Report to
Rapport au:

Transportation Committee
Comité des transports
3 May 2017 / 3 mai 2017

Submitted on April 18, 2017
Soumis le 18 avril 2017

Submitted by
Soumis par:
Vivi Chi,
Manager / Gestionnaire,
Transportation Planning / Planification des transports
(613) 580-2424 x21877, Vivi.Chi@ottawa.ca

Contact Person
Personne ressource:
Nelson Edwards, Senior Project Manager, Transportation Strategic Planning / Gestionnaire principal de projet, Planification stratégique des transports,
(613) 580-2424 x21290, Nelson.Edwards@ottawa.ca

Ward: CITY WIDE / À L'ÉCHELLE DE LA VILLE

File Number: ACS2017-TSD-PLN-0004

SUBJECT: Applying the Complete Street Lens to Projects in 2016 and 2017

OBJET: Application de l'optique de rue complète aux projets de 2016 et 2017

REPORT RECOMMENDATION

That the Transportation Committee receive this report for information.

RECOMMANDATION DU RAPPORT

Que le Comité des transports prenne connaissance du présent rapport, à titre informatif.

EXECUTIVE SUMMARY

Complete Streets incorporate the physical elements that allow a street to offer safety, comfort and mobility for all users of the street regardless of their age, ability, or mode of transportation. The application of a “Complete Street lens” uses every transportation project as a catalyst for improvements within the scope of that project.

On October 14, 2015, Council directed staff to report back to the Transportation Committee on projects that have been examined and implemented through the Complete Streets lens for 2016 and those planned for 2017. This report is in response to Council’s directive.

Public Consultation/Input

No direct public consultation was undertaken for the preparation of this report. Consultation occurred during the preparation of the Complete Streets Implementation Framework.

RÉSUMÉ

Les rues complètes intègrent les éléments physiques qui permettent d’offrir sécurité, confort et mobilité à tous les usagers, quel que soit leur âge, leur capacité ou le mode de transport utilisé. L’application d’une « optique de rue complète » sert de catalyseur pour apporter des améliorations dans le cadre de chaque projet de transport.

Le 14 octobre 2015, le Conseil a chargé le personnel de rendre compte au Comité des transports au sujet des projets qui ont été examinés et mis en œuvre selon l’optique de rue complète en 2016 et de ceux qui devraient l’être en 2017. Le présent rapport fait suite à cette directive du Conseil.

Consultation publique et commentaires

Aucune consultation publique directe n’a été entreprise pour élaborer le présent rapport. Une consultation a eu lieu lors de la préparation du Cadre de mise en œuvre des rues complètes.

BACKGROUND

On November 26, 2013, Council approved an update to the City’s Transportation Master Plan (TMP) as part of the Building a Liveable Ottawa Initiative which directed the City to design and build complete streets by:

- Adopting a “complete streets” policy for road design, operation and maintenance;

- Updating road design guidelines, standards and processes to reflect complete streets principles; and,
- Using multi-modal levels of service to assess road designs and allocate right of way.

On October 14, 2015 Council approved the Complete Streets Implementation Framework report (ACS2015-PAI-PGM-0159). Council also directed staff to report back to the Transportation Committee to identify the projects that have been examined and implemented through the "Complete Street lens" for 2016 and those planned for 2017.

DISCUSSION

The objective of the Complete Streets policy is to build an urban form within an affordable fiscal framework that supports multi-modal transportation and the increased use of sustainable transportation modes (i.e. walking, cycling, transit, and car pooling). This report highlights how the "Complete Street lens" is being applied to Capital Infrastructure projects, Area Traffic Management studies and projects, planning projects and policy initiatives, and also identifies education and promotion related to Complete Streets. In 2016, 10 major new road and integrated road renewal projects included Complete Street features and in 2017 a further nine projects will progress to design and construction.

Capital Infrastructure Projects

Major New Road and Integrated Renewal Projects:

Major new roads such as collector and arterial roads in new communities are planned and designed by following up-to-date policies and plans to meet the needs of a growing community. While these streets are often built to be phased and expanded over time, the application of a "Complete Street lens" can be seen in the early stages of corridor development. Examples include: Campeau Drive Extension (Huntmar to Didsbury) and Robert Grant Avenue (Abbott to Fernbank).

All Integrated Road Renewal projects are scoped using the Complete Street lens. Noteworthy examples of projects that demonstrate the features of Complete Streets include:

- Under construction in 2016: Main Street (Pretoria to McIlraith Bridge); and,

- For planning: Elgin Street (Laurier Avenue West to Queen Elizabeth Drive); Bank Street (Riverside Drive to Ledbury Avenue), and St. Laurent Boulevard (Industrial to Smyth).

Light Rail Transit (LRT) related street improvements – O-Train Confederation Line and Stage 2 LRT:

The implementation of the LRT creates opportunities for complete streets and improved connectivity for walking and cycling.

As part of the construction of the O-Train Confederation Line, the renewal of Queen Street and Rideau Street was initiated in 2016 and will be completed in time with the Light Rail Transit opening. These street designs will facilitate a seamless high-quality level-of-service for a greater number of transit riders between the O-Train Confederation Line stations, local bus stops and downtown destinations. Further, the wider sidewalks and streetscaping not only allow for additional capacity but will also provide a more pleasant experience for pedestrians.

As part of the Confederation Line West Extension between Tunney's Pasture and Baseline and Bayshore Stations, O-Train Planning has studied the design options for the reconstruction of Richmond Road after the construction of the Western LRT in the area. The Richmond Road Complete Street study has generated a complete street design concept for the corridor between the Sir John A. Macdonald Parkway in the west and Berkley Avenue in the east. The objective is to include: improved sidewalks, crosswalks, and pathways; safe and convenient cycling; promotion of "place making" opportunities; and enhancements to the public realm with landscaping amenities.

A list of projects in this category is attached as Document 1.

Road Renewal/Resurfacing Projects:

Infrastructure Services has an annual program for the resurfacing of roads. The list of projects to be implemented in 2016 was reviewed with a Complete Street lens and consideration was given to enhance the pedestrian, cycling and transit operations and environment. The focus was on affordable measures, within the context and scope of the annual renewal program, and included such measures as painted bicycle lanes, bike boxes, enhanced crosswalks, improved bus stop areas, and paved shoulders along rural roads and in villages for cyclists and pedestrians. As a result, 18 projects included complete street elements and there were some notable enhancements coordinated in the urban area, villages and in the rural area.

The list of candidate roads for the 2017 renewal and resurfacing program has been reviewed to identify opportunities to enhance the level of service for road users such as cyclists and pedestrians through paved shoulders, line painting, signage other measures. There are 11 noteworthy projects. A full list of these projects with Complete Street elements is included in Document 2.

Stand Alone Cycling and Pedestrian Projects:

The Cycling Facilities program implements cycling improvements across the city to fill in gaps and further implement the overall network identified in the 2013 Ottawa Cycling Plan (OCP). Cycle tracks, cross rides, separated cycling lanes, and advisory lanes are among the diversity of treatments used to improve cycling along city streets. A separate report to Transportation Committee in March 2017 provided a mid-term review of progress on the OCP.

The Pedestrian Facilities program addresses gaps in the City's pedestrian network by implementing missing sidewalk links. The 2013 Ottawa Pedestrian Plan (OPP) sets objectives, priorities and guidance to improve the quality and continuity of the pedestrian environment throughout the City. A separate report to Transportation Committee in March 2017 provided a mid-term review of progress on the OPP.

Traffic Services Branch's Pedestrian Crossover Pilot Program enhances the pedestrian crossings along many roads by providing new pedestrian crossovers. Crossovers were implemented at fifty-nine locations as part of this program in 2016 (as listed on the City's website) and a further 30 locations are currently planned for 2017.

Area Traffic Management Studies and Projects

The objective of the City's Area Traffic Management (ATM) program is to minimize the negative impacts of motorized vehicles on neighbourhoods, and improve safety and quality of life for all street users.

The ATM program has a number of concurrent studies and projects that are being implemented across the city. These include two on-going studies, five completed studies and the construction of 12 ATM projects in 2016 with four more ATM projects scheduled for construction in 2017. These projects are listed in Document 3. Noteworthy among these is the Byron Avenue traffic calming design. Extensive public consultation (including over 800 responses to an on-line questionnaire) and the exploration of innovative best practices is resulting in a solution that calms the street, improves travel for cyclists and enhances pedestrian access to the walkway within the

Byron Linear Park. Improvements along Byron Avenue are anticipated to be implemented in 2017 and 2018.

Planning Projects

Environmental Assessments:

Environmental Assessment studies create an opportunity to apply a Complete Street lens early in the consultation, planning and design of road and transit projects. Two studies were completed in 2016 and a remaining eight are in progress. A list of these studies can be found in Document 4.

Community Design Plans and Area Studies:

While Community Design Plans (CDP) generally focus on land use and development, they also address the planning and design of the physical environment and provide guidance regarding transportation and elements of the public realm, including parks and streetscapes. The application of a Complete Street lens can be seen in the many previously approved CDPs and it continues to be applied to those recently approved or those in progress during 2016 and into 2017. Examples include the recently approved Rockcliffe Airbase CDP and Secondary Plan (November 2015) and the Kanata North CDP (July 2016), as well as those CDPs in progress for: Riverside South; Barrhaven South; East Urban Community Phase 1 and 2 Areas; and the Mer Bleue Expansion Area.

Policy Initiatives

Traffic Impact Assessment Guidelines Updates:

The City's 2006 Transportation Impact Assessment (TIA) Guidelines are being updated to reflect the objectives of the current Official Plan (OP) and Transportation Master Plan (TMP) and to improve guidance to practitioners in the application of the guidelines. The updates to the TIA Guidelines will recognize the Complete Streets policy and will incorporate the City's Multi-Modal Level of Service (MMLOS) Guidelines. The update will be completed in 2017.

Also based on experience to date some clarifications and minor revisions to the MMLOS Guidelines are warranted to ensure their consistent application and intended results. In order to ensure that the Guidelines are supporting the City's Complete Streets policy and implementation framework as intended, an addendum to the MMLOS Guidelines has been prepared and is included as Document 5.

Building Better and Smarter Suburbs:

On March 10, 2015, Planning Committee approved the report titled Building Better and Smarter Suburbs (BBSS): Strategic Directions and Action Plan. The report speaks to the challenge of supporting land efficiency and functionality in new suburban subdivisions, while at the same time improving urban design and long-term cost effectiveness. A key strategic direction for BBSS is to “ensure components of a ‘complete street’ are provided in the Right of Way (ROW), such as: pedestrian facilities; cycling facilities; on-street parking; traffic calming features; trees on both sides of the street, including canopy trees; and utility placement and operational considerations that do not interfere with the attributes of complete streets.” The BBSS Streets Working Group is reviewing existing and developing new road right-of-way cross-sections that address the above listed elements. Recommendations and solutions will be implemented as they become available.

Education and Promotion

Finally, internal and external promotion and communications about Complete Street policies and initiatives is essential for shared understanding and coordinated implementation. There have been a number of initiatives led by City staff and these are listed in Document 6.

RURAL IMPLICATIONS

A Complete Street lens is applied to all transportation projects, including those in the rural area. For instance several rural road surface renewal projects include paved shoulders to accommodate pedestrians and cyclists.

CONSULTATION

No direct public consultation was undertaken for the preparation of this report. Consultation occurred during the preparation of the Complete Streets Implementation Framework.

COMMENTS BY THE WARD COUNCILLOR(S)

Not applicable.

ADVISORY COMMITTEE(S) COMMENTS

Not applicable.

LEGAL IMPLICATIONS

There are no legal impediments to receiving this report for information.

RISK MANAGEMENT IMPLICATIONS

There are no risk management implications.

ASSET MANAGEMENT IMPLICATIONS

The information documented in this report is consistent with the City's Comprehensive Asset Management (CAM) Program (City of Ottawa Comprehensive Asset Management Program) objectives. The approved Complete Streets Implementation Framework supports the Comprehensive Asset Management Program's integrated planning framework. It assists to fulfil the City's obligation to deliver quality services to the community in a way that balances service levels, risk, and affordability.

Ongoing long term operation, maintenance and capital renewal cost will increase in order to sustain the upgraded and new assets (where applicable) required to support the expected level of service. Including the scope of work with planned renewal projects is an effective means of coordinating delivery of the targeted enhancement and changes in level of service to the community. In some cases, depending on the nature of the work, this impacts the extent of funding and work directed to the intended lifecycle renewal objectives. Moving forward, there is a need to assess the impacts to renewal funding and objectives as a result of the coordinated enhancement construction. These impacts (reduced scope of renewal, These impacts (reduced scope of renewal, ongoing operation and maintenance costs, future renewal costs of these new assess) and the strategies to maintain these assets should be reflected in Long Range Financial Plan and Asset Management Plan updates.

FINANCIAL IMPLICATIONS

There are no financial implications with receiving this report.

ACCESSIBILITY IMPACTS

The Complete Streets Implementation Framework provides guidance to staff to plan, design, construct, operate and maintain roads with a more enhanced focus on the most vulnerable users, including the goal of barrier-free access for all users. The implementation of transportation projects will continue to meet the Accessibility for Ontarians with Disabilities Act (AODA) and the City of Ottawa Accessibility Design Standards.

ENVIRONMENTAL IMPLICATIONS

Complete streets is a process to ensure people have more transportation mode choices by providing more certainty that the basic needs of each mode are accommodated through the planning, design, construction, operation and maintenance of roads. Providing more alternative and sustainable transportation infrastructure – such as sidewalks, crosswalks, public lighting and bike lanes – helps to grow the city's sustainable transportation mode share, which in turn improves the environment and public health over the long-term.

TERM OF COUNCIL PRIORITIES

The application of a Complete Street lens is supportive of the following Term of Council Priorities:

TM2 – Provide and promote infrastructure to support safe mobility choices

TM3 – Integrate the rapid transit and transit priority network into the community

TM4 – Improve safety for all road users

TM5 – Ensure reliable, safe, accessible, and affordable transit services

ES1 – Support an environmentally sustainable Ottawa

SUPPORTING DOCUMENTATION

Document 1 – Capital Infrastructure Projects: Major New Road and Integrated Renewal Projects

Document 2 – Capital Infrastructure Projects: Road Renewal/Resurfacing Projects

Document 3 – Area Traffic Management Studies and Projects

Document 4 – Environmental Assessments (EAs)

Document 5 – Addendum to the City's Multi-Modal Level of Service Guidelines

Document 6 – Education and Promotion

DISPOSITION

The Complete Street lens will continue to be applied to all transportation infrastructure projects.

DOCUMENT 1

Capital Infrastructure Projects: Major New Road and Integrated Renewal Projects

Examples of major new road and integrated renewal projects which demonstrate the features of Complete Streets, and that were either recently completed or in construction in 2016, include:

- Campeau Drive Extension – Huntmar Drive to Didsbury Road – new community street with roundabouts, wide sidewalks, landscaped boulevards and cycle tracks;
- Robert Grant Avenue – Abbott Street to Fernbank Road – two of four travel lanes constructed, with roundabouts, separate cycle tracks and sidewalks, and planning for future median transit lanes;
- Chapman Mills Drive – Beatrice Drive to Longfields Drive – median bus lane and cycle tracks;
- Queen Street – Lyon Street to O'Connor Street (to be extended to Elgin Street) – coordinated with LRT construction (completion in 2018);
- Rideau Street – Sussex Drive to Dalhousie Street – street renewal coordinated with the Rideau Centre expansion and LRT construction (2016-2018); and,
- Main Street – Pretoria Avenue to the McIlraith Bridge over the Rideau River – cycle tracks, wide sidewalks, transit stops, parking bays, street furniture and trees, and restoration of heritage elements (completion in 2017).

Projects in the planning, design or construction phase:

A complete street lens was applied to four projects in the planning, design or construction phase in 2016 and resulted in enhanced level-of-service for all road users. They include:

- Greenbank Road widening – Malvern Drive to Strandherd Drive – sidewalks, on-road cycling, multi-use pathways and landscaping (constructed in 2016);
- Gladstone Avenue reconstruction – Bank Street to Cartier Street – reconstruction with wide sidewalks, calmed traffic for shared vehicle and cycle lanes, and bulb outs to organize parking and create landscaping opportunities (constructed in 2015-2016);

- Strandherd Drive widening – Fallowfield Drive to Maravista Drive – front ending agreement for widening from two to four lanes including sidewalks and cycle lanes (construction in 2016-2017); and,
- Brian Coburn Boulevard – Navan Road to Mer Bleue Road – two of four travel lanes to be constructed, with multi-use pathway, cycling lanes, and roundabouts (construction in 2016-2017).

Projects in the works into 2017:

- Dynes Road – Prince of Wales Drive to Fisher Avenue and Prince of Wales Drive – Forest Hill Avenue to Dynes Road – reconstruction will include new sidewalks, cycle lanes, cycle tracks, protected-intersections designs at Dynes and Fisher, and Dynes and Prince of Wales, on-street parking defined by bulb outs; (construction 2017-2019);
- Kinburn Side Road – Donald B. Monroe Drive to Loggers Way – new sidewalks, pedestrian refuges, paved shoulders, and on-street parking defined by bulb outs (construction 2017);
- Imperial Avenue from Bronson Avenue to Renfrew Avenue – removal of lane channelization and conversion to a “T”-intersection at Renfrew and Imperial to improve pedestrian connections; (construction 2017-2018);
- Elgin Street – Laurier Avenue West to the Queen Elizabeth Driveway – design study underway (2016-2017);
- Bank Street – Riverside Drive to Ledbury Avenue – scoping and design study underway for future integrated with major utility renewals (2016-2017);
- St. Laurent Boulevard – Industrial Avenue to Smyth Road – road corridor reconstruction with transit improvements and new cycling facilities, AODA compliant sidewalks and general traffic improvements (design in 2016 and construction in 2017);
- Main Street – Pretoria Avenue to Echo Drive – continuation of complete street (design 2017);
- Jockvale Road – Cambrian Drive to Prince of Wales Drive – multi-use pathways on each side and roundabouts at major intersections (design to be completed in 2017); and,
- Albert Street, Slater Street and the Mackenzie-King Bridge – (Empress Avenue to Waller Street) – planning and design for the decommissioning of the downtown Bus Rapid Transit (BRT) and reallocation of space to other street users and functions (design in 2017, construction in 2018-2020).

Although completed before the 2015 policy, several other streets have unique complete street features. Examples include:

- Churchill Avenue – Byron Avenue to Carling Avenue – street renewed with wide accessible sidewalks, cycle tracks and landscaping (2015);
- Gladstone Avenue – Bank Street to Elgin Street – renewed with wide sidewalks, traffic calming for shared vehicle and cycle lanes and bulb outs to organize parking and create landscaping opportunities (2015);
- Chapman Mills Drive – Woodroffe Avenue to Beatrice Drive – dedicated median bus lanes to improve transit service (2013-2014);
- Queen Elizabeth Driveway and Fifth Avenue intersection and Colonel By Drive and Clegg Avenue intersection – enhanced intersections with pedestrian and cycling crossing signals improving community connections to the Rideau Canal pathways (2015);
- Sussex Drive – St Patrick Street to King Edward Avenue (part of Confederation Boulevard) – street amenities and landscaping, transit facilities cycling lanes and wide sidewalks (completed in 2015);
- Trim Road widening and realignment – OR174 to Innes Road – wide sidewalk or multi-use pathway on each side, cycle lanes, extensive landscaping, and roundabouts (constructed in 2015); and,
- Strandherd Drive widening and extension – Crestway Drive to Prince of Wales Drive – wide sidewalk on south side, multi-use pathway on north side, on-road cycling lanes, and bus stop platforms (2011).

DOCUMENT 2

Capital Infrastructure Projects: Road Renewal/Resurfacing Projects

In 2016, 57 candidate road renewal projects were evaluated using a “Complete Street lens” and, where the road base and existing shoulder widths would allow, modifications to enhance the pedestrian and cycling environment were incorporated into the scope and budget for 18 resurfacing and renewal projects.

Road Renewal/Resurfacing in Villages

New or reinstatement of wider shared-use lanes or paved shoulders improve walking and cycling opportunities in these communities.

Projects include:

- Constance Bay – Len Purcell Drive (Bayview Drive to Bayview Drive);
- Kars – Rideau Valley Drive South (at Lockhead Road);
- Richmond – Ottawa Street (Fortune Street to Joy’s Road);
- Richmond – Royal York Street (Fortune Street to Fowler Street); and,
- Manotick – Bridge Street (Manotick Main Street to River Road) – bike lanes, with signage and special paving markings, providing 1.2 km of continuous bike lanes across Manotick village.

Road Renewal/Resurfacing in the Rural Area and Greenbelt

New or reinstatement of wider road surface and paved shoulders to enhance rural cycling:

- Carp Road – Highway 417 to Richardson Side Road – 1.7 km paved shoulders both sides (implementation in 2017-2018);
- Fallowfield Road – Woodroffe Avenue to Prince of Wales Drive – over 2.0 km paved shoulders;
- Lester Road – Alert Road to Bank Street – approximately 2.0 km of paved shoulders;
- Snake Island Road – Stagecoach Road to Bank Street – over 6.0 km of paved shoulders.

Road Renewal/Resurfacing in the Urban Area

Diverse range of elements including providing separated bike lanes, painted bicycle lanes, bike boxes, “sharrows”, enhancing crosswalks; improving bus stop areas:

- O’Connor Street – Somerset Street to Isabella Street – coordinated with bikeway project in 2016 (protected two-directional bike lanes, bike turn boxes, bicycle traffic signals);
- Mackenzie Avenue – Rideau Street to Murray Street – coordinated with bikeway and streetscaping project in 2016-2017 (protected two-directional bike lanes, crossride, protected bicycle signal phase);
- Klondike Road – March Road to Sandhill Road – coordinated with pedestrian/ cycling improvements in 2016 (curb-protected two-way multi-use pathway);
- Kent Street – Catherine Street to Wellington Street – new “zebra” markings at pedestrian crosswalks and red light turn prohibitions added in 2016;
- Featherston Drive – Kilborn Avenue to Kilborn Avenue – upgrading in 2017 of bus stop pads;
- Island Park Drive – Carling Avenue to Byron Avenue – reinstall bike lanes in 2016 and provide bike boxes at Byron in 2017;
- Lancaster Road – St. Laurent Boulevard to Walkley Road – bike lanes, sharrows, bike boxes, as well as a new sidewalk linking St. Laurent Blvd. to the Museum of Science and Technology, added in 2016;
- Jeanne d’Arc / North Service Road – Rossignol Crescent to Trim Road – paved shoulders in 2016; and,
- River Road – Mitch Owens Road to Lester Road – approximately 4.8 KM of paved shoulders added to the existing 1.3 km.

In 2017, some noteworthy road renewal projects that will use painted bike lanes, paved shoulders and road-edge line painting to redistribute and redefine space for a wider range of users in the urban and rural areas include:

- Bearbrook Road – Westpark Drive to Centrepark Drive south intersection;
- Blohm Drive – East of Johnston Drive to Hunt Club Road;
- Constellation Drive – Centrepointe Drive to Baseline Road;
- Kilborn Drive – Alta Vista to Haig/Canterbury;
- Kirkwood Avenue – Switzer Avenue to Devonshire Place;

- March Road – Teron Road to Campeau Drive;
- OR 174 – Cameron Street to Canaan Road;
- Prestone – St.Joseph Drive to Amiens Street; and
- Prince of Wales Drive – north of Strandherd Drive to Hunt Club Road;
- Shillington Avenue – Merivale Road to Fisher Avenue; and
- 8th Line Road – Marvelville Road to Lawrence Street.

DOCUMENT 3

Area Traffic Management (ATM) Studies and Projects

On-going Comprehensive ATM studies in 2016:

- Lowertown Community; and,
- Viewmount Community.

On-going and recently completed Local ATM studies in 2016:

- Renaud Road (west of Joshua Street to Navan Road);
- Merkley Drive;
- Centrepointe Drive (Baseline Road to Baseline Road) and Hemmingwood Way (Centrepointe Drive to Centrepointe Drive);
- Bayfield Avenue (Herzberg Road to Carling Avenue); and,
- Grey Nuns Drive (Jeanne d'Arc Boulevard to St. Joseph Boulevard).

2016 Recently constructed ATM Measures:

- Bell Street (Eccles Street to Somerset Street);
- Eccles Street (Rochester Street to Booth Street);
- MacLaren Street (Bronson Avenue to Bank Stree);
- Nepean Street at Metcalfe Street;
- Florence Street (Percy Street to Bay Street);
- Bayswater Street (Beech Street to Hickory Street);
- Crichton Street at Keefer Street;
- Anderson Street (Preston Street to Rochester Street);
- Knudson Drive (Kanata Avenue to Campeau Drive);
- Riverdale Avenue (Bank Street to Main);
- Jeanne d'Arc Boulevard (Bilberry Drive West to Champlain Street); and,
- Viseneau Drive (Boyer Road to Innes Road) & Barrington Street (Viseneau Drive to Beausejour Drive).

2017 ATM Measures anticipated for construction:

- Blossom Park West Streets within the Blossom Park West community located between Bank Street and Albion Road, including Queensdale Avenue, Kingsdale Avenue and Rosebella Avenue;
- Brittany Drive (St-Laurent Boulevard to Montreal Road);
- Lisgar Street at Metcalfe Street; and,
- Byron Avenue Traffic Calming – Sherbourne Avenue to Island Park Drive – simple traffic calming measure to de-emphasis fast auto speeds on lower volume and slower road segments and implementing cycling advisory lanes, functional design in 2016, detail design in 2017.

DOCUMENT 4

Environmental Assessments (EAs)

EAs recently completed and in progress include:

- Ottawa Road 174 – Prescott-Russell County Road 17 Widening Study – This rural arterial EA features a more context sensitive solution design through the Cumberland Village for that responds to local interests for walking and cycling along and across the highway. The EA was completed in 2016;
- Transit Priority Measures Studies for Montreal Road, Merivale Road and Carling Avenue – While these studies focus on the provision of transit priority measures to improve the level of service for transit along these specially designated corridors, the Multi-Modal Level of Service (MMLOS) is being used assess the needs of other users of the corridor. These studies started in 2016 and are scheduled to be completed in 2017;
- Baseline Road Rapid Transit Corridor (Bayshore Station to Heron Station) Planning and Environmental Assessment Study – This on-going study focuses on the provision of a transit priority corridor, and recommends median bus lanes, new cycle tracks and protected intersections, and sidewalks. This study is scheduled for completion in 2017;
- Leitrim Road Widening EA (River Road and Albion Road) – Although the timing for the road widening is beyond 2031 a study is required to identify and protect the corridor for the future widening, including facilities for active transportation. The study started in early 2017 and will be completed in 2018;
- Bank Street (Riverside Drive to Ledbury Avenue); Elgin Street (Laurier Avenue to Queen Elizabeth Drive) and Hawthorne Avenue (Pretoria Bridge to Main Street) Functional Design Studies – These studies, initiated in 2016 in advance of integrated road reconstruction and infrastructure replacement projects, will be guided by a detailed assessment of the MMLOS for pedestrians, cyclists, transit service, general traffic, and trucks for existing and future travel conditions. They are projected to be completed in late 2017;
- Chapman Mills Extension and Bus Rapid Transit Study (Longfields Drive to Cedarview Road) – Environmental Assessment documentation completed in 2016; street with median transit lanes, sidewalls, cycle tracks, protected intersections and landscaped boulevards; and,
- Earl Armstrong Road Extension (Albion Road to Hawthorne Road) Environmental Assessment Study – This study, to start in 2017, will identify the right-of-way

requirements and protect the corridor. A Complete Street lens will be used to develop the recommended plan.

DOCUMENT 5

Addendum to the City's Multi-Modal Level of Service Guidelines

This addendum documents clarifications and revisions to the City of Ottawa's Multi-Modal Level of Service (MMLOS) Guidelines (dated September 15, 2015, issued in November 2015). The addendum has been developed based on feedback from users of the Guidelines and ongoing review by City staff, and is consistent with the original intention that the Guidelines evolve over time (as noted in Section 1.2 of the Guidelines). The Guidelines document will be updated in future to reflect these clarifications and revisions, but in the meantime practitioners should be familiar with both this document and the original Guidelines document.

1. Methodological Overview

1.1 The City has developed a standardized spreadsheet that practitioners should use to calculate MMLOS scores and submit results, available from the Transportation Planning Branch. The completed sheet should be included with all MMLOS submissions to the City.

1.2 It may also be appropriate and useful to present the results of the MMLOS analysis in other ways (e.g. graphical representations), particularly for presentation to the general public. The City encourages the use of other presentation methods, however there is no specific method or template prescribed, and the standardized spreadsheet is still required for review by the City.

1.3 When there is a significant difference in conditions between different time periods (e.g. morning peak period versus afternoon peak period versus off-peak), it may be necessary to complete separate MMLOS analyses for each time period. Typically the time period selected should represent the worst conditions for the mode being evaluated (e.g. AM peak period for motor vehicles, lower traffic congestion periods for cycling). The practitioner should consult the City on what time period(s) should be analyzed.

2. Pedestrian Level of Service (PLOS)

2.1 In Exhibit 4 – PLOS Segment Evaluation Table the column "Motor Vehicle Traffic Volume (AADT)" is revised to be "Average Daily Curb Lane Traffic Volume" and refers to the estimated annual average daily motor vehicle traffic volume (passenger car equivalent) in one direction in the general purpose lane closest to

the curb/ road edge. One way of estimating this value is to apply a conversion factor to observed counts. Trucks should be accounted for using a Passenger Car Equivalent value of 2.0. The practitioner may also propose alternative ways of estimating the traffic volume, which would be subject to approval by the City.

2.2 The "boulevard width" in Exhibit 4 – PLOS Segment Evaluation Table refers to the horizontal separation between pedestrians and moving motor vehicles, and therefore may be satisfied in many ways, for example by the presence of an asphalt maintenance strip, bicycle lane or cycle track. However, a parking lane should generally not be considered part of the boulevard width because it is captured elsewhere in the calculation.

2.3 The "sidewalk width" in Exhibit 4 – PLOS Segment Evaluation Table refers to the unobstructed width along the sidewalk. If there are obstructions in the sidewalk (such as utility poles, hydrants, sign posts) that reduce the clear width in more than one instance in any 30m segment[1], then that reduced width should be used as the "sidewalk width" for calculating the Segment PLOS.

2.4 For determining the "presence of on-street parking" in Exhibit 4 – PLOS Segment Evaluation Table:

- If the average length of curb edge occupied with parking stalls (or bulb-outs) during the period being evaluated is greater than 50 percent of the sidewalk length from intersection to intersection, then on-street parking should be considered to be present;
- If parking is restricted to certain days or times of day (e.g. off-peak parking only or weekend parking only) then the row corresponding to the time period being evaluated should be selected; and,
- If the parking lane is rarely used and otherwise functions as a vehicle travel lane (e.g. parking is permitted in the curb lanes on a four-lane road but observed parking occupancy is 10 percent or less) then on-street parking should be considered to be absent.

2.5 The "operating speed" in Exhibit 4 – PLOS Segment Evaluation Table should be the 85th percentile speed from a City speed survey (preferably for the direction of traffic adjacent to the sidewalk, or alternatively for both directions of traffic combined). Alternatively, the posted speed limit plus 10km/h may be used. The

[1] City of Ottawa Accessibility Design Standards (November 2015), Section 3.3.2.

practitioner may also propose an alternative method for estimating the operating speed, which would be subject to approval by the City.

2.6 In certain cases – such as within the Central Area and in Design Priority Areas – it may be necessary to consider sidewalk crowding in determining Segment PLOS. One way to evaluate this is using the method defined in the 2010 Highway Capacity Manual (HCM). Table 1 below has been developed based on the 2010 HCM and may be used to check the Segment PLOS for crowding. Where crowding PLOS is calculated, the worst between it and the Segment PLOS should be reported for the segment.

Table 1 – Segment PLOS for Crowding (based on 2010 HCM)

Pedestrian LOS rating definitions given by HCM 2010

LOS A	Ability to move in a desired path, no need to alter movements (Average Space: >49.2 m^2)
LOS B	Occasional need to adjust path to avoid conflicts (Average Space : >8.36-49.2 m^2)
LOS C	Frequent need to adjust path to avoid conflict (Average Space : >3.71-8.36 m^2)
LOS D	Speed and ability to pass slower pedestrians restricted (Average Space : >2.14-3.71 m^2)
LOS E	Speed restricted, very limited ability to pass slower pedestrians (Average Space : >1.02-2.14 m^2)
LOS F	Speeds severely restricted, frequent contact with other users (Average Space : ≤1.02 m^2)

Effective Sidewalk Width	Approximate # of Pedestrians per hour (Platoon Flow)							
	250	500	1000	2000	3000	4000	5000	6000
1.2m	LOS B	LOS B	LOS C	LOS D	LOS E	LOS E	LOS F	LOS F
1.5m	LOS B	LOS B	LOS C	LOS D	LOS D	LOS E	LOS E	LOS F
2.0m	LOS B	LOS B	LOS B	LOS C	LOS D	LOS D	LOS E	LOS E
2.5m	LOS B	LOS B	LOS B	LOS C	LOS C	LOS D	LOS D	LOS E
3.0m	LOS A	LOS B	LOS B	LOS C	LOS C	LOS D	LOS D	LOS D
3.5m	LOS A	LOS B	LOS B	LOS B	LOS C	LOS C	LOS D	LOS D
4.0m	LOS A	LOS B	LOS B	LOS B	LOS C	LOS C	LOS C	LOS D
4.5m	LOS A	LOS B	LOS B	LOS B	LOS C	LOS C	LOS C	LOS D
5.0m	LOS A	LOS B	LOS B	LOS B	LOS C	LOS C	LOS C	LOS C
5.5m	LOS A	LOS A	LOS B	LOS B	LOS B	LOS C	LOS C	LOS C
6.0m	LOS A	LOS A	LOS B	LOS B	LOS B	LOS C	LOS C	LOS C
6.5m	LOS A	LOS A	LOS B	LOS B	LOS B	LOS C	LOS C	LOS C
7.0m	LOS A	LOS A	LOS B	LOS B	LOS B	LOS B	LOS C	LOS C
7.5m	LOS A	LOS A	LOS B	LOS B	LOS B	LOS B	LOS C	LOS C
8.0m	LOS A	LOS A	LOS B	LOS B	LOS B	LOS B	LOS C	LOS C

2.7 In Exhibit 5 – PETSI Point Tables, Table 5.1 is revised as shown below to delete the point scores for “Island Refuge” and instead combine them with Table 5.3b “Right Turn Channel” (there are no other changes to the table). For crossings

with a median narrower than 2.4m, or with a median that does not provide a pedestrian refuge by extending through the crosswalk (example shown in Figure 1 below), the “No median” column should be applied.

5.1 Crossing Distance & Conditions		
Total travel lanes crossed	**No median**	**With Median (>2.4m)**
2	120	120
3	105	105
4	88	90
5	72	75
6	55	60
7	39	45
8	23	30
9	6	15
10	-10	0

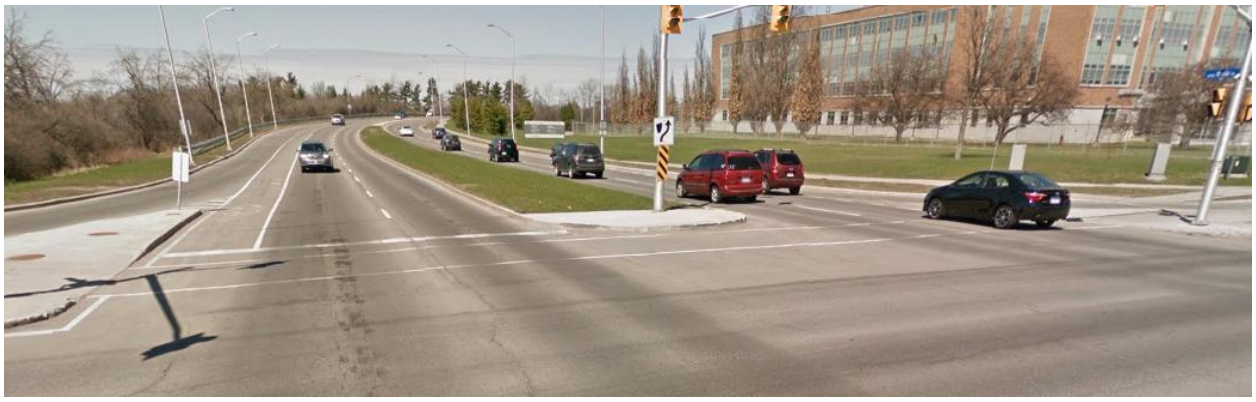


Figure 1 – Example of a centre median that does not provide a pedestrian refuge (considered “No Median” in PETSI calculation)

2.8 In Exhibit 5 – PETSI Point Tables, Table 5.1, “Total travel lanes crossed” is intended to capture the pedestrian crossing distance assuming a typical travel lane width of roughly 3.5m. If the actual crossing distance is significantly greater than 3.5m per lane (for example because of very wide travel lanes, the presence of bike lanes, large corner radius, or wide right turn channel), it may be appropriate to select a higher “Total travel lanes crossed” from the table. For instance, a “Total travel lanes crossed” of 4 lanes should correspond to a crossing distance of approximately 14m.

2.9 In Exhibit 5 – PETSI Point Tables, Table 5.2 is revised as shown below to delete "RTOR prohibited at certain time(s)". For whatever time period the PLOS is being evaluated, the corresponding right-turn-on-red control should be selected. There are no other changes to the table.

5.2 Signal Phasing & Timing Features	
Left turn conflict ("Left_turns")	**Points**
Permissive	-8
Protected/permissive	-8
Protected	0
No left turn/prohibited	0
Right turn conflict ("Right_turns")	**Points**
Permissive or yield control	-5
Protected/permissive	-5
Protected	0
No right turn	0
Right turns on red ("RTOR")	**Points**
RTOR allowed	-3
RTOR prohibited	0
Leading ped interval? ("LPI")	**Points**
No	-2
Yes	0

2.10 In Exhibit 5 – PETSI Point Tables, Table 5.3 is revised to be two separate tables as shown below, and points assigned from both Tables 5.3a and 5.3b as appropriate. The primary criterion for a right turn "smart channel" is that the channel must intersect the street at an angle of 70^{o} or greater; Figure 2 below illustrates a typical urban "smart channel" with a 70^{o} entry angle.

5.3a Corner Radius	
Corner radius	**Points**
Greater than 25m	-9
> 15m to 25m	-8
> 10m to 15m	-6
> 5m to 10m	-5
>3m to 5m	-4
Less than/equal to 3m	-3
No right turn	0

5.3b Right Turn Channel	
Right turn channel	**Points**
Conventional right turn channel with receiving lane[(1)]	-3
Conventional right turn channel without receiving lane[(1)]	0
Right turn "smart channel" [(1)]	2
No right turn channel	-4
No right turn	0

[(1)] Right turn channels are counted as an additional "travel lane crossed" and so note that despite the points shown above overall they score lower than "No right turn channel".

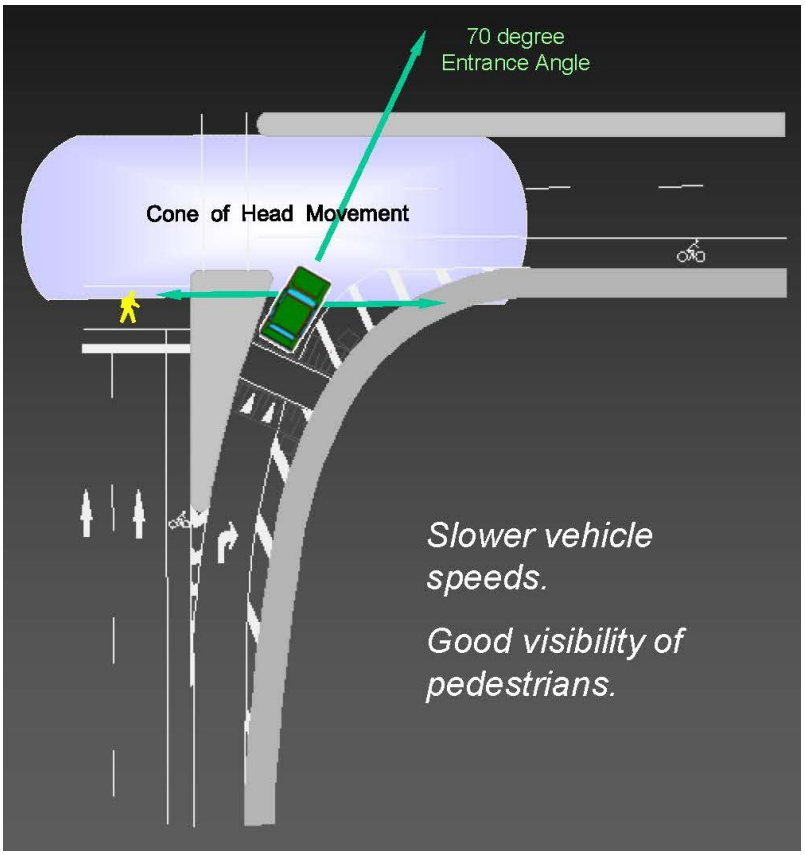
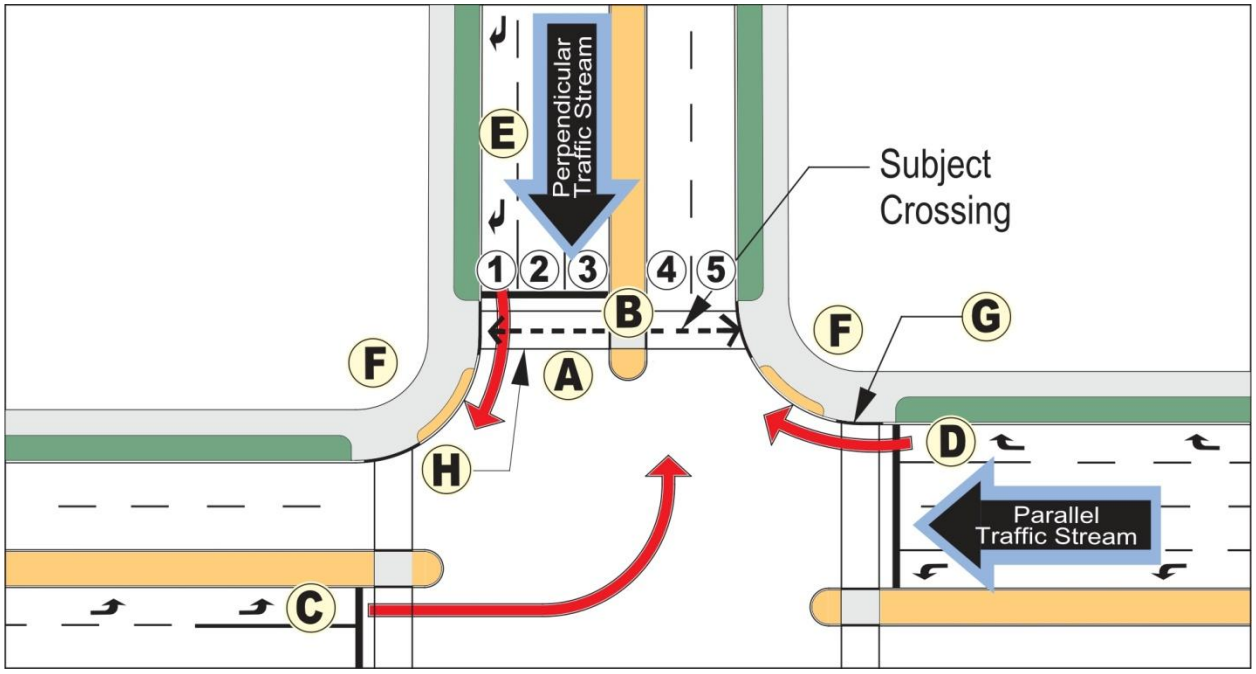


Figure 2 – Typical Urban "Smart Channel"

A full revised version of Exhibit 5 is included at the end of this document.

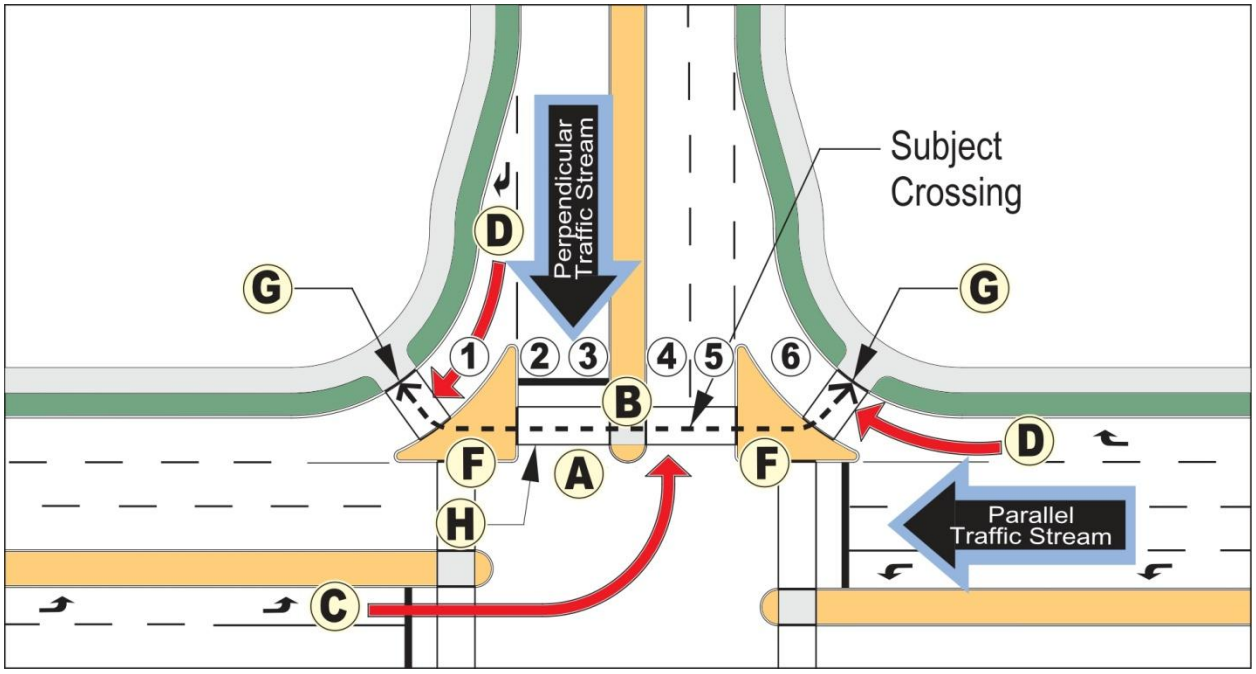
2.11 Exhibit 5 – PETSI Point Tables lists the various inputs to calculate the PETSI score. The images in Figure 3 and Figure 4 below clarify how to determine the appropriate selection for each input (based on the clarifications and revisions noted above). Note:

- For “Total travel lanes crossed”, channelized turns should be included in the total (e.g. in Figure 4, the number of lanes crossed is six);
- Some inputs (such as Corner Radius, Right Turn Conflicts, and RTOR) vary depending on the control for the right turn conflict with the pedestrian crossing. A right turn may be yield-controlled (channelized) or traffic signal-controlled. Also there are typically two right turn conflicts for each pedestrian crossing: the parallel traffic stream (shown as ‘D’ in the Figures below) and the perpendicular traffic stream (shown as ‘E’ in the Figures below):
    - Points for “Corner Radius” and “Right Turn Conflict”: These points are intended to account for right turns through the crosswalk by drivers not facing a red light; they should be applied for the parallel traffic stream (where vehicles are turning right through the crosswalk on a green light or yield control, shown as ‘D’ in the Figures below), and should also be applied for the perpendicular traffic stream when that right turn is channelized (yield control), and,
    - Points for “Right Turns On Red”: These points are intended to account for right turns through the crosswalk by drivers facing a red light; they should be applied for the perpendicular traffic stream (shown as ‘E’ in the Figures below), but should not be applied when that right turn is channelized (yield control).



A. Crossing distance (total travel lanes crossed)
B. Median
C. Left turn conflict
D. Right turn conflict
E. Right turns on red
F. Leading ped interval?
G. Corner radius
H. Crosswalk treatment

Figure 3 – PETSI Input Elements (traffic signal-controlled right turns)



A. Crossing distance (total travel lanes crossed)
B. Median
C. Left turn conflict
D. Right turn conflict
E. Right turns on red (N/A)
F. Leading ped interval?
G. Corner radius
H. Crosswalk treatment

Figure 4 – PETSI Input Elements (yield-controlled right turns)

2.12 The average intersection delay to pedestrians from Exhibit 7 – Pedestrian Delay Evaluation Table is intended to reflect the duration of the display of the solid white “walking pedestrian” symbol, which represents the “Effective Walk Time”. One way to calculate this is:

Effective Walk Time = Split – Flashing Don’t Walk – [Amber + All-red]

However, this method applies to fixed time control and may not provide correct values for non-fixed time control. In those cases, the following alternative method could be used: measure/ estimate the average walk time and the average number of cycles within a time period and use those values for the calculation.

3. Bicycle Level of Service (BLOS)

3.1 For Segment BLOS, if the curb lane can be used for on-street parking:

- If the average length of curb edge occupied with parking stalls (or bulb-outs) during the period being evaluated is greater than 50 percent of the sidewalk length from intersection to intersection, then on-street parking should be considered to be present;
- If parking is restricted to certain days or times of day (e.g. off-peak parking only or weekend parking only) then BLOS should be calculated based on whatever on-street parking occurs for the time period being evaluated; and,
- If the parking lane is rarely used and otherwise functions as a vehicle travel lane (e.g. parking is permitted in the curb lanes on a four-lane road but observed parking occupancy is 10 percent or less) then on-street parking should be considered to be absent.

4. Transit Level of Service (TLOS)

4.1 For Segment TLOS, the “average transit travel speed” can be estimated by dividing the length of the corridor by the time it takes for the transit vehicle to travel through the corridor, including any intersection delay and stopping/ dwell time.

4.2 Exhibit 16 – TLOS Signalized Intersection Evaluation Table is replaced with the revised version below which includes “Typical Locations” for LOS ‘C’ and ‘D’ and examples of “short”, “medium” and “long” cycle lengths.

Delay	Typical Location	LOS
0	Grade Separation	A
≤10 sec	High Level TSP	B
≤20 sec	TSP & short (e.g. <60 sec) to medium (e.g. 60-90 sec) cycle length	C
≤30 sec		D
≤40 sec	TSP & long cycle length (e.g. >90 sec)	E
>40 sec	No TSP & long cycle length (e.g. >90 sec)	F

5. Truck Level of Service (TkLOS)

5.1 For the “curb lane width” in Exhibit 20 – TkLOS Segment Evaluation Table, if trucks typically operate in a non-curb lane (e.g. if the curb lane is a reserved bus lane) then the width of that non-curb lane should be used.

5.2 The “curb lane width” in Exhibit 20 – TkLOS Segment Evaluation Table refers to the typical distance from the curb face to the lane edge line, or in the case of a non-curb lane the distance between lane lines.

6. Vehicular Level of Service (LOS)

6.1 The 2013 Transportation Master Plan prescribes that “planning level studies will adopt a peak period analysis approach”. To satisfy this requirement (for network and corridor planning level decisions, e.g. Environmental Assessments, functional design studies, ROW requirements, etc.), practitioners should convert the peak hour volume to a modified peak hour volume (peak period volume) by multiplying the peak hour volume by a conversion factor. The city wide average conversion factor for the morning peak hour is 0.84. This factor can be refined if more specific data on the peaking characteristics of demand is available for specific areas.

7. Level of Service Targets

7.1 Section 7.1 describes how to apply the MMLOS targets. Practitioners should be cognizant of overlapping designations at intersections, and strive to achieve the highest LOS target for each mode from among the overlapping targets. For example, a MMLOS analysis of an Arterial Main Street may include an intersection with a Traditional Main Street; for that intersection the PLOS target for instance would be ‘B’ (for Traditional Main Street) rather than ‘C’ (for Arterial Main Street).

The MMLOS was designed to capture most practical situations but there will be cases for which the method doesn’t account or which could be interpreted in different ways. In such cases the practitioner should use their best engineering judgment considering the intent of the MMLOS and confirm their interpretations and assumptions with the City.

Exhibit 5 – PETSI Point Tables (revised February 2017)

5.1 Crossing Distance & Conditions		
Total travel lanes crossed	**No median**	**With Median (>2.4m)**
2	120	120
3	105	105
4	88	90
5	72	75
6	55	60
7	39	45
8	23	30
9	6	15
10	-10	0

5.2 Signal Phasing & Timing Features	
Left turn conflict ("Left_turns")	**Points**
Permissive	-8
Protected/permissive	-8
Protected	0
No left turn/prohibited	0
Right turn conflict ("Right_turns")	**Points**
Permissive or yield control	-5
Protected/permissive	-5
Protected	0
No right turn	0
Right turns on red ("RTOR")	**Points**
RTOR allowed	-3
RTOR prohibited	0
Leading ped interval? ("LPI")	**Points**
No	-2
Yes	0

5.3a Corner Radius	
Corner radius	**Points**
Greater than 25m	-9
> 15m to 25m	-8
> 10m to 15m	-6
> 5m to 10m	-5
>3m to 5m	-4
Less than/equal to 3m	-3
No right turn	0
5.3b Right Turn Channel	
Right turn channel	**Points**
Conventional right turn channel with receiving lane(1)	-3
Conventional right turn channel without receiving lane(1)	0
Right turn “smart channel” (1)	2
No right turn channel	-4
No right turn	0

5.4 Crosswalk Treatment	
Crosswalk treatment (“Crosswalk”)	**Points**
Standard transverse markings	-7
Textured/coloured pavement	-4
Zebra stripe hi-visibility markings	-4
Raised crosswalk	0

DOCUMENT 6

Education and Promotion

There have been a number of events where City staff, consultants, and the public had the opportunity to be educated on the Complete Street approach:

- NACTO (National Association of City and Transportation Officials) workshop on the New Urban Street Design Guide for over 50 staff from Transportation Planning, Traffic Engineering, Infrastructure Services, Operations and Maintenance, Public Health, and OC Transpo (December 4, 2015);

- Transportation Planning staff presentation at the Federation of Canadian Municipalities (FCM) Sustainable Communities Conference on: Complete Streets in Action: Sustainable Streets for All Road Users (February 9, 2016);

- Transportation Planning staff presentation to the Canadian Institute for Transportation Engineers (CITE- National Capital Region), A presentation on Cycle Tracks and Protected Intersections (February19, 2016);

- Ottawa Public Health and Transportation Planning staff presentation at the EnviroCentre and the Healthy Transportation Coalition, Sustainable Transportation Summit (February 23, 2016);

- An Evening with Janette Sadik-Khan, lecture and fair hosted by Ecology Ottawa – City of Ottawa Complete Streets slideshow as part of the community information fair (April 27, 2016);

- Transportation Planning staff led workshop at AccessAbility Day, Tabletop display of accessibility initiatives along Ottawa streets (June 2016);

- Transportation Planning staff presentations at the Sustainable Mobility Summit, ACT (Association of Commuter Transportation) Canada, Complete Street Planning and Design Issues, University of Ottawa (October 2016);

- Transportation Planning staff presentation of a Transportation Association of Canada (TAC) educational webinar: “Evolution of the Complete Street Concept” (February 2017)

- Transportation Planning staff presentations to internal teams on Complete Streets, MMLOS, cycle track and intersection design throughout 2016 including:

Infrastructure Services project managers, traffic engineering managers and supervisors, and “lunch and learn” sessions for planning staff.