

## SECTION 6: TRANSPORTATION

### 6.0 INTRODUCTION

This section covers the design of the transportation system including, but not limited to, roadways, lanes, sidewalks and pathways located within road right of way.

### 6.1 GENERAL

Current practice is to use a system of arterial roadways, collector roadways, local roadways, sidewalks and pathways to move people and goods.

The overall design principles described in the introduction to these standards are the basis on which all construction is undertaken in the City. Often a combination of principles will come into play when designing a particular component of the system.

The designer must consider safety in the design of transportation facilities. At a minimum, the following safety factors shall be considered in the design of the transportation system:

- i. Number and types of vehicles using the roadway.
- ii. Accessibility of an area for Emergency Services.
- iii. Spacing, type, intersecting angle and location of intersections and crosswalks.
- iv. Sight distance (decision, stopping, intersection, etc.).
- v. Level of access from adjacent properties.
- vi. Traffic calming requirements.
- vii. Playground and school zone locations.
- viii. Pedestrian facilities.
- ix. Intersection offsets.
- x. Intersection control (uncontrolled, yield, stop, roundabout or traffic signal).
- xi. Median treatment.
- xii. Traffic control device warrants.
- xiii. Requirements identified by *The Traffic Safety Act, Saskatchewan*.

Designers shall consider how the transportation system interacts with other components of the City's infrastructure. In particular, this applies to major overland flow routes forming part of the Storm Water Management System (see Section 3).

### 6.2 LEVEL OF SERVICE OBJECTIVES

The objective of the transportation system is to allow movement of people and goods into, out of, and within the City while maintaining quality of life.

In considering the layout of streets; safety and convenience are overarching principles. Design of local roadways shall focus on providing safe access to adjacent properties while minimizing speed and potential for transient traffic use.

When considering the impact of development of adjacent areas on existing arterial and collector roadways more traditional definitions of level of service will be used. The City in these cases considers level of service “D” and a “Volume to Capacity” ratio of 0.80 to be acceptable operating conditions during peak traffic periods. Improvements are identified / required when the level of service reaches the “D/E” transition.

In addition to providing a minimum level of service for traffic flow, roadways and other surface improvements in the road right of way shall be designed to provide a useful life of 20 years with a minimal maintenance program.

### 6.3 APPLICABLE REGULATIONS, GUIDELINES AND RESOURCES

The following legislation provides information related to the design of transportation systems:

- *The Traffic Bylaw, City of Prince Albert;*
- *Standard Construction Specifications and Drawings, Roadways, Water, and Sewer, City of Prince Albert;*
- *Transportation Impact Analysis for Site Development, Institute of Transportation Engineers (ITE);*
- *Promoting Sustainable Transportation Through Site Design, ITE;*
- *Geometric Design Guide for Canadian Roads, Transportation Association of Canada (TAC);*
- *Canadian Guide to Neighbourhood Traffic Calming, TAC;*
- *Manual of Uniform Traffic Control Devices for Canada, TAC;*
- *The Traffic Safety Act, Saskatchewan;*
- *2017 City of Prince Albert Transportation Study.*

### 6.4 TRANSPORTATION REQUIREMENTS

#### 6.4.1 Traffic Impact Assessments

A Traffic Impact Assessment (TIA) shall be completed for all new development or redevelopment that generates 100 additional trips during a peak hour period and/or is expected to create operational difficulties associated with the safe and efficient movement of traffic, pedestrians, bicycles and transit vehicles.

A TIA shall be required even if there are less than 100 peak hour trips when one or more of the following conditions are anticipated or present:

- i. The development/redevelopment is located in an area of high roadway congestion and/or a high expected rate of population or employment growth.

- ii. The development is located within or adjacent to a residential community that has over-spill of parking issues and may have a residential parking permit program in place.
- iii. The development is located in an area with existing parking issues.
- iv. The development, its access or type of operation is not envisaged by local land use or transportation plans.
- v. The development or redevelopment proposal requires amendment of the applicable official plan(s).
- vi. As part of the proposed development, a new traffic signal is proposed to be installed on the arterial road network.
- vii. If the development/redevelopment has the potential to create unacceptable adverse operational and safety impacts on the road network. Examples include the following:
  - o Inadequate horizontal or vertical sight distances at access points;
  - o The proximity of the proposed access points to other existing driveways or intersections;
  - o Lack of existing left or right turn lane(s) on the adjacent roadway at the proposed access point(s);
  - o The vehicular traffic generated by the development/redevelopment would result in volume/capacity ratios at an adjacent intersection becoming critical (i.e. greater than 0.80 overall or Level of Service D).

The onus is on the proponent/consultant to demonstrate that a traffic impact assessment is not required.

#### **6.4.2 Qualifications to Conduct a Traffic Impact Assessment**

- i. When the scale of the development/redevelopment warrants a TIA, it is the proponent's responsibility to retain a qualified transportation engineering consultant experienced in transportation planning and traffic engineering.
- ii. The consultant's representative, the engineer responsible for the traffic impact assessment, shall be a member of the Institute of Transportation Engineers and registered as a Professional Engineer in the Province of Saskatchewan. The report must be dated and signed accordingly. The signing engineer is verifying that appropriate assumptions, procedures and calculations have been undertaken during the process of completing the traffic impact assessment and that they are the individual who is taking corporate/professional responsibility for the work.

#### **6.4.3 Traffic Impact Assessment Guidelines**

The following guidelines provide additional information on TIAs:

- i. Transportation Impact Analysis for Site Development, Institute of Transportation Engineers.
- ii. Transportation and Land Development, Institute of Transportation Engineers.

- iii. Access Management Manual, Transportation Research Board.
- iv. Trip Generation, Institute of Transportation Engineers.
- v. Saskatchewan Ministry of Highways and Infrastructure.

#### **6.4.4 Requirements for a Traffic Impact Assessment**

Specific requirements for the completion of a TIA are provided by the Public Works Department on a case by case basis and generally include, but are not limited to:

- i. Identification of intersections to be included in the TIA.
- ii. Proposed development layout.
- iii. Development horizons (existing, interim, 10 year, 20 year, full build out, etc. horizons to be determined based on development size, complexity and proposed staging).
- iv. Confirmation of trip generation rates prior to analysis.
- v. Review of trip distribution assumptions prior to analysis (internal & external to site).
- vi. Review of trip assignment prior to analysis (internal & external to site).
- vii. On site circulation.
- viii. On site parking layout.
- ix. Access.
- x. Pedestrian requirements.
- xi. Adjacent on-street parking.
- xii. Transit requirements.
- xiii. Safety review.
- xiv. Traffic Signal Warrants (most recent available from TAC).
- xv. Synchro analysis of intersections (City of Prince Albert factors).
- xvi. Prince Albert Transportation Planning Study.

Results of the TIA shall identify improvements in the transportation network required to support the proposed development. Improvements required within 10 years of development completion are the responsibility of the developer. Improvements identified at a time period greater than 10 years after development completion will be used by the City for future network planning. Clarification – if a development is expected to take 25 years to complete, the developer is responsible for all transportation requirements within the development area and connecting the development area until the development is complete.

#### **6.4.5 Traffic Impact Assessment Categories**

TIA's can be separated into three categories:

- i. Urbanization Plans and Area Master Plans - These TIAs focus on the impact the new development area will have on the existing transportation network and the connection points to the existing/future external transportation network.
- ii. Development Plans - At this level the TIA will review the internal road network of the proposed development area and also refine the requirements for the access points.
- iii. Specific Development Projects - These TIAs look specifically at an individual development site or sites that may be associated with rezoning or development permit applications.

Additional information is provided in Section 2 General Considerations.

#### **6.4.6 Environmental Considerations and Best Management Practices**

As stewards of the environment, charged with creating a healthy city and protecting the natural endowments within our jurisdiction, the City promotes any design measures, which reduce or mitigate the impacts of development.

In particular design features and construction methods which contribute to improved stormwater and air quality are strongly encouraged. Specifically related to transportation design and planning are measures which promote pedestrian and bicycle traffic and encourage the use of public transit.

### **6.5 TRANSIT REQUIREMENTS**

The City of Prince Albert is committed to Transit Orientated Developments (TOD). To accomplish this goal all developments shall locate moderate to higher density developments within an easy walk of a major transit stop, generally with a mix of residential, employment and shopping opportunities designed for pedestrians without excluding the auto. Major senior facilities shall be located adjacent to roadways with transit routes.

#### **6.5.1 General**

Transit routes shall not be located on local roadways. They should be located on any of the following:

- i. Arterial (accommodated with pull outs);
- ii. Major Collector;
- iii. Minor Collector; or
- iv. Local Industrial roadways.

#### **6.5.2 Walk Distances**

Transit services shall be considered where the location exceeds the following distance from a transit route:

- i. 400 m walking distance for residential areas (an area may be excluded from consideration if 90% of all residences in the built up area are currently served).

- ii. 250 m walking distance to all medium and high density residential buildings.
- iii. 250 m walking distance to institutional facilities including major educational, medical and recreational services.
- iv. 200 m walking distance to major seniors’ residences and seniors’ activity centres.
- v. 750 m to industrial land uses.

**6.5.3 Bus Stops**

Bus stops shall not be located less than 250 m apart (multiple stops at a single location may be considered), spaced to achieve the walking distance standards and located to maximize safety considerations.

Stops and the area around them shall be accessible to people with disabilities, including wheelchairs and other mobility aids. Pads shall be installed at all stops and curb cuts at each corner.

**6.6 MINIMUM REQUIREMENTS FOR ROADWAY PAVEMENT**

The following table outlines the minimum materials required for the pavement structures of roadways for the City of Prince Albert:

<b>MINIMUM REQUIREMENTS FOR ROADWAY PAVEMENT STRUCTURES (MM)</b>							
<b>Material</b>	<b>Maximum Aggregate Size (mm)</b>	<b>Arterial</b>	<b>Collector</b>	<b>Industrial</b>	<b>Residential</b>	<b>Lane</b>	<b>Pathways</b>
<b>Asphalt Surface</b>	16	150	100	100	80	50	50
<b>Granular Base Course</b>	19	375	250	250	225	150	200
<b>Geo Textile</b>	N/A	Yes	Yes	Yes	Yes	N/A	N/A

Specific roadway pavement structures are detailed in the Master Specifications and Standard Detail Drawings.

**6.7 ENTRYWAYS, BOULEVARD, AND MEDIAN LANDSCAPING**

- i. Landscaping of boulevards and road right-of-ways shall be done in compliance with Community Services Parks and Open Space Standard, the latest version of the City Master Specifications, and the latest version of the Standard Detail Drawings. Landscaping plans will be subject to the approval of the Public Works and Community Services Departments.

- ii. Landscaping features shall be low maintenance and cost effective to maintain with existing City maintenance equipment and personal.
- iii. Trees planted in boulevards adjacent to collector roads shall be of a species with an elevated canopy to reduce line of sight conflicts and of a species approved by the Community Services Department.

**6.8 SIDEWALKS, PATHWAYS, AND CROSSWALKS**

- i. Subdivisions shall be incorporated into the City's regional pathway and park system by providing adequate pedestrian linkages internally and to adjacent neighborhoods.
- ii. Innovative community planning which promotes pedestrian traffic for both work and pleasure is encouraged. Some characteristics which promote pedestrian traffic, include: short trip distances; wide, well lit pathways; and safe road crossings.
- iii. Crosswalks shall be located at intersections only. Pathway and park entrances intersecting roads at mid-block shall require approval in writing from the Public Works and Community Services Departments.
- iv. A minimum of 50 mm of gravel shall be provided under all sidewalks where medium to high plastic soils are present as per the City's existing standard. The Public Works Department will on a case by case basis consider not having gravel if a detailed geotechnical report indicates:
  - Soils are not medium to high plastic;
  - Soils are not having high swelling properties; and
  - There will be no long term performance issues without gravel for each specific location.

**6.9 NEW AND EXISTING LANES**

- i. All lanes in a new development will be paved.
- ii. Any new property is required to pave any existing unpaved lanes that rear or flanks their property from the nearest street to their furthest property line relative to the street. This applies if the property's site is over 1500 m<sup>2</sup> in size or has an occupancy capacity of 8 unit dwellings or greater.

**6.10 STREET AND TRAFFIC CONTROL SIGNS**

- i. The Street Naming Committee names streets according to prevailing City conventions when the lands are subdivided and titles created.
- ii. Costs of preparing and installing street and traffic control signs are included in the charges calculated and paid as part of the Service Agreement. The Public Works Department determines the requirement for traffic control devices. The Planning and Development Department determines the requirements for approved street names and civic addresses.

- iii. Any other identifying signage must comply with the Corporate Identity Guidelines (color, font, text size and type of name).
- iv. Street Naming Conventions
  - a. Arterials
    - i. Avenues – north and south
    - ii. Streets – east and west
  - b. Collectors
    - i. Boulevard
    - ii. Parkway
    - iii. Road
  - c. Residential
    - i. Drive
    - ii. Crescent
    - iii. Gate
    - iv. Lane
    - v. Terrace
    - vi. Way
  - d. Cul Du Sacs
    - i. Bay – regular
    - ii. Court – with island
    - iii. Cove – with turn
    - iv. Place – with median