for a TDM Plan are:

- TDM Coordinator to administer the program;
- Support and promote transit services; ensure that they are able to support TDM policies through routing and schedules;
- Encourage the use of active modes and support the development of infrastructure including bicycle parking and end-of-trip facilities (showers and locker rooms);
- Partnerships with community groups, other municipal agencies and others who will be allies and provide support and assistance in the delivery of TDM programs;
- Changes in parking regulations which support TDM such as incorporating maximum parking requirements and reducing minimum ones and incorporating TDM requirements in the guidelines for Traffic Impact Assessment reports;
- Development of land use policies which support TDM initiatives;
- Incentives to encourage sustainable travel such as discounted transit passes, guaranteed ride home programs, prizes;



- Events such as lunch and learn sessions, transportation fairs, booths at community events and other outreach activities;
- Online carpool and transportation buddy programs that will help find carpool partners and also provide support and learning opportunities for those new to using transit and cycling;
- Personalized travel planning programs that provide information to meet the needs of individuals and households;
- Workplace programs that support the needs of commuters, including those at remote locations and employed at shift-workers;
- School-based programs that provide parents and students as well as teachers and staff with options for traveling to school which enhance safety, reduce congestion, and encourage more active travel; and
- Carshare and bikeshare programs.

To provide more sustainable and accessible mobility options to the residents of Greater Sudbury, the City will need to develop a detailed TDM Plan, which should include the following:

- Policies that are integrated with the City’s Official Plan, Transportation Master Plan Study Report, secondary plans, public health initiatives, transit service planning and active transportation planning;
- Recommended partnerships with stakeholders, including sustainable transportation advocates, transit services, public health, businesses, school boards, etc.;
- A set of defined goals and objectives, as well as modal share targets;
- A detailed set of TDM components;
- A detailed monitoring plan;
- An implementation plan;
- Funding recommendations; and
- Staffing recommendations.

Recommendation: The City should prepare a Transportation Demand Management Plan.

10.11 Pedestrian Safety

Pedestrian safety crossing roads at intersections or midblock locations has been a concern voiced by the Council and the general public throughout the development of the TSR. The framework for a sidewalk priority policy has been developed and included in **Section 10.4**. The City presently uses Ontario Traffic Manual Book 15 – Pedestrian Crossing Treatments, as the standard for pedestrian crossings. OTM Book 15 presents and discusses a range of pedestrian crossing devices and is most commonly used to establish the technical justification for the installation of various types of devices, and specifies the basic design of such devices. Street design enhancements referenced within Book 15 are becoming more prevalent across Ontario as a means to improve pedestrian safety. Furthermore, the former emphasis on existing pedestrian volumes and delays as justification for pedestrian crossing enhancements is transitioning into the identification of potential future demand for pedestrian facilities, as well as the associated benefits of street design enhancements for general traffic safety and community enjoyment of the public realm – commonly referred to as Complete Streets concepts.

Examples of street design enhancements which can provide benefits for all road users include curb extensions, midblock medians, and pedestrian refuge islands. Numerous municipalities across Ontario are embracing these street design concepts as standard applications when a street is being designed or redesigned in order to impact driver behaviour (to reduce speed) and



provide more comfort and appreciation of the public realm for all street users. In addition, traffic operations practices are adjusting to the demands for improved accommodation for pedestrians and cyclists by introducing traffic signal enhancements, such as increased “walk” time for slower walkers, accompanied by countdown signals.

Typically, vehicle pedestrian accidents occur because the driver did not see the pedestrian or the pedestrian did not see the vehicle. The measures recommended herein are propose to help improvement visibility of the pedestrian.

The purpose of this section is not to analyze specific intersections of concern but to provide general guidance to enhance pedestrian safety. The guidance should be studied on an intersection by intersection or block by block basis, and for the entire project length in the case of corridor reconstruction, to consider the appropriate improvements to implement.

Leading pedestrian interval: Pedestrians can receive an advance “Walk” sign prior to vehicle traffic receiving a green signal in the same direction. The leading pedestrian interval enhances the visibility of the pedestrian by allowing the pedestrian to begin to cross the street when all vehicle traffic has a red signal. A visible pedestrian in the crosswalk helps establish the pedestrian right-of-way over right turning vehicles. The leading pedestrian interval phase typically is 3 to 7 seconds in length and can be applied to intersections with a known history of conflict.

Curb extensions: Curb extensions typically are used in areas with on-street parking in settings such as downtown areas and are typically installed on collector or local roads. Curb extensions narrow the roadway, reducing the crossing distance for pedestrians crossing streets and enhancing the visibility of pedestrians as the sidewalk is extended, typically beyond the stop bar for vehicles.

Pedestrian Crossovers: Pedestrian crossovers (PXOs) facilitate pedestrian crossings at uncontrolled locations. They are indicated by pavement markings and signs and may be enhanced with flashing beacons and overhead signs. The MTO has updated OTM Book 15 to define Level 2 PXOs and provide guidelines to install these facilities. Each PXO can be assessed on a case-by-case basis and constructed as per the standards provided by the OTM..

Crosswalk markings: Highly visible ladder or zebra crosswalk markings should be used to alert motorists of the likely presence of pedestrians. These crosswalk markings are only effective in achieving their goal of visibility if they remain visible through regular re-painting and maintenance.

Pedestrian Refuge Islands: Pedestrian refuge (or safety) islands limit pedestrian exposure in an intersection. They typically are applied where pedestrians must cross three lanes of traffic in one direction. The islands require some physical barrier such as curbs or bollards to protect people waiting. The benefits of pedestrian refuge islands include:

- Slower walkers can navigate across a street in two stages;
- When installed at traffic signals, pedestrians can wait for the next signal cycle before they attempt to complete their crossing;
- Drivers are alerted to the increased likelihood of pedestrian crossing activity; and
- When applied at midblock locations, the refuge island provides a means for helping pedestrians access midblock transit stops.



Sidewalk Priority Policy: In some locations there are no sidewalks for pedestrians. The City needs to finalize the sidewalk priority policy for Greater Sudbury and begin to implement the policy by identifying the most important missing links in the sidewalk network and constructing sidewalks in these locations.

The sidewalks should be designed and constructed using the following principles to achieve a well-balanced outcome that is safe, functional and attractive. Sidewalks should:

- Foster an accessible environment through a wide and continuous clearway, and barrier free access points to street crossings, transit stops and buildings using tactile treatments where appropriate;
- Design for operation through all seasons and weather conditions including sunshine, heavy rain and snow;
- Create opportunities for placemaking through seating, dining, public art wherever sufficient space exists;
- Design for efficient maintenance by providing sufficient soil/growing media and water for trees to reach maturity, coordinating utility upgrades and providing adequate access to utilities, and using durable and replaceable fixtures and construction materials
- Allow for flexibility so that the sidewalk can evolve with changing demands.

Recommendations:

- Finalize Sidewalk Priority Policy.
- Identify intersections or midblock locations with a history of vehicle / pedestrian conflict.
- Study and implement appropriate measures to improve pedestrian safety.

