The agenda for the Freestanding Committee of the Whole (Engineering Committee – Urban Local Residential Road Standards) meeting to be held in the Conference Room of the Municipal Hall, 8645 Stave Lake Street, Mission, British Columbia on Thursday, October 6, 2016, commencing at 9:30 a.m.

1. CALL TO ORDER

2. ADOPTION OF AGENDA

3. ENGINEERING

(a) Urban Local Residential Road Standards

This report is provided for information purposes only. No staff recommendation accompanies this report and Council action is not required. This report looks at the District’s current and proposed road standards for urban local residential streets, and compares those standards to national standards and neighbouring municipalities. Recommendations will accompany the draft Development Bylaw which will be presented to Council in the near future.

4. ADJOURNMENT
DATE: October 6, 2016
TO: Mayor and Council
FROM: Jay Jackman, Manager of Development Engineering & Projects
SUBJECT: Urban Local Residential Road Standards
ATTACHMENT: Appendix A – Generic Cross Section, Tables, and Standard Cross Sections

This report is provided for information purposes only. No staff recommendation accompanies this report and Council action is not required. This report looks at the District’s current and proposed road standards for urban local residential streets, and compares those standards to national standards and neighbouring municipalities. Recommendations will accompany the draft Development Bylaw which will be presented to Council in the near future.

PURPOSE:
This report outlines the various urban local residential road cross sections that will be offered in the new Development Bylaw that developers would turn to when designing their subdivisions. The purpose of this report is to provide Council with a preliminary overview of the broad selection of road cross sections that would be included in the upcoming proposed Development Bylaw. This new Bylaw will be presented to Council later this year as it is currently under legal review.

BACKGROUND:
Recently, there has been much discussion regarding when and where staff should apply different road cross sections. As Council is envisioning a more flexible and responsive approach to development applications and subdivision designs as a means to facilitate land development in a more land intensive and efficient manner, the new Bylaw has incorporated additional road cross section options ranging from as narrow as 11.5 m to as wide as 18.0 m.

In anticipation of the new bylaw, Council has requested additional information on the subject prior to considering the proposed Development Bylaw for adoption. As such, this report highlights the various road cross sections included in the Bylaw that will be made available to developers. As well, this report will provide some rationale as to what cross sections are considered appropriate for varying development scenarios. A more technical perspective on the subject can be reviewed in Appendix A.

DISCUSSION AND ANALYSIS:
It is noted that this discussion is limited to urban local residential road standards and does not capture the requirements for other road standards such as arterial and local collector roads.

The primary focus of the urban local residential road class is based on land access rather than traffic movement. Parking is usually available on both sides of the road, except for a few unique site-specific situations. These roads typically see traffic volumes generally lower than 1,500 vehicles per day in both directions. Some residential roads do not have a sidewalk on either side. Where public lanes are not an option driveway access shall be via residential roads, not collectors, arterials or highways. Where public lanes are available, driveway access will be restricted to rear or side lane access.
Road Dedication: A road “right-of-way” or road allowance can be described as a corridor of land constructed or unconstructed that is under the administration and ownership of the municipality and usually includes provisions for roadway elements such as: sidewalks, boulevards, curb and gutters (in an urban cross-section), as well as the paved surface. Utilities, fire hydrants and street lights are usually located within the boulevard that forms part of the road allowance to avoid property acquisition and/or the negotiation of right-of-way(s) over private property (Appendix A).

Since the required dimensions of these roadway elements can vary based on the road purpose and configuration, a review of the District of Mission Engineering Standards, the Transportation Association of Canada (TAC) Guidelines as well as other relevant documents was conducted from which numerous cross sections were drafted to accommodate the many different situations.

The following are typical dimensions found on most cross sections, however, in hillside development scenarios (as found in southwest Mission) alternate cross sections will deviate somewhat from these out of necessity.

- **Boulevard width including both the sidewalk and the planting strip: 4.6 m to 4.75 m.** The District’s current standard includes a 4.75 m boulevard on both sides of the road that is typically occupied by gas, hydro, Telus, Shaw Cable, fire hydrants, and boulevard trees, and on one side only, sidewalk and street lighting. Community mailboxes are also sited on municipal boulevards throughout the District at various locations as determined by Canada Post.

The draft Development Bylaw proposes a slightly narrower boulevard on both sides of the road with a sidewalk separated by a planting strip on one side only. This standard includes space for all furnishings and utilities without compromise and follows both best practice and regional standards.

- **Sidewalk width: 1.5 m.** The District’s standard of incorporating a 1.5 m wide sidewalk on one side of a residential street complies with best practices and is consistent with neighbouring municipalities’ standards as well as the Master Municipal Construction Standards. The new Bylaw will be proposing that the sidewalk is separated from the traffic by a planting strip. Separating sidewalks provides for a planting strip of grass and trees that is the preferred buffer as it provides a safer and more pleasant, shaded environment to walk.

- **Planting strip width: 1.5 m.** The District’s draft Development Bylaw includes a standard 1.5 m planting strip between the back of curb and the edge of sidewalk. This will provide a standard corridor for boulevard trees and softscape that will ensure that residential streets have a superior manicured look that includes amended soils that will reduce surface runoff. This provides for increased curb appeal as well as improved rain water management.

- **Curb and gutter width: 0.55 m.** The District’s draft Development Bylaw includes a Master Municipal Standard barrier curb and gutter on all residential streets. The barrier curb and gutter will protect the planting strip and boulevard trees from vehicular traffic. It will also restrict the width of the driveway access, thus ensuring adequate on-street parking is available to the residents and public alike. Typically roll-over curbs see wider house driveways being built and increase parking on front lawn areas. An added benefit to the barrier curb is it will allow the road to carry an increased volume of storm runoff during extreme rainfall events.

- **Effective road width including both asphalt and gutter pan: 8.5 m to 8.8 m.** The District’s current Subdivision Control Bylaw includes a standard 8.5 m pavement width. The draft Development Bylaw includes a standard pavement width of 8.8 m. The increased width brings our standard in line with the recommendations for lane widths according to TAC. This width allows for on-street parking on both sides of the road with a shared travel lane (the current standard), or on-street parking on one side of the road with two travel lanes (requires no parking signage on one side of the street).
The following scenarios are when it would be appropriate to apply a cross section that deviates from the above-noted standards. In these scenarios, the application of a road design could be reviewed based on the land use (zoning) of the adjacent lands and therefore applied on a case by case basis.

- **Hillside development:** Where a road is constructed on a hillside, cut and fill works can make it near impossible to construct a full-width road, typically resulting in prime view real estate being deemed inaccessible by a public road. These situations typically result in a road with homes on only one side and a retaining element on the other side. A reduced width may be needed in cut and fill situations in order to make inaccessible lands accessible.

- **Fronting open natural space (parks):** Like hillside development, if a road fronts a park or green space there would be homes on one side only and a reduced road width may be acceptable.

- **Lanes:** Another situation where a municipality may wish to reduce the standard width of a road is where the homes are accessed by way of a rear or side lane. In this situation, some of the servicing typically found in the road will be relocated to the lane so a width reduction to the fronting road could be considered without compromise.

Currently, road cross sections are applied based on the classification of the road as identified in the Transportation Master Plan and Subdivision Control Bylaw. The new Development Bylaw will consider a more flexible option. Rather than determining road allowances based on the pre-determined road classifications, there are practices where the appropriate road cross section is determined by the adjacent land uses. For example, while a wider road allowance would be applied to roads servicing an apartment or multi-family streetscape, narrower allowances could be considered for large lot or rural or suburban single family (half-acre and acre) subdivisions where appropriate. Staff will consider this approach when administering the new Development Bylaw. In the past, alternate road cross sections have been contingent on the applicant receiving a variance. Examples of roads that have been granted such variances in the past few years are:

- Oyama Street – 15.5 m road dedication; alternate suburban cross section with bioswales and parking pockets;
- Green Place west of Nicholson Terrace – 15.0 m road dedication accompanied by a lane;
- McPhee Place – 15.0 m road dedication meeting the hillside development criteria; and
- Road A west off of McTaggart Street – 15.0 m road dedication fronting a park (single loaded).

The District of Mission’s current urban local residential road cross sections and proposed urban local residential road cross sections in the proposed Bylaw were compared to those found in other municipalities in the Lower Mainland. For the purposes of this report, the road standards used by the Cities of Abbotsford and Chilliwack, Langley Township and the City of Surrey were chosen due to the availability of their road standards on their websites.

The findings of this review are summarized in Appendix A and show that while the standards can vary from municipality to municipality, Mission is well within the averages for roadway element widths such as right-of-way and pavement. In fact, when it comes to right-of-way widths, Mission and Chilliwack both have hillside development standards that allow for a narrower dedication than the other municipalities. Chilliwack’s urban residential right-of-way maximum width is 17.5 m (57.5 feet), where Mission’s comparable standard is 18.0 m (59 feet), and the others all have a maximum of 20.0 m (65.5 feet). Pavement width is fairly standard across municipalities at 8.5 m (28 feet), but only Mission and Surrey have a standard as narrow as 6.0 m (20 feet).
COUNCIL GOALS/OBJECTIVES:
This report provides information that impacts Council’s four key goals and five key objectives.

Goals:
1. Securing our Finances, Assets and Core Infrastructure;
2. Planning for the Future;
3. Building our Community; and
4. Developing Organizational Excellence.

Objectives:
1. Enhanced lifestyle opportunities and community health;
2. Improved public safety;
3. Excellence in financial management and planning;
4. Optimized planning and management of assets and infrastructure; and
5. Effective economic development.

FINANCIAL IMPLICATIONS:
This report is provided for information only. There are no financial implications associated with this report. The potential financial implications related to the new Development Bylaw will be identified when that Bylaw is introduced to Council.

COMMUNICATION:
There is no communication required for this report.

SUMMARY AND CONCLUSION:
Recently, there has been much discussion regarding when and where staff should apply different road cross sections. As Council is envisioning a more flexible and responsive approach to development and subdivision designs as a means to facilitate land development in a more land intensive and efficient manner, Mission’s draft Development Bylaw proposes a broad selection of road cross sections available to developers that can be applied as appropriate without the need for variances.

SIGN-OFFS:

Jay Jackman, Manager of Development Engineering & Projects

Reviewed by:
Tracy Kyle, Director of Engineering

Comment from Chief Administrative Officer:
Reviewed.
<table>
<thead>
<tr>
<th>Roadway Element</th>
<th>Existing Standard</th>
<th>Referenced Documents</th>
<th>Minimum Dimension</th>
<th>Preferred Dimension</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boulevard</td>
<td>4.75 m wide (15.5 feet)</td>
<td>The Institute of Transportation Engineers Guidelines recommend a buffer zone of 1.82 to 2.13 m (6 to 7 feet) to separate pedestrians from the street. If the boulevard is used to locate franchise utilities, street light poles, and fire hydrants, things get very complicated, as minimum clearances of BC Hydro, FortisBC, BC Safety Authority, and the National Fire Protection Association all have to be maintained.</td>
<td>Unknown</td>
<td>4.6 m wide (15 feet)</td>
<td>District of Mission draft Development Bylaw</td>
</tr>
<tr>
<td>Sidewalks</td>
<td>1.5 m wide (5 feet)</td>
<td>The Institute of Transportation Engineers Guidelines recommends a minimum sidewalk of 1.82 m (6 feet). The MMCD standard drawing C7 dimensions the sidewalk at 1.5 m (5 feet).</td>
<td>1.5 m wide (5 feet)</td>
<td>1.5 m wide (5 feet)</td>
<td>District of Mission Subdivision Control Bylaw</td>
</tr>
<tr>
<td>Curb and Gutter</td>
<td>0.55 m wide (22 inches)</td>
<td>The MMCD standard drawing C4 dimensions the barrier curb at 0.45 m wide (18 inches) and drawing C5 dimensions it at 0.55 m wide (22 inches).</td>
<td>0.45 m wide (18 inches)</td>
<td>0.55 m wide (22 inches)</td>
<td>District of Mission draft Development Bylaw</td>
</tr>
<tr>
<td>Parking Lane</td>
<td>2.4 m wide (8 feet)</td>
<td>TAC’s Design Guide for Canadian Roads indicates that, on local streets, a parking lane width is generally 2.4 m wide, while for other type of streets is should be 2.8 m. The recommended practice regarding street parking considered in the Institute of Transportation Engineers Guidelines are a parking lane 2.5 m (8 feet) wide on commercial thoroughfares and 2.0 m (7 feet) wide on residential thoroughfares.</td>
<td>2.0 m wide (7 feet)</td>
<td>2.4 m wide (8 feet)</td>
<td>District of Mission draft Development Bylaw</td>
</tr>
<tr>
<td>Travel Lane</td>
<td>4.0 m wide (13 feet)</td>
<td>TAC’s Design Guide for Canadian Roads suggested a lane width between 3.5 and 3.7 m for collector and local roads as well as a reduction of 0.2 m in lane width if the design speed is 60 km/h or less. Where the lane is shared it should not be less than 4.0 m.</td>
<td>4.0 m wide (13 feet)</td>
<td>4.0 m wide (13 feet)</td>
<td>District of Mission draft Development Bylaw</td>
</tr>
</tbody>
</table>
### Regional Comparisons of Residential Road Standards

<table>
<thead>
<tr>
<th>Roadway Element</th>
<th>Abbotsford</th>
<th>Chilliwack</th>
<th>Langley (Township)</th>
<th>Mission including South West Mission</th>
<th>Surrey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall road right-of-way width</strong></td>
<td>13.5 m (44 feet) to 20.0 m (65.5 feet)</td>
<td>11.0 m (36 feet) to 17.5 m (57.5 feet)</td>
<td>16.8 m (55 feet) to 20 m (65.5 feet)</td>
<td>11.5 m (38 feet) to 18.0 m (59 feet)</td>
<td>15.5 m (51 feet) to 20 m (65.5 feet)</td>
</tr>
<tr>
<td>Boulevard</td>
<td>6.5 m (21 feet) to 10.0 m (33 feet)</td>
<td>2.5 m (8 feet) to 4.5 m (15 feet)</td>
<td>4.1 m (13.5 feet) to 5.7 m (18.5 feet)</td>
<td>1.5 m (5 feet) to 4.75 m (15.5 feet)</td>
<td>4.25 m (14 feet) to 5.0 m (16.5 feet)</td>
</tr>
<tr>
<td>Sidewalk</td>
<td>1.5 m (5 feet)</td>
<td>1.5 m (5 feet) x 1</td>
<td>1.5 m (5 feet) x 2</td>
<td>1.5 m (5 feet) x 1</td>
<td>1.5 m (5 feet) x 1 or 2</td>
</tr>
<tr>
<td>Planting Strip</td>
<td>1.5 m (5 feet)</td>
<td>N/A</td>
<td>2.0 m (7 feet)</td>
<td>0 m to 2.5 m (8 feet)</td>
<td>1.5 m (5 feet) to 3.25 m (10.5 feet)</td>
</tr>
<tr>
<td>Curb and Gutter</td>
<td>0.45 m (18 inches)</td>
<td>0.45 m (18 inches)</td>
<td>0.45 m (18 inches)</td>
<td>0.55 m (22 inches)</td>
<td>0.45 m (18 inches)</td>
</tr>
<tr>
<td>Parking Lane</td>
<td>2.0 m (6.5 feet) to 2.4 m (8 feet)</td>
<td>Not defined</td>
<td>2.4 m (8 feet)</td>
<td>2.4 m (8 feet)</td>
<td>Not defined</td>
</tr>
<tr>
<td>Travel Lane</td>
<td>3.6 m (12 feet) to 4.6 m (15 feet)</td>
<td>Not defined</td>
<td>3.1 m (10 feet) x 2</td>
<td>3.0 m (10 feet) to 4.0 m (13 feet)</td>
<td>Not defined</td>
</tr>
<tr>
<td><strong>Total road width gutter line to gutter line</strong></td>
<td>7.0 m (23 feet) to 10.0 m (33 feet)</td>
<td>8.5 m (28 feet) to 11 m (36 feet)</td>
<td>8.6 m (28 feet) to 11.0 m (36 feet)</td>
<td>6.0 m (19.5 feet) to 8.5 m (28 feet)</td>
<td>6.0 m (20 feet) to 11 m (36 feet)</td>
</tr>
</tbody>
</table>
NOTE: INCREASE CROSSFALL TO 3.25% WHEN LONGITUDINAL SLOPE EXCEEDS 5%
It is unclear what the document is about due to the lack of context.
SOUTH-WEST MISSION
LOCAL ROAD

LANDSCAPING PER SUBDIVISION REQUIREMENTS REFER TO BIOSWALE STANDARD

TYPICAL BIO-SWALE/PARALLEL PARKING POCKET

TYPICAL BI-O-SWALE

NOT TO SCALE

LOCAL ROAD THROUGH DEVELOPMENT WITH PARALLEL PARKING POCKET
PUBLIC LANE

LANE TO HAVE 6.0m PAVEMENT WIDTH WHERE NO ALTERNATE SERVICE OR EMERGENCY ACCESS IS AVAILABLE.

LOCAL ROAD THROUGH GREENBELT AREAS