This publication is prepared by the City of Regina, Planning and Development Division

The “Development Standards Manual” provides a comprehensive reference of the Acts, Bylaws, policy, standards, and guidelines required for subdivision development and servicing within the City of Regina. Where the design of a subdivision is not typical, sound engineering practices shall prevail in order to reach a satisfactory solution.

The City of Regina administration is provided the authority to enforce the standards contained within this manual through The Cities Act for the development of roads and utilities and The Planning and Development Act, 2007 for the approval of applications through the land development process including land uses.

This document is to be used in conjunction with the most current revision of the Standard Construction Specifications Manual for construction as published by the City of Regina, Planning and Development Division as well as those documents provided by other City Departments.

We trust that this document will continue to be useful to the Construction and Home Building Industry as a reference to servicing subdivisions within the City of Regina.

Development Standards Manual first edition was drafted March 26, 1999.

Revision Date
Fall 2009

This 2010 edition of the Development Standards Manual has been reviewed and approved by both the Manager of Infrastructure Development Branch and the Director of Development Engineering Department as part of the Planning and Development Division, within the administration of the City of Regina.

Manager of Infrastructure Development Branch

Director of Development Engineering Department
# TABLE OF CONTENTS

## Section A  INTERPRETATION

- A.1 Introduction to Definitions and References .................................................. vi
- A.2 Rules of Grammatical Construction ............................................................. vi
- A.3 Word Usage ................................................................................................. vii
- A.4 Abbreviations ............................................................................................. viii
- A.5 Definitions ................................................................................................... ix

## Section 01  GENERAL INFORMATION

- 1.0 General ........................................................................................................... 05
- 2.0 Manual Overview .......................................................................................... 07
- 3.0 Development Process .................................................................................... 08

## Section 02  LAND DEVELOPMENT PROCESS

- 1.0 General ........................................................................................................... 15
- 2.0 Concept Plans ............................................................................................... 16
- 3.0 Subdivision Process ..................................................................................... 21
- 4.0 Consolidation Applications ......................................................................... 27
- 5.0 Leasehold Interest Applications .................................................................. 28
- 6.0 Severance Applications ............................................................................... 29
- 7.0 Zoning Amendment Applications ................................................................ 32
- 8.0 Contract Zoning Applications ..................................................................... 37
- 9.0 Discretionary Use Applications ................................................................... 42
- 10.0 Special Development Permits ..................................................................... 47

## Section 03  ENVIRONMENTAL CONSIDERATIONS

- 1.0 General .......................................................................................................... 53
- 2.0 Environmental Issues ................................................................................. 53
- 3.0 Water Conservation ...................................................................................... 57
- 4.0 Liquid Waste, Hazardous Waste and Demolition Materials ....................... 58
- 5.0 Alternative Forms of Transportation ............................................................ 60

## Section 04  LAND REQUIREMENTS

- 1.0 General .......................................................................................................... 65
- 2.0 Land Dedication .......................................................................................... 65
- 3.0 Easements and Other Interests .................................................................... 69
- 4.0 Other City Land Requirements ................................................................. 70
## Section 05  SERVICING FEES FOR LAND DEVELOPMENT

1.0 General .................................................................................................................. 75
2.0 Shared Costs .......................................................................................................... 75
3.0 Roadway Costs ...................................................................................................... 76

## Section 06  SUBDIVISION SERVICING

1.0 General .................................................................................................................. 83
2.0 Servicing Agreement ............................................................................................ 83
3.0 Project Administration .......................................................................................... 89

## Section 07  TRANSPORTATION DESIGN

1.0 General .................................................................................................................. 99
2.0 Functional Definitions ......................................................................................... 101
3.0 Subdivision Design Requirements ...................................................................... 103
4.0 Site Design Requirements .................................................................................. 110
5.0 Roadway Design Requirements .......................................................................... 113
6.0 Traffic Design Requirements .............................................................................. 121
7.0 Other Design Requirements ............................................................................... 129

## Section 08  WASTEWATER COLLECTION SYSTEM

1.0 General .................................................................................................................. 135
2.0 Concept Design Standards .................................................................................. 137
3.0 Detailed Design Standards .................................................................................. 139

## Section 09  STORM WATER COLLECTION SYSTEM

1.0 General .................................................................................................................. 151
2.0 Specifications ....................................................................................................... 152
3.0 Definitions ............................................................................................................ 153
4.0 Concept Design Standards .................................................................................. 157
5.0 Detailed Design Standards .................................................................................. 161

## Section 10  WATER DESIGN

1.0 General .................................................................................................................. 173
2.0 Specifications ....................................................................................................... 173
3.0 Definitions ............................................................................................................ 174
4.0 Concept Design Standards .................................................................................. 175
5.0 Detailed Design Standards .................................................................................. 176
6.0 Hydraulic Network Analysis ................................................................................. 182
Section 11  WASTE MANAGEMENT

1.0  General ............................................................................................................. 191
2.0  Collection Services for Residential Developments ........................................ 191
3.0  Collection Services for Non-Residential Developments ............................. 193
4.0  Site and Building Design Requirements ....................................................... 194
5.0  Waste Minimization Options ........................................................................... 195

Section 12  OPEN SPACE DEVELOPMENT

1.0  General .............................................................................................................. 203
2.0  Development Requirements ............................................................................. 211
3.0  Design Criteria .................................................................................................. 220
4.0  Development Standards.................................................................................... 228

List of Tables

06 – 2.3.2  Land Development Design Drawings Standards ............................. 86
07 – 3.8.1  Right-of-Way Requirements ................................................................. 105
07 – 3.13.1 Sidewalk Provision Guidelines ......................................................... 109
07 – 5.3.1  Summary of Geometric Design Standards ........................................... 115
07 – 5.4.3  Minimum Stopping Sight Distance Requirements ............................ 116
07 – 6.3.1  Street Suffix by Road Classification ................................................ 122
07 – 6.4.1  Traffic Control Requirements .............................................................. 124
08 – 3.4.3  Minimum Sewer Slope ....................................................................... 142
09 – 1.4.5  Lot Grading .......................................................................................... 152
09 – 5.1.2  Storm Effect on Runoff Coefficient .................................................. 162
10 – 6.1.5  Design Population .............................................................................. 183
10 – 6.2.3  Fire Flow .............................................................................................. 184
12 - 4.23.4  Grading & Drainage .......................................................................... 235
12-4.25.12 Shrub Plant Materials ..................................................................... 237
12 - 4.26.8  Irrigation ............................................................................................. 238
12-4.40.12 Irrigation Valve & Sprinkler information ......................................... 239
12-4.40.12 Light Standards .................................................................................. 246

List of Charts  (NA)

List of Figures

01 – 3.2.1  Service Agreement Procedure ............................................................. 09
02 – 2.1  Concept Plan Application Procedures .................................................. 20
02 – 3.1  Subdivision Application Procedures ..................................................... 26
02 – 6.1  Severance Application Procedures ...................................................... 31
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 – 7.1</td>
<td>Zoning Amendment Procedures</td>
<td>36</td>
</tr>
<tr>
<td>02 – 8.1</td>
<td>Contract Zoning Procedures</td>
<td>41</td>
</tr>
<tr>
<td>02 – 9.1</td>
<td>Discretionary Use Procedures</td>
<td>46</td>
</tr>
<tr>
<td>07 – 4.3.6</td>
<td>Driveway Located at Tee Intersection</td>
<td>112</td>
</tr>
<tr>
<td>07 – 4.3.7</td>
<td>Offset Driveways at Tee Intersection</td>
<td>112</td>
</tr>
<tr>
<td>07 – 5.12.1</td>
<td>Pedestrian Ramp Locations</td>
<td>120</td>
</tr>
<tr>
<td>08 – 3.2.2</td>
<td>Wastewater Flow Formula</td>
<td>140</td>
</tr>
<tr>
<td>08 – 3.2.3</td>
<td>Harmon Formula</td>
<td>140</td>
</tr>
<tr>
<td>08 – 3.2.4</td>
<td>Manning Equation</td>
<td>140</td>
</tr>
<tr>
<td>09 – 4.4</td>
<td>IDF Curve</td>
<td>159</td>
</tr>
<tr>
<td>12 – 2.14</td>
<td>CCC #2 and FAC #2 Process</td>
<td>219</td>
</tr>
<tr>
<td>12 – 3.9</td>
<td>Flood Plain</td>
<td>225</td>
</tr>
</tbody>
</table>
A.1 Introduction to Definitions and References

(1) The purpose of this Section is to define words, terms and phrases which are necessary for the understanding, administration and enforcement of the Development Standards Manual, and may not be part of common English usage.

(2) Terms, words and phrases used in this Manual which are not defined in this Section but defined in The Planning and Development Act, 2007 and other Bylaws of the City of Regina have the meaning expressed in that Act and the appropriate Bylaws.

These definitions have been listed in the Development Standards Manual as a convenience to its users. Current definitions in the Bylaw or Act are referred from these definitions.

The number in some brackets [ ] refers to the Act or Bylaw the definition has been extracted from:

[PDA] Saskatchewan Planning and Development Act, 2007
[1992/9250] City of Regina - Zoning Bylaw No. 9250
[1995/7748] City of Regina - Subdivision Bylaw No. 7748

(3) Words, phrases and terms neither defined in this Section nor in the Act, Bylaws of the City of Regina, shall be given their usual and customary meaning except where, in the opinion of the Council, the context clearly indicates a different meaning.

A.2 Rules of Grammatical Construction

The following rules shall be used in interpreting the provisions of this Manual, except where:

(a) The context clearly requires otherwise; or
(b) The result would clearly be inconsistent with the intent of this Manual.

A.3 Word Usage

Tense

Words used or defined in one tense or form shall include other tenses and derivative forms.
Singular and Plural Usage

Words in the singular number shall include the plural number, and words in the plural number shall include the single number.

Gender

The masculine gender shall include the feminine, and the feminine gender shall include the masculine.

Statutory Reference

All Acts referred to in this Manual relate to Acts of the Province of Saskatchewan, except where the reference is followed by "(Canada)", in which case the reference is to an Act of the Parliament of Canada.

Other Words and Phrases

(1) The words "shall", "must" and "will" are mandatory.
(2) The words "may", "can" and "might" are permissive.
(3) The word "person" includes individuals, firms, corporations, partnerships, associations, trusts, and any other similar entities.
(4) The word "City" shall mean the City of Regina.
(5) The word "province" shall mean the Province of Saskatchewan.
(6) The word "Commission" shall mean the Regina Planning Commission.
(7) The words "Council" and "City Council" shall refer to the City of Regina Council.
(8) The word "Board" shall mean the City of Regina Development Appeals Board.
(9) The phrase "used for" includes "arranged for", "designed for", "maintained for", or "occupied for".
(10) Unless the context clearly indicates the contrary, where a regulation involves two or more items, conditions, provisions or events connected by the conjunction "and", "or" or "either-or", the conjunction shall be interpreted as follows:
    (a) "and" indicates that all the connected items, conditions, provisions or events shall apply in any combination;
    (b) "or" indicates that the connected items, conditions, provisions or events may apply single or in combination;
    (c) "either-or" indicates that the connected items, conditions, provisions, or events shall apply single but not in combination.
(11) The word "includes" shall not limit a term to the specified example, but is intended to extend the meaning to all instances or circumstances of similar kind or character.

Text and Caption Ambiguity

If there is any ambiguity between the text of this Manual and any caption, illustration, or table, the text shall prevail.

A.4 Abbreviations

The following abbreviations are used in this Manual and are intended to have the following meanings:

- ac   acre
- apt apartment
- ASL above sea level
- blk block
- CCC construction completion certificate
- cm   centimetre
- cm³ cubic centimetre
- dB   decibel
- FAR floor area ratio
- FAC final acceptance certificate
- ft³/s cubic feet per second
- GFA gross floor area
- ha   hectare
- HGL hydraulic grade line
- ht   height
- hr   hour
- in   inch
- imp imperial
- kc   kilocycle
- km   kilometre
- kPa  kilopascal
- L    litre
- Lpcd litres per capita day
- L/s  litres per second
- lt   lot
- lx   lux
- m   metre
- m/s metres per second
- m²   square metre
- m³   cubic metre
- m³/s cubic meters per second
- max maximum
A.5 Definitions

The following words, terms and phrases, wherever they occur in this Manual, shall have the meanings assigned to them by this Part.

"ACT" - The Planning and Development Act 2007, as amended.

"ALLEY" (LANE) - any public right-of-way providing a secondary level of access to a lot or parcel of land with a width of between 6 metres and 9 metres. [1992/9250]

“AQUIFER" - a confined or unconfined water-bearing subterranean body of water. [1992/9250]

"AQUIFER SENSITIVE ZONE" - an area from which water run-off or contaminants released on the surface directly recharges, enters or migrates into an aquifer. [1992/9250]

"AQUIFER PROTECTION ZONE, HIGH SENSITIVITY" - an area overlaying a portion of the Regina Aquifer System where the aquifer is beneath:

(i) 0 to 5 metres of protective clay or till overburden; or
(ii) 5 to 10 metres of undifferentiated overburden of which the upper portion consists of silty or sandy material. [1992/9250]

"AQUIFER PROTECTION ZONE, LOW SENSITIVITY" - an area overlaying a portion of the Regina Aquifer System where there is a protective clay or till overburden of more than 10 metres. [1992/9250]
"AQUIFER PROTECTION ZONE, MODERATE SENSITIVITY" - an area overlaying a portion of the Regina Aquifer System where the aquifer is beneath:
(i) 5 to 10 metres of protective clay or till overburden; or
(ii) more than 10 metres of undifferentiated overburden of which the upper portion consists of silty or sandy materials. [1992/9250]

"ARCHITECTURAL ELEMENT" - an aesthetic feature consisting of but not limited to a free standing fence, wall, retaining wall, planter, fountain, pool, gazebo, sculpture or the like. [1992/9250]

- B -

"BUILDING" - a structure used for the shelter or accommodation of persons, animals, goods, chattels or equipment, having a roof which is supported by columns or walls and including any tents situated on private property when so used.

"BUILDING BYLAW" - the Bylaw of the City regulating the erection, alteration, repair, occupancy or maintenance of buildings and structures. [1992/9250]

"BUILDING, APARTMENT" - a building except as otherwise defined herein containing more than four dwelling units. [1992/9250]

"BUILDING, APARTMENT - LOW-RISE" - a building containing more than four dwelling units which building does not exceed thirteen (13) metres in height except where otherwise restricted in the Zoning Maps. [1992/9250]

"BUILDING, APARTMENT – HIGH-RISE" - a building containing more than four dwelling units which building exceeds thirteen (13) metres in height except where otherwise restricted in the Zoning Maps. [1992/9250]

"BUILDING, DUPLEX" - a building divided horizontally into two dwelling units. [1992/9250]

- C -

"CALLIPER" - the diameter of the trunk of a tree measured at 300 millimetres above the ground. [1992/9250]

"CITY CLERK" - means the City Clerk of the City of the City of Regina. [7748/1995]

"CITY COUNCIL" - or "Council" means the Council of the City of Regina. [7748/1995]

"COMMISSION" - means the Regina Planning Commission. [7748/1995]
"CONTROLLED ACCESS ARTERIAL STREET" - means a street or roadway designed to carry traffic from one area of the City to another, with full or partial control of access. [7748/1995]

"COVERAGE" - the percentage of the lot which is covered by buildings or structures excluding uncovered swimming pools, uncovered terraces, uncovered porches, and decks [1992/9250]

"CROWN COVER" - the coverage produced by all plant materials other than grass or ground cover (see illustration in Figure 2.6). [1992/9250]

"Cul-de-Sac" - means a minor or residential dead-end street with one end open to traffic and with a turnaround at the other end. [7748/1995]

"CURB, BARRIER" - a curb with vertical straight edge that discourages vehicles from crossing. [1992/9250]

"CURB, ROLLED" - a curb that is of vertical curved design to allow vehicles to be driven over. [1992/9250]

"CURB, RADIUS" - a curb that separates vehicles from the pedestrian at the intersection of two streets. [1992/9250]

- D -

"DEDICATED LANDS" - means lands dedicated pursuant to Part IX of the Planning and Development Act, buffer strips, environmental reserve, municipal reserve, public reserve and walkways. [2007/PDA]

"DEVELOPMENT" - the carrying out of any building, engineering, mining or other operations in, on, or over land or the making of any material change in the use or the intensity of the use of any building or land. [1992/9250]

"DEVELOPMENT LEVY AGREEMENT" - means an agreement entered into pursuant to Section 171 of the Planning and Development Act. [2007/PDA]

"DEVELOPMENT PERMIT" - means a document authorizing a development issued pursuant to a zoning bylaw or a development control adopted by the minister pursuant to Part VI of the Planning and Development Act. [2007/PDA]

"DEVELOPMENT OFFICER" - the Director of Planning and Sustainability or designate. [1992/9250]

"DIRECTOR OF DEVELOPMENT ENGINEERING" - means the Director of the Development Engineering Department of the City of Regina.
"DIRECTOR OF ENVIRONMENTAL SERVICES" - means the Director of the Environmental Services Department of the City of Regina.

"DIRECTOR OF PLANNING AND SUSTAINABILITY" - means the Director of the Planning and Sustainability Department of the City of Regina.

"DISCRETIONARY USE" - a use of land, building or other structure that may be permitted in a zone only at the discretion of and at a location specified by Council. [1992/9250]

"DRIVEWAY" - a private right-of-way, paved or unpaved, that provides access for vehicles and pedestrians from a boulevard, curb, or sidewalk to a lot or a carport, garage, parking pad, loading berth, or structure located on the lot. [1992/9250]

"DRIVEWAY CROSSING" - that portion of a sidewalk, curb, or boulevard permanently improved or designed for the passage of vehicular traffic across the sidewalk, curb, or boulevard. [1992/9250]

- E -

"ELEVATION" - the vertical distance above or below mean sea level. [1992/9250]

"ENVIRONMENTAL RESERVE" - means dedicated lands that are provided to a municipality or to the Crown, as the case may be, pursuant to section 185 of the Planning & Development Act. [2007/PDA]

- F -

"FENCE" - a structure which is used to mark a boundary between properties and prevent or restrict passage, to provide visual screening, sound attenuation or protection from dust or other elements. [1992/9250]

"FLARE" - the transition area from standard walk with barrier curb and gutter to driveway crossing. [1992/9250]

"FLOOD DISCHARGE, DESIGN" - the rate at which flood water will flow instantaneously at the base flood elevation during a 1:500 year flood. [1992/9250]

"FLOOD ELEVATION, DESIGN" - the height of the flood discharge during a 1:500 year flood. [1992/9250]

"FLOODPLAIN" - any land area, usually low lying, adjoining the channel of a stream or body of standing water, that has been or may be covered by floodwater. [1992/9250]
"FLOOD/FLOODWAY FRINGE" - all that land in the floodplain not lying in a delineated floodway and where the depth of water is less than one metre and the velocity of the water is less than one metre per second. [1992/9250] (see illustration in Figure 3.9) The figures in the above definition were recommended by Sask Water to differentiate it from "Floodway".

“FORM OF DEVELOPMENT" - means any activity associated with altering the physical features of land. [2007/PDA]

"FLOODWAY" - the channel of a river or other watercourse and the adjacent land areas where the majority of floodwaters of a 1:500 year flood will flow, and where flow velocities and depths are prohibitive to structural development. [1992/9250] (see illustration in Figure 3.9)

"FLOOR AREA RATIO" - the gross floor area of all buildings on a lot divided by the lot area. [1992/9250]

- G -

“GENERAL MANAGER OF PLANNING AND DEVELOPMENT” – means the General Manager of Planning and Development of the City of Regina or delegated authority.

“GENERAL MANAGER OF PUBLIC WORKS” – means the General Manager of Public Works of the City of Regina or delegated authority.

"GRADE" - the average elevation of the natural ground level at the walls of a building for the purpose of calculating the height of a building with a walk out basement, grade shall be the average elevation of the natural ground level at the wall that is adjacent to the front lot line [1992/9250]

"GROUND COVER" - low profile vegetation, other than grass, including herbaceous perennials, flowers, vines, select shrubs, and mulch. [1992/9250]

- H -

"HAZARDOUS MATERIAL" - any product, substance or organism which, because of its quantity, concentration or risk of spill, or its physical, chemical or infectious characteristics, either individually or in combination with other substances is an existing or potential threat to the physical environment, to human health or to other living organisms, including but not limited to:

(i) Corrosives;
(ii) Explosives;
(iii) Flammable and combustible liquids;
(iv) Flammable solids; substances liable to spontaneous combustion; substances that on contact with water emit flammable gases;
(v) Gases, compressed, deeply refrigerated, liquefied or dissolved under pressure;
(vi) Oxidizing substances; organic peroxides;
(vii) Poisonous (toxic) and infectious substances;
(viii) Radioactive materials;
(ix) Waste Dangerous Materials; and "Waste Materials" is changed to "Waste Dangerous Materials" at the suggestion of Saskatchewan Ministry of Environment (April 13, 1992 memo to Community and Protective Services Division)
(x) Any other environmentally hazardous substance. [1992/9250]

"HEIGHT" - the vertical distance measured from grade level to the higher of:
(i) the highest point of a flat roof; or
(ii) the mean level between the top of the highest exterior wall plate and the ridge of a pitched roof.

(iii) for a low rise apartment the height shall be vertical distance from grade level to the highest ceiling of the occupied area of the building. [1992/9250]

-I-

"IMPERVIOUS SURFACE" - ground or covered ground through which water cannot infiltrate (see Figure 2.8a). [1992/9250]

-L-

"LANDSCAPE AREA" refers to that portion of a site which is not utilized for building or parking purposes and is not covered by an architectural element. [1992/9250]

"LANDSCAPING" - the modification and enhancement of a site through the use of the following elements:
(i) Soft Landscaping - the use of living plant materials such as trees, shrubs, hedges, grass and other ground covers plus the modification of the landform, such as by berming and terracing; or
(ii) Hard Landscaping - non-vegetative materials such as brick, stone, concrete, tile or wood, excluding asphalt for the purpose of surface paving. [1992/9250]
"LANE" (ALLEY) - means a public highway intended primarily to provide access to the rear of abutting properties and does not include a road allowance, road or street. [7748/1995]

"LIFT STATION" - means a mechanical/hydraulic devices that are used to solve flow problems that cannot be solved by standard gravity methods. Lift stations lift fluids to a gravity main.

"LOT" - a parcel or contiguous parcels of land in one ownership. [1992/9250]

"LOT, CORNER" - a lot at the intersection of two or more streets, or upon two parts of the same street, the adjacent sides of which street or streets (or, in the case of a curved corner, the tangents at the street extremities of the side lot lines) contain an angle of not more than one hundred and thirty-five (135) degrees. In the case of a curved corner, the corner of the lot shall be that point on the street line nearest to the point of intersection of the said tangents. [1992/9250]

"LOT, THROUGH" - a lot bounded on opposite sides by streets. [1992/9250]

"LOT DEPTH":
  (i) for a triangular lot, the horizontal distance from the midpoint of the front lot line to the apex of the angle formed by the intersection of the side lot lines; and
  (ii) for any other lot, the horizontal distance from the midpoint of the front lot line to the midpoint of the rear lot line. [1992/9250]

“LOT FRONTAGE" - the distance between the two points where the side lot lines of a lot intersect the boundary of a street right-of-way. This term shall not be considered as the ordinary side of corner lot. [1992/9250]

"LOT LINE" - the boundary line of a lot, defined as follows:
  (i) "Lot Line, Front" - the line dividing the lot from the street; for a corner lot, the front lot line shall be the lot line on the same street as the front lot lines of lots on the same block face; for a through lot, the front lot line shall be that street line which interfaces most directly with adjacent land uses;
  (ii) "Lot Line, Rear" - the lot line or point of intersection of the side lot lines farthest from and opposite the front lot line;
  (iii) "Lot Line, Side" - a lot line other than a front or rear lot line; or
  (iv) "Lot Line, Zero" - the lot line on which one or more of the building's sides rests directly. [1992/9250]
"MUNICIPAL RESERVE" - means a parcel of land dedicated to the public use and owned by the City. [7748/1995]

"NEW CONSTRUCTION" - structures for which the start of construction commenced on or after the effective date of this Bylaw. [1992/9250]

"OFF-SITE CAVEATED PARKING" - a lot or a portion of a lot against which a caveat has been registered by the City under the provisions of Chapter 14 of this Bylaw. [1992/9250]

"OWNER" - a person recorded as such on official records and including a duly authorized agent or notary, a purchaser, person bequeathed by will, judiciary or any other person having a vested or contingent interest in the property in question. [1992/9250]

"PARKING AREA" - that portion of the site covered by the parking stalls, the vehicular maneuvering areas, and the loading and storage areas where permitted. [1992/9250]

"PARKING LOT, PAVED" - a lot or building, or portion thereof, used for paved parking as a principal use. [1992/9250]

"PARKING LOT, UNPAVED" - a lot or building, or portion thereof, used for unpaved parking as a principal use. [1992/9250]

"PARKING PAD" - a hard surface constructed of asphalt, concrete, brick or other similar material for the purpose of supporting parked vehicles. [1992/9250]

“PARKING, SHORT-TERM" - a parking space provided for public use for a period less than four hours at a time. [1992/9250]

"PARKING SPACE" - a space to park one vehicle, exclusive of a driveway, ramp and column, subject to the provisions of Chapter 14 of this Bylaw. [1992/9250]

"PEAK PERIOD" - the hour of the day during which the heaviest volume of traffic occurs on a roadway. [1992/9250]
"PERMITTED USE" - a use or development to which an owner is entitled to as of right of a development permit (Building Permit) provided the use or development conforms to the development standards and regulations which pertain thereto in this Bylaw. [1992/9250]

"PERVIOUS SURFACE" - ground through which water can percolate (see "IMPERVIOUS SURFACE"). [1992/9250]

"PLANNED GROUP OF DWELLINGS" - a development of more than one residential building on a lot. [1992/9250; 1993/9488]

"PROVINCIAL HIGHWAY" - means a public highway, or a proposed public highway:

   (i) with respect to which there is a plan that is in the department over which the minister responsible for The Highways and Transportation Act, 1997 presides; and

   (ii) that the Lieutenant Governor in Council has designated as a provincial highway. [2007/PDA]

"PUBLIC RESERVE" - means a parcel of land dedicated to the public use and owned by the Crown. [7748/1995]

"PUMP STATION" - means a mechanical/hydraulic devices that are used to solve flow problems that cannot be solved by standard gravity methods. Pump stations lift fluids to a forcemain.

- R -

"RECONSTRUCTION" - the redevelopment, reuse, or rebuilding of an existing building including the rearrangement or replacement of structural supporting elements except exterior walls and without any structural additions to the original building. [1992/9250]

"REGINA AQUIFER SYSTEM" - those Aquifers defined in the 1988 Saskatchewan Research Council Report No. 209 entitled Comprehensive Evaluation of Groundwater Resources in the Regina Area, and consisting of:

   (i) upper floral and interglacial sands and gravel; and

   (ii) Condie Moraine sands and gravels. [1992/9250]

“REGIONAL SERVICE PLAN” – typically refers to a study or report that outlines the current and future requirements for water, sanitary sewer and drainage infrastructure required to service a large area such as a sector or quadrant of the City of Regina.
"RUSH HOUR" - see "PEAK PERIOD". [1992/9250]

"SEVERANCE" - means:

i) the subdivision of one lot, block or portion thereto into two "sites" having contiguous frontage on a street, or

ii) the subdivision of a portion of a lot or block and the consolidation of the portion severed with an immediately adjacent site having continuous frontage on a street. [7748/1995]

“SERVICING AGREEMENT” – refers to the form of Servicing Agreement, including Standard Conditions, adopted by the Council from time to time, and referred to in Administrative Reports respecting subdivision applications as the City’s “Standard Servicing Agreement”; all subject to such changes as circumstances of subdivision applications require and as may be approved or directed by the Council.[1996/Policy: Administration of Servicing Agreements]

“SERVICE CONNECTION” – for the purpose of the Development Standards Manual means the part of the system or works of a public utility that runs from the main lines of the public utility to the property line of a parcel of land for the purpose of providing the utility service to the parcel, and includes the connection to the main line and couplings, stopcocks and other apparatus up to the property line of a parcel of land for the provision of the public utility.

"SIGN" - any writing (including letter or word), pictorial representations (including illustrations or decoration), emblem (including device, symbol or trademark), flag (including banner or pennant), or any other figure of similar character which:

   (i) is a structure or any part thereof, or is attached to, painted on, or in any manner represented on a building;

   (ii) is used to announce, direct attention to, or advertise; and

   (iii) is visible from outside the building. [1992/9250]

"SIGN, AWNING" - a non-illuminated identification sign painted or affixed flat to the surface of an awning which does not extend vertically or horizontally beyond the limits of the awning (see "AWNING"). [1992/9250]

"SIGN, ANIMATED" - any sign or part of a sign which changes physical position by a movement or rotation or which gives the visual impression of such movement or rotation. [1992/9250]

"SIGN, CANOPY" - any sign attached to or constructed in or on a canopy. [1992/9250]
"SIGN, DIRECTIONAL" - any sign stating only safety or warning messages, traffic and/or parking directions or other instructions, directions or orders to persons making use of the premises. [1992/9250]
"SIGN FACE" - the entire area of a sign on which a copy could be placed. [1992/9250]

"SIGN, FREE-STANDING" see "GROUND SIGN". [1992/9250]

"SIGN, GROUND" - any sign supported by one or more up-rights or braces placed in the ground and not attached to any building. [1992/9250]

"SIGN, HEIGHT" - the vertical distance measured from the adjacent street curb other than an elevated roadway, which permits the greatest height to the highest point of said sign. [1992/9250]

"SIGN, IDENTIFICATION" - a sign which is limited to the name, address and number of a building, institution or person and to the activity carried on in the building or in the institution, or the occupation of the occupant. [1992/9250]

"SIGN, MARQUEE" see "SIGN, CANOPY". [1992/9250]

"SIGN, PORTABLE" - a free standing sign mounted on a trailer, stand or similar support structure which is designed in such a manner that the sign can readily be relocated to provide advertising at another location, and may include copy that can be changed manually through the use of attachable characters. [1992/9250]

"SIGN, PROJECTING" - any sign other than a wall sign, which is attached to a building and extends beyond the line of the building or beyond the surface of that portion of the building to which it is attached more than 300 millimetres. [1992/9250]

"SIGN, ROOF" - any sign erected upon and above the roof of a building within the peripheral exterior dimensions of the building. [1992/9250]

"SIGN, ROTATING" - any sign or portion of a sign which moves in a revolving or similar manner. [1992/9250]

"SIGN, SURFACE AREA" - the area of the smallest geometric figure which describes the area enclosed by the sign face. [1992/9250]

"SIGN, TEMPORARY" - any sign, banner, pennant, valance or advertising display, with or without frames, intended to be displayed for a short period of time. [1992/9250]
"SIGN, WALL" - any sign attached against the surface of, or within a recess in the wall, a column or other perpendicular portion, and including any signs attached to the walls of two or more buildings and spanning the space or spaces between the said building. [1992/9250]

"SIGN, WINDOW" - any sign either painted on or attached to, or installed inside a window for purposes of viewing from outside the premises. This does not include merchandise inside a window (see illustration for "SIGN"). [1992/9250]

"SITE" - means a lot or large area of land developed or intended to be developed as one unit. [7748/1995]

"START OF CONSTRUCTION" - the first placement or construction of permanent structure on a site, such as the pouring of slabs or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation. It does not include:

(i) site preparation, such as clearing, grading and filling;
(ii) the installation of streets and or walkways;
(iii) excavation for basement, footings, piers, or foundation;
(iv) the installation on the property of accessory buildings, such as garages or sheds which are not part of the main structure. [1992/9250]

"STREET" - the whole and entire width of every highway, public road, or road allowance vested in Her Majesty in Right of the Province of Saskatchewan and shown as such on a Plan of Survey registered in the Land Titles Office for the Regina Land Registration District. Streets are further classified by the function they perform.

"ARTERIAL STREET" - a street with controlled access and intended to provide travel to and from collector streets and expressways.

"MAJOR ARTERIAL STREET" - a divided arterial street with or without emergency lanes; no frontage or direct access to any land use; buffer strips adjacent to all or part of the right-of-way;

i or without sidewalks; and

ii an expected average daily traffic between 15,000 and 40,000 vehicles.

"MINOR ARTERIAL STREET" - a divided or undivided arterial street with:

(i) or without parking;

(ii) frontage or direct access to land uses;
(iii) sidewalks in residential areas; and
(iv) an expected average daily traffic between 5,000 and 20,000 vehicle trips.

"COLLECTOR STREET" - means a street or roadway designed to intercept, collect and distribute traffic between local and arterial streets, with direct access to abutting properties. [7748/1995]

"MAJOR COLLECTOR STREET" - a divided or undivided four-lane collector street which carries both local and non-local traffic, and with a maximum:

(i) design speed of 50 kilometres per hour; and
(ii) expected average daily traffic volume between 2,500 and 7,500 vehicles.

"MINOR COLLECTOR STREET" - a collector street on which direct access to fronting properties is permitted, and which has a maximum:

(i) design speed of 50 kilometres per hour; and
(ii) an expected average daily traffic volume between 1,000 and 5,000 vehicles.

"EXPRESSWAY" - a divided street or street with:

(i) fully controlled access;
(ii) intersections that are controlled by traffic signals; and
(iii) speed limits generally set at 70 kilometres per hour or higher.

"FREEWAY" - a divided street or street with:

(i) fully controlled access;
(ii) free flowing traffic;
(iii) all intersections grade separated; and
(iv) speed limits generally set at 70 kilometres per hour or higher.

"LOCAL STREET" - a street designed:

(i) for the sole purpose of providing frontage for service and access to lots;
(ii) to carry only traffic with either destination or origin on the street itself; and
(iii) for an expected average daily traffic of less than 1000 vehicles. [1992/9250]
"STREET LINE" - the line between a lot and a street. [1992/9250]

"STRUCTURE" - anything constructed or erected, the use of which requires location on the ground or attachment to something located on the ground but not including curbs, pavements, walks or open air surfaced areas or moving vehicles. [1992/9250]

"SUBDIVISION" - means any division of land and includes a "severance" as herein defined. [1995/7748]

- T -

"TEMPORARY USE" - a use intended for limited duration in a land use zone. [1992/9250]

- U -

"USABLE OPEN SPACE" - when used in reference to a day care centre, includes the multi-purpose outdoor areas intended for children's games and activities, and excludes the service areas required for outdoor storage, garbage, parking and gardens. [1992/9250]

"USE" - the utilization of land or structure. [1992/9250]

"USE, PRINCIPAL" - the main or primary use and chief purpose of land or structure, as distinguished from a secondary or accessory use. [1992/9250]

- V -

"VISUAL BUFFER" refers to the visual de-emphasize of a structure or activity by means of open fence, soft landscaping, hard landscaping, architectural elements or a combination of the above. [1992/9250]

"VISUAL SCREEN" - the concealment of a building, structure, or activity by a fence, wall, berm, plant materials, or a combination of the above. [1992/9250]

- W -

"WALKWAY" - means a parcel of land as described in Section 201 of the Planning and Development Act, 2007. [2007/PDA]

"WALL" - a vertical structure typically constructed of concrete, wood, brick, masonry, tile or stone. [1992/9250]

"WAREHOUSING" - establishments primarily engaged in the indoor and/or outdoor storage of a general line of goods [1993/9488]
"WASTE, SOLID" - garbage, refuse, and other discarded solid materials, including solid refuse materials resulting from industrial, commercial, community and other activities. [1992/9250]

"WASTE CONTAINER, COMMERCIAL" - a receptacle measuring not less than 2.3 cubic metres used for collecting and holding solid waste for daily, weekly or regularly scheduled pick-up. [1992/9250]

- Y -

"YARD" - the open, uncovered space located on the same lot with a building, and unoccupied by buildings or structures except as specifically permitted elsewhere in this Bylaw. In determining yard measurements the minimum horizontal distance from the respective lot lines shall be used (see illustration in Figure 2.15). [1992/9250]

"YARD, FRONT" - that part of a lot which extends across the full width of a lot between the front lot line and the nearest wall or supporting member of a building or structure (see illustration in Figure 2.15). [1992/9250]

"YARD, REAR" - that part of a lot which extends across the full width of a lot between the rear lot line and the nearest wall or supporting member of a principal building or structure (see illustration in Figure 2.15). [1992/9250]

"YARD, SIDE" - that part of a lot which extends from a front yard to the rear yard between the side lot line of a lot and the nearest wall or supporting member of a building or structure, except where the supporting member is supporting an uncovered patio or uncovered sundeck (see illustration in Figure 2.15). [1992/9250]

- Z -

"ZONE" - a land use district established by Chapter 3 of this Bylaw. [1992/9250]

"ZONING MAPS" - the maps contained in Chapter 19 of this Bylaw, as may be amended by Council from time to time. [1992/9250]
Development Standards

Section 01

General Information
General Information

1.0 General

1.1 Policy, Goals and Objectives ................................................................. 05
1.2 Acknowledgement .................................................................................. 05
1.3 Other Regulating Agencies ................................................................... 06

2.0 Manual Overview

2.1 Numbering Scheme ................................................................................ 07
2.2 Organization of Manual .......................................................................... 07
2.3 Revision Process ..................................................................................... 07

3.0 Development Process

3.1 How the Manual Follows the Development Process ............................... 08
3.2 Servicing Agreement Procedure ............................................................ 08

Tables

N/A

Charts

N/A

Figures

3.2.1 Servicing Agreement Procedure .......................................................... 09
1.0 GENERAL

1.1 Policy, Goals and Objectives

1. The purpose of this manual is to assist architects, engineers, contractors and land developers with the land development process.

2. The Manual provides a comprehensive outline of regulations, approvals, policies, procedures and servicing standards presently in place for land development within the City of Regina. Where reference is made to City bylaws, policies, or other process requirements, the most current version is to be used. Where there is a discrepancy between this manual and other reference material, the other reference material content will prevail.

3. The Regina Official Community Plan [Regina Development Plan Bylaw No. 7877] is the overriding guide for all development in the City of Regina. The Planning and Sustainability Department maintains this bylaw.

4. This manual should be used in conjunction with the City's Standard Construction Specifications Manual.


1.2 Acknowledgement

1. We thank all contributors for their patience and assistance in the continued refinement of the Development Standards Manual.

2. Contributors include:

   (a) Planning and Development Division,
   (b) Public Works Division,
   (c) Community and Protective Services Division, and
   (d) Regina & Region Home Builders Association with particular note to the Land Developers and Engineering Consultants membership.
1.3 Other Regulating Agencies

In addition to the Design Guidelines contained within this manual, the Developer may require approval from other regulatory agencies in advance of development. Regulating agencies having jurisdiction include, but are not limited to:

(a) City of Regina
(b) Department of Highways and Transportation
(c) Canadian Transportation Agency
(d) Saskatchewan Environment
(e) SaskEnergy Incorporated
(f) SaskWater
(g) SaskTel
(h) Saskatchewan Energy Incorporated
(i) Environment Canada
(j) Saskatchewan Watershed Association
(k) Department of Fisheries and Oceans
(l) Saskatchewan Labour
(m) Industry (Canada)
(n) Transport Canada
(o) National Energy Board
(p) Wascana Centre Authority
(q) National Building Code of Canada 1995
(r) Canadian Plumbing Code of Canada 1995
(s) Rural Municipality of Sherwood
(t) Rural Municipality of Edenwold
(u) Rural Municipality of Pense
(v) Rural Municipality of Moose Jaw
(w) Rural Municipality of Lumsden
(x) Canadian National Railway Company
(y) Canadian Pacific Limited


2.0 MANUAL OVERVIEW

2.1 Numbering Scheme

.1 This is to assist the reader in the use of this Manual and how the numbering scheme operates

5.0 Section Number & Title

5.1 Subsection Title

.1 Subsection description

(a) Subsection description points

(i) Additional points

Example: Referring to (i) additional points subsection reference number would read as 5.1.1.(a).i

2.2 Organization of Manual

.1 Table of Contents

(a) A Master Table of Contents is located at the beginning of the manual. It contains Category and Section headings only.

(b) It also contains a List of Tables and List of Figures. Table and figure numbers match the Section they are part of.

.2 Sections

(a) The Development Standards Manual contains 12 Sections.

(b) Each Section contains a more detailed Table of Contents including List of Tables, Charts and Figures.

2.3 Revision Process

.1 Revisions to the Development Standards Manual will be completed every two years. The process will be led by the Senior Policy Engineer of the Development Engineering Department within the Planning and Development Division.
3.0 DEVELOPMENT PROCESS

3.1 How the Manual Follows the Development Process.

.1 This manual is organized into four main Categories and then by sections as follows.

(a) Information
   (i) Section 01 General Information

(b) Planning Application and Approval Process
   (i) Section 02 Land Development Process
   (ii) Section 03 Environmental Consideration

(c) Servicing Agreement Process
   (i) Section 04 Land Requirements
   (ii) Section 05 Servicing Fees for Land Development
   (iii) Section 06 Subdivision Servicing

(d) Design Considerations
   (i) Section 07 Transportation Design
   (ii) Section 08 Wastewater Collection System
   (iii) Section 09 Storm Water Collection System
   (iv) Section 10 Water Design
   (v) Section 12 Open Space Development

3.2 Servicing Agreement Procedure

.1 The Servicing Agreement Procedure is outlined in summary below in Figure 3.2.1. The Servicing Agreement Procedure is referenced in Section 2.0 Land Development Process.

.2 Further information on the City’s Servicing Agreements can be found in the Servicing Agreements Standard Conditions Manual and the Developer’s / Consultants Field Services Guidelines documents.
Developer to Infrastructure Development
Request Servicing Agreement including the following:
- Development area and boundary
- Value of services

Consultant provides following:
- Infrastructure / Landscape Drawings
- Sanitary & Storm Sewer Calculations
- Mix designs

Planning Circulation Process
See Section 2.0 Land Development Process
Figure 3.1 Subdivision Applications Procedure

Drawings / Calculations / Mix Designs circulated to:
- Infrastructure Development
  Water, Waste Water & Drainage
  Traffic and Roadways
- Public Works
  Environment
  Material Testing
- Planning and Sustainability
  Project Planning and Landscape Design

Servicing Agreement to Developer for:
- Execution

Servicing Agreement Returned for Execution by the City.
- Construction permission Granted
- Compliance with Developer’s / Consultant’s Field Service Guidelines
- Servicing Agreement forward to City Solicitor & City Clerk
- Servicing fees collected as per servicing agreement
- Site Monitoring

Developer’s / Consultant’s request for Construction Completion Certificate(s):
#1 Infrastructure #2 Landscape development
- Developer’s provision of registered interests such as utility easements, restricted access & building restrictions for execution by the City Clerk.

Construction Completion Certificates:
- Consultant provide Statement of Completion, test results, field notes & photographs
- Consultant identifies and repairs deficiencies
- Submission of record information within 120 days of issuance of Construction Completion Certificate
- One year Warranty Period

Developer Requests Final Acceptance Certificates #1 Infrastructure #2 Landscape development
- Compliance of all conditions of Servicing Agreement
- All warranty deficiencies are corrected
- Joint inspection with consultant if required additional deficiencies are corrected.

City Issues Final Acceptance Certificates #1 & #2:
Development Standards

Section 02

Land Development Process
1.0 General

1.1 Policy, Goals and Objectives................................................................. 15
1.2 Regina Official Community Plan [Regina Development Plan Bylaw No. 7877] ................................................................................. 15
1.3 Regina Zoning Bylaw No. 9250 .............................................................. 15
1.4 Subdivision Bylaw No. 7748 ................................................................. 16
1.5 Contact Information .............................................................................. 16

2.0 Concept Plans

2.1 Policy and Purpose............................................................................. 16
2.2 Concept Plan Application Requirements ........................................... 17
2.3 Concept Plan Registry ........................................................................ 19

3.0 Subdivision Process

3.1 Policy and Purpose............................................................................. 21
3.2 Subdivision Application Requirements ............................................. 21
3.3 Street and Park Names ...................................................................... 23
3.4 Administration Review ..................................................................... 24
3.5 Appeal ................................................................................................. 24

4.0 Consolidation Applications

4.1 Purpose .............................................................................................. 27
4.2 Application Requirements ................................................................. 27
4.3 Administration Review ..................................................................... 28

5.0 Leasehold Interest Applications

5.1 Policy and Purpose........................................................................... 28
5.2 Application Requirements ................................................................. 28
5.3 Administration Review ..................................................................... 29

6.0 Severance Applications

6.1 Purpose and Objectives .................................................................... 29
6.2 Application Requirements ................................................................. 29
6.3 Administration Review ..................................................................... 30
6.4 Appeal ................................................................................................. 31
7.0 Zoning Amendment Applications

7.1 Policy and Purpose ........................................................................................................32
7.2 Pre-Application Consultation .......................................................................................32
7.3 Application Requirements ...........................................................................................32
7.4 Administration Review ...............................................................................................34
7.5 Time Limitation ...........................................................................................................35

8.0 Contract Zoning Applications

8.1 Policy and Purpose .......................................................................................................37
8.2 Pre-Application Consultation .......................................................................................37
8.3 Application Requirements ...........................................................................................37
8.4 Conditions ....................................................................................................................39
8.5 Administration Review ...............................................................................................39
8.6 Permitted Uses and Development Standards ..............................................................40
8.7 Time Limitation ...........................................................................................................40

9.0 Discretionary Use Applications

9.1 Policy and Purpose .......................................................................................................42
9.2 Application Requirements ...........................................................................................42
9.3 Developments that Involve Hazardous Materials .......................................................43
9.4 Administration Review ...............................................................................................44
9.5 Time Limitation ...........................................................................................................45

10.0 Special Development Permits

10.1 Development Permit for the Floodway Fringe Overlay Zone ........................................47
10.2 Development Permit for the Aquifer Protection Overlay Zone ....................................47

Tables
N/A

Charts
N/A

Figures
2.1 Concept Plan Application Procedures ..................................................................20
3.1 Subdivision Application Procedures ......................................................................26
6.1 Severance Application Procedures .........................................................................31
7.1 Zoning Amendment Procedures ..............................................................................36
8.1 Contract Zoning Procedures .....................................................................................41
9.1 Discretionary Use Procedures .....................................................................................46
1.1 Policy, Goals and Objectives

.1 The purpose of this section is to outline, describe, identify and illustrate the various application procedures pertaining to the subdivision development process administered by the Planning and Sustainability Department. This section does not review every type of application required by the City.

.2 The Planning and Sustainability Department is responsible for the administration of the Regina Official Community Plan [Regina Development Plan Bylaw No. 7877] (Official Community Plan), Regina Zoning Bylaw No. 9250 (Zoning Bylaw) and Subdivision Bylaw No. 7748 (Subdivision Bylaw).

1.2 Regina Official Community Plan [Regina Development Plan Bylaw No. 7877]

.1 The Official Community Plan is a framework for land use and development decisions including policies, implementation, and detailed plans for active areas of change in the City of Regina. Its guiding principles are to promote development that contributes to the quality of urban life and is:

(a) Sustainable over time;
(b) Cost efficient;
(c) Environmentally responsible; and
(d) Socially equitable.

.2 The Official Community Plan facilitates short-term decisions, which are consistent within the broader context of long-term policy objectives. Applications for development are reviewed in the context of the policies contained in the plan.

1.3 Regina Zoning Bylaw No. 9250

.1 The Zoning Bylaw is the primary instrument for managing land use and development within the City of Regina. The purpose and intent of the Zoning Bylaw is to ensure that land is developed in an orderly, efficient and equitable manner. It provides reasonable protection to individuals and their property to counteract or mitigate the undesirable effects of development, while ensuring compliance or conformity with community determined standards.

.2 The Zoning Bylaw divides the City into districts or “zones.” Permitted and discretionary uses are established within each. Regulations and development standards are set governing criteria such as lot size, site coverage, building setbacks, and minimum required parking. Requirements vary from zone to zone, but must be uniform within zones.
.3 The *Zoning Bylaw* consists of both text and maps. The zoning maps delineate the various zone locations in the City. The zoning text specifies applicable development standards and regulations for all zoning districts in the City of Regina.

1.4 Subdivision Bylaw No. 7748

.1 The *Subdivision Bylaw* controls and regulates the subdivision of land within the City of Regina. Any landowner within the City of Regina proposing to subdivide land for the purpose of lease, sale, transfer, use or development, shall make application to the City in a prescribed form.

1.5 Contact Information

.1 For submitting applications, additional information, or inquiries contact:

City of Regina  
Planning and Sustainability Department  
9th Floor, City Hall  
P.O. Box 1790  
Regina, Saskatchewan  
S4P 3C8  
PH: (306) 777-7551  
FAX: (306) 777-6823

2.0 CONCEPT PLANS

2.1 Policy and Purpose

.1 The purpose and intent of a concept plan is to provide a general planning framework for the consideration of specific development applications and subdivisions at a later date. As such, the concept plan identifies and displays only general land use patterns and critical structural components of a Neighbourhood.

(a) As stated in the *Official Community Plan, Part A – Policy Plan, Section 9.5 Concept Plan*;

"The use or adoption of concept plans facilitates orderly, long-term subdivision design and development in areas proposed for future urban growth. In cases where a large tract of land is involved, but the City or developer intends initially to subdivide and/or develop only a portion of it, a concept plan is useful to set out the overall development scheme in general terms. Such plans normally consist of a layout of major arterial and collector streets, spatial allocations for the various land uses and any other required or optional subdivision element."
The City’s authority to require and approve concept plans is established under Section 44 of *The Planning and Development Act, 2007 (The Act)*.

The City’s requirement for providing concept plans is established within the *Subdivision Bylaw*.

Where the proposed subdivision is part of a larger area, the whole of which may eventually be subdivided, the developer shall submit an overall concept plan for the whole area for approval by City Council prior to approval of the subdivision.

(a) The concept plan is considered prior to any application for subdivision and rezoning of the larger area.
(b) Subsequent applications for subdivision and rezoning must be consistent with the approved concept plan.
(c) See sections on subdivision and zoning amendment for more details on these processes.

The concept plan procedure is shown in Figure 2.1.

### 2.2 Concept Plan Application Requirements

A current concept plan application form will be completed and submitted. All affected property owners within the proposed concept plan boundaries must consent to or be notified of the application. The applicant shall provide evidence of such consent and/or notification. In addition, notification signage of the concept plan application will be installed on the affected property or properties.

The current concept plan application fee will be paid prior to the processing of the application.

A map or series of maps containing the following information:

(a) Drawing Title Block including:
   (i) A title with the words “Proposed ____________ Concept Plan”;
   (ii) A space for the date of approval by City Council of the initial concept plan map and any amendments thereto;
   (iii) The name of the company that prepared the concept plan;
   (iv) The scale to which the plan is drawn, a north arrow and the date of the plan;
   (v) The boundary of the concept plan, including the size (in hectares) of the area; and
   (vi) The legal description of location.
(b) Proposed land uses, including municipal and environmental reserves, differentiated by color;
(c) The differentiation between existing and proposed concept plan areas where the proposed concept plan area is an extension of an existing Neighbourhood;
(d) Population density ranges for each of the residential land use classifications;
(e) Arterial and collector streets;
(f) Proposed Transit routes;
(g) Community focal points such, as schools, community centers, or other institutional use such as churches as well as local commercial land use;
(h) Adjacent Neighbourhoods and urban features such as regional shopping districts;
(i) Pedestrian and bicycle routes and a demonstration of how the routes are linked through the Neighbourhood and connected to community focal points, parks, transit routes, and pedestrian and bicycle routes outside the concept plan boundaries;
(j) Hydrological features including all water bodies and storm water detention facilities including floodways;
(k) Noise Exposure Forecast (NEF) contours if applicable;
(l) Projected Population and the basis for the population projections;
(m) Current school population if the concept area is an extension to an existing Neighbourhood;
(n) Number of existing and projected dwelling units;
(o) Projected elementary and high school populations;
(p) contour intervals of 0.5 metres or less referred to a stated geodetic datum;
(q) Such other features, particulars or data as may be required by the Development Officer.

.4 Serviceability analysis including servicing templates for wastewater, storm and water systems.

.5 A background report addressing the following shall be required:
(a) Proposed servicing scheme including storm drainage, water distribution, and wastewater sewer services;
(b) Scheme for any acoustic barriers such as fences or other types of barriers including proposed locations;
(c) Sequencing of staging and projected development absorption rate for the concept plan area, and associated servicing costs;
(d) A proposed Transit service routing plan;
(e) A key map identifying the location of the concept plan area in the context of the city;
(f) Rationale for the concept plan boundaries;
(g) The extent of any future required annexations to complete the concept plan area; and
(h) Any other information that might be required by the Development Officer.

.6 A written submission advising as to how the proposed concept plan is consistent with applicable policies of *Official Community Plan*.

.7 A traffic impact report may be required including:
   (a) An intersection impact analysis for key entry points to the concept plan area;
   (b) Justification for the roadway classifications; and
   (c) A roadway noise impact analysis.

.8 Any other information specified in *Subdivision Bylaw* and the *Official Community Plan* or that the Development Officer may reasonably require ensuring compliance with the bylaws and *The Act*.

.9 A supplementary letter indicating any infrastructure proposed to be paid for by Service Agreement Fee funds with the associated costs at a budgetary level. This letter is for information purposes only and does not confirm eligibility of Service Agreement Fee funded projects, or determine final projects costs.

2.3 Concept Plan Registry

.1 A registry of all approved concept plans is maintained by the Planning and Sustainability Department.
Figure 2.1 Concept Plan Application Procedures

* The Concept Plan submission through recommendation to Council time period based on:
(a) The Concept Plan is deemed complete by Planning and Sustainability Department as per the requirements summarized in this manual.
(b) It does not include any time given to pre-consultation meetings or discussions prior to application submission
(c) It does not include any additional review time, meetings or consultations required in the event of environmental considerations, deviations from the Official Community Plan or other unforeseen circumstances surrounding the application.

* The Concept Plan submission to recommendation to City Council is typically at least 6 months.*
3.0 SUBDIVISION PROCESS

3.1 Policy and Purpose

.1 Subdivision is the division of land to enable the legal registration of streets, lots, and parcels. Land is subdivided to accommodate separate ownership interests by way of title, separate uses, and different types of development. A subdivision must comply with the site standards contained in Zoning Bylaw and with Subdivision Bylaw.

.2 A subdivision application can be processed in conjunction with a rezoning application. However, Subdivision applications are processed administratively, whereas zoning amendment applications must be considered by Regina Planning Commission and approved by City Council, following a public review process.

.3 Where applicable, the proposed subdivision must comply with an approved concept plan as per Subsection 2.3 for the area in which the subdivision is proposed.

3.2 Subdivision Application Requirements

.1 A current subdivision application form will be completed. All affected property owners within the proposed subdivision boundaries must authorize the application.

.2 The current subdivision application fees will be paid prior to the processing of the application.

.3 A plan of proposed subdivision prepared by a Saskatchewan Land Surveyor or a professional Community Planner that includes:

(a) A title block including:

(i) A title with the words "Proposed Subdivision of ____________";

(ii) The scale to which the plan is drawn, a north arrow and the date of the plan;

(iii) The name and signature of the Saskatchewan Land Surveyor or the Professional Community Planner that prepared the plan;

(iv) Space containing the words “Approved under the provisions of Bylaw No. ______ of the City of Regina this __ day of ____________, A.D., 20___.

City Clerk ____________________.”;
(v) Provision for the signature of the registered owner(s) of the land to be subdivided;

(vi) The legal description of the land to be subdivided.

(b) The boundary of the area to be subdivided, including the size of the area and of any existing or proposed municipal and environmental reserves, and dedicated walkways;

(c) The location, dimensions and designations of every proposed street (including proposed street names), lane, lot, block, municipal or environmental reserve, dedicated walkway, or other unit of land;

(d) The location of every street, lane, lot, block, municipal or environmental reserve or other unit of land abutting the proposed subdivision, including registered plan numbers;

(e) The location and dimensions of any existing permanent structures and buildings on the subject property that will remain after the subdivision, including the setbacks from the proposed lot lines; or a surveyor’s certificate;

(f) Topographic and physical features including drainage channels, creek beds, open bodies of water, wooded areas, and the location and dimensions of existing pipeline, utility, road and railway rights-of-way for the land to be subdivided;

(g) The location and dimensions of existing and proposed utility and easements for all facilities into and out of the proposed subdivision;

(h) Such other features, particulars or data as may be required by Subdivision Bylaw or the Development Officer.

.4 Plan submission requirements include one copy drawing scale to be 1:500 to 1:1000 (e.g. A1 24x36) and one reduced (8½” x 11”) copies of the plan.

.5 The following studies and other information are required where not provided and approved at the concept plan stage:

(a) The names and addresses of the property owners;

(b) Copies of the property titles for the subject property, if requested by the Development Officer;

(c) Contour intervals of 0.5 metres referred to a stated geodetic datum for the land to be subdivided. If required by the city, contour lines shall extend beyond the land to be subdivided for a distance equal to one half of the width and the length of the subdivided portion or 150 metres, whichever is less;

(d) Unless exempted by the Development Officer, a pedestrian route plan for subdivisions involving new roadway construction or changes to
existing roadways that shows for the area within and abutting the proposed subdivision:

(i) Sidewalk locations;
(ii) Walkways;
(iii) Recreational paths;
(iv) Proposed transit routes (as per concept plan);
(v) Major pedestrian attractions such as parks, play structures, local commercial land, and proposed school sites.

(e) Unless exempted by the Development Officer, a Site Impact Traffic Study (SITS) that assesses how proposed future development will impact the existing road network.

(f) A written report on the proposed subdivision including the following:

(i) The need for the subdivision;
(ii) The suitability of the land for the proposed development including a general description of existing topographic and physical features in the area;
(iii) Where an approved concept plan exists for the subject property, an explanation of how the proposed subdivision complies with the concept plan;
(iv) An explanation of the proposed development including anticipated population densities, school population projections and the relationship of the development to existing and proposed services, road networks and land uses in the immediate environs, where not dealt with at concept plan stage;
(v) The feasibility of installing engineering and utility services including design details and standards of required services, the services to be installed by the owner and the City and the approximate time of installation of such services;
(vi) The approximate cost of installing engineering and utility services, if requested by the Development Officer;

(g) Other information specified elsewhere in the Subdivision Bylaw or that the Development Officer may reasonably require to ensure compliance with the provisions of the bylaw or The Act.

3.3 Street and Park Names

.1 Street and park names for proposed subdivisions can be original or selected from the approved list.
(a) Original names are presented to the Civic Naming Committee for consideration and approval. Original names can be submitted to the Civic Naming Committee through the Office of the City Clerk.

(b) A current street or park name list is available from Planning and Sustainability Department.

(c) To avoid confusion, names should be not different from one side of the intersection to the other.

(d) All street and park names selected will be subject to review.

3.4 Administration Review

.1 Unless otherwise provided in the Zoning Bylaw or Subdivision Bylaw, an application for subdivision shall be processed by the Development Officer in accordance with the procedure specified in Figure 3.1.

.2 All applications for subdivision are processed in accordance with the bylaw to delegate subdivision approving authority (Bylaw No. 2003-3).

.3 A subdivision application shall be:
(a) Approved;
(b) Approved in part;
(c) Approved subject to:
   (i) The conditions authorized by Section 172 of The Act; or
   (ii) Compliance with a directive issued pursuant to Section 130 of The Act; or
(d) Refused.

3.5 Appeal

.1 In accordance with Section 228 of the Act, an applicant may appeal the following with respect to a proposed subdivision, by filing a written notice of appeal to the Development Appeals Board:
(a) a refusal of the application;
(b) an approval in part of the application;
(c) an approval of the application, subject to specific development standards issued pursuant to Section 130 of the Act;
(d) a revocation of an approved plan of proposed subdivision;
(e) a failure to enter into a servicing agreement within the specified time limit, or the matter of the terms and conditions of an agreement;
(f) an objection by the applicant to provide any information that may be requested by the City in conjunction with a subdivision application, other than information that is required pursuant to the Subdivision Bylaw.

.2 In the case of a decision made pursuant to clause (a) to (d), above, the applicant shall file the appeal within 30 days after the applicant has been served with the decision.

.3 In accordance with Section 226 of The Act, the applicant or the City may further appeal a decision of the Development Appeals Board, to the Saskatchewan Municipal Board.
Figure 3.1 Subdivision Application Procedures

**Request must be submitted within 30 days of written notification of the proposed conditions, as per the letter of commitment.**

**90 day minimum completion time for subdivision application assumes no zoning amendments are required and is based on:**

1. the Subdivision Application is deemed complete by Planning and Sustainability Department as per the requirements summarized in this manual.
2. and does not include any time given to pre-consultation meetings or discussions prior to application submission
3. and it does not include any additional review time, meetings or consultations required in the event of environmental considerations, deviations from the Official Community Plan or other unforeseen circumstances surrounding the application.

***See Servicing Agreement procedure, Section 1, Subsection 3.2. Servicing Agreement preparation does not include time for negotiations of changes or review and acceptance by developer.***
4.0 CONSOLIDATION APPLICATIONS

4.1 Purpose

.1 A consolidation application is requested when more than one lot or parcel of land is consolidated to create one lot or parcel.

.2 A property owner may request adjacent parcels be consolidated without having to obtain subdivision approval from the city as authorized in Section 122(1)(a)(ii) of The Act.

4.2 Application Requirements

.1 Completed subdivision application form.

.2 The current subdivision application fee will be paid prior to the processing of the application.

.3 A plan of the proposed consolidation of lots/parcels including:

(a) The name and signature of the Saskatchewan Land Surveyor or the Professional Community Planner that prepared the plan with exception of:
    (i) Type 2 (II) Descriptive Plan does not have to be prepared by a Saskatchewan Land Surveyor;

(b) The legal description of the lots to be consolidated;

(c) The boundary, dimensions and size of the lot to be created;

(d) The location of every street, lane, lot, block, municipal or environmental reserve or other unit of land abutting the proposed parcels;

(e) The scale to which the plan is drawn, a north arrow and the date of the plan;

(f) The location and dimensions of any existing permanent structures and building on the subject property that will remain after the consolidation, including the setbacks from the proposed lot lines or a surveyor’s certificate; and

(g) Such other features, particulars or data as may be required by the Subdivision Bylaw or by the Development Officer.

.4 Plan Submission requirements include 1 – 8 ½” x 11” copy of the plan.

.5 The following studies and other information are required:
(a) A copy of the property title for each lot to be consolidated if requested by the Development Officer; and

(b) Other information specified elsewhere in the Subdivision Bylaw or that the Development Officer may reasonably require ensuring compliance with the provisions of the bylaw and The Act.

4.3 Administration Review

.1 All applications for subdivision are processed in accordance with the bylaw to delegate subdivision approving authority (Bylaw No. 2003-3).

.2 A consolidation application proposal shall either be approved or refused.

5.0 LEASEHOLD INTEREST APPLICATIONS

5.1 Policy and Purpose

.1 According to The Act, leasehold registrations in excess of 10 years for a portion of a larger property must be authorized by the subdivision approving authority through the issuance of a certificate of approval.

.2 The issuance of the certificate of approval does not constitute the creation of a separate parcel of land and shall only be interpreted as an expression of leasehold interest in a portion of a property.

5.2 Application Requirements

.1 Completed subdivision application form.

.2 Payment of the applicable leasehold parcel application fee. Please consult the Planning and Sustainability Department for a current fee schedule. All applicable fees shall be paid prior to processing the application.

.3 A plan of the proposed lease area including:

   (a) The name and signature of the Saskatchewan Land Surveyor or the Professional Community Planner that prepared the plan;

   (b) The title “Plan of Proposed Lease Area”;

   (c) The legal description of the affected parcel;

   (d) The boundary, dimensions, and size of the proposed lease area;

   (e) The location of existing lease areas on the affected parcel;
(f) Information sufficient to establish the location of the proposed lease area(s);

(g) The scale to which the plan is drawn, a north arrow and the date of the plan; and

(h) Such other features, particulars or data as may be required by Subdivision Bylaw or by the Development Officer.

.4 Plan submission requirements include 1 – 8 ½” x 11” copy of the plan.

.5 Any other information specified in Subdivision Bylaw or that the Development Officer may reasonably require to ensure compliance with the bylaw and The Act.

5.3 Administration Review

.1 All applications for leasehold interest are processed in accordance with the bylaw to delegate subdivision approving authority (Bylaw No. 2003-3).

6.0 SEVERANCE APPLICATIONS

6.1 Purpose and Objectives

.1 A severance is the subdivision of one lot, block or portion thereof into two sites having contiguous frontage on a street; or the subdivision of a portion of a lot or block and the consolidation of the portion covered with an immediately adjacent site having continuous frontage on a street.

.2 A severance shall not:

(a) alter the direction of frontage of any existing property.

(b) change the limit of any street or lane or affect in any way public utility or utility rights-of-way.

(c) establish any condition contrary to any other bylaw or regulation of the City of Regina.

6.2 Application Requirements

.1 Completed severance application form.

.2 Payment of the applicable severance application fees. Please consult the Planning and Sustainability Department for a current fee schedule. All applicable fees shall be paid prior to the processing of the application.

.3 A plan of the proposed severance including:
(a) The name and signature of the Saskatchewan Land Surveyor or the Professional Community Planner that prepared the plan;
(b) The title “Plan of Proposed Severance”;
(c) The legal description of the affected lots;
(d) The size of the area to be affected by the severance;
(e) The boundary and dimensions of the lots to be created;
(f) The location of every street, lane, lot, block, municipal or environmental reserve or other unit of land abutting the proposed parcel, including registered plan numbers;
(g) The scale to which the plan is drawn, a north arrow and the date of the plan;
(h) The location and dimensions of any existing permanent structures and buildings on the subject property that will remain after the severance, including the setbacks from the proposed lot lines or a surveyor’s certificate;
(i) A space containing the words “Approved under the provisions of Bylaw No. _______ of the City of Regina this _____ day of ______, A.D., 20_______. City Clerk _______________;”
(j) Provision for the signature of the registered owner(s) of the land to be subdivided; and
(k) Such other features, particulars or data as may be required by Subdivision Bylaw or by the Development Officer.

.4 Plan submission requirements include 1 – 8 ½” x 11” copy of the plan.

.5 The following studies and other information are required:
(a) The names and addresses of the property owners;
(b) Copies of the property titles for the affected lots, if required by the Development Officer; and
(c) Other information specified elsewhere in the Subdivision Bylaw or that the Development Officer may reasonably require to ensure compliance with the provisions of the bylaw or The Act.

6.3 Administration Review

.1 Unless otherwise provided in the Zoning Bylaw or Subdivision Bylaw, an application for severance shall be processed by the Development Officer in accordance with the procedure specified in Figure 6.1.
.2 Severance applications are reviewed in consultation with the Infrastructure Development Branch and Building Standards Branch.

.3 A severance application shall be:
   (a) Approved or
   (b) Refused by City Council.

6.4 Appeal

.1 Where an application for a proposed severance is refused by City Council, an applicant may appeal the decision to the Development Appeals Board within 30 days of City Council's decision and subsequently to the Saskatchewan Municipal Board.

Figure 6.1 Severance Application Procedures

```
Submit an Application

Development Officer makes decision (normally within 30 days.)

Refusal by City Council

Written notice to Applicant

Right to Appeal of City Council's Refusal to the Development Appeals Board (within 30 days)

Approval

Written notice to Applicant
```
### 7.0 ZONING AMENDMENT APPLICATIONS

#### 7.1 Policy and Purpose

.1 Requests for uses, developments or improvements not in agreement with the Zoning Bylaw must involve a submission requesting an amendment to the Bylaw. The most common amendment request involves application for changes of land use designations or "zoning" changes to accommodate new development or uses.

.2 An amendment to the Zoning Bylaw may be initiated by any of the following:
   
   (a) The affected property owner(s) upon application to the Development Officer;
   
   (b) The Development Officer;
   
   (c) The Regina Planning Commission;
   
   (d) The City Manager;
   
   (e) Any member of the Provincial Executive Council charged with the Administration of The Act; or
   
   (f) The City Council.

#### 7.2 Pre-Application Consultation

.1 The applicant meets with the Development Officer to discuss the application process, requirements, and also the nature of the proposed amendment.

#### 7.3 Application Requirements

.1 Every application/request for a Zoning Bylaw amendment is to be accompanied by the following:
   
   (a) Completed zoning amendment application form;
   
   (b) Current zoning amendment application fees paid prior to the processing of the application;
   
   (c) A reference or copy of the portion of the current provision of the bylaw which is proposed to be amended;
   
   (d) A statement of the text which is to be substituted;
   
   (e) A written justification of the amendment, and why the application of the proposed zone or text is necessary;

.2 Where required by the Development Officer
   
   (a) An impact report outlining:
(i) the relationship and compliance with the *Official Community Plan* or a planning study adopted by City Council;

(ii) traffic and public transit impacts in terms of daily and peak hour trip generation and assignments;

(iii) impacts on, and service requirements for water, sewage and other utilities;

(iv) potential effects on stability, retention and rehabilitation of existing land uses in the area;

(v) an assessment of impact on community services such as parks, recreation, fire and health; and

(vi) the staging, implementation schedule and duration of construction for any proposed development associated with the amendment.

(b) Plans including the following information:

(i) dimensions of the affected lands;

(ii) the intended density, height, number of units, horizontal and vertical distribution of uses;

(iii) traffic circulation patterns including vehicle entry and exit points, as well as points of major pedestrian access to proposed buildings on the site, including walkways and drives;

(iv) recreation amenities, open spaces and other common facilities which may be dedicated to the City;

(v) the location and height of all optional and required fences;

(vi) location and dimension of all existing and proposed buildings on the site;

(vii) the location, dimension, and purpose of each existing and proposed easement;

(viii) the streets and lanes bordering on the property;

(ix) the location, type and orientation of all exterior lighting;

(x) the location of all parking and loading areas, including a summary of the number and the exact dimensions of all parking and loading stalls;

(xi) the location of all transit stops, if any;

(xii) graphic scale, which shall be no smaller than 1:50;

(xiii) a north arrow; and

(xiv) a legend showing lot area, floor area and floor area ratio.
Copies are to be 2 full sized scaled plans (A1 24x36) and one reduced (8½” x 11”) plan.

7.4 Administration Review

.1 The application for an amendment to the Regina Zoning Bylaw No. 9250 is processed by the Development Officer in accordance with the process specified in Figure 7.1, unless otherwise provided in Regina Zoning Bylaw No. 9250.

.2 In reviewing the application, the Development Officer evaluates the application and prepares a report to the Regina Planning Commission based on the following factors/criteria:

(a) Consistency with the general objectives and policies of the Official Community Plan;

(b) Consistency with the objectives and policies of any applicable special study for the site, area or Neighbourhood, with emphasis on:
   (i) land uses;
   (ii) intensity of development; and
   (iii) the provision and availability of public facilities and services;

(c) Consistency with the purpose and intent of the applicable zoning district as identified in Regina Zoning Bylaw No. 9250;

(d) Potential adverse impact on:
   (i) adjacent property;
   (ii) the character of the Neighbourhood;
   (iii) the environment;
   (iv) traffic; (see Section 7 for Site Impact Traffic Study Requirements)
   (v) parking;
   (vi) public right-of-way; and
   (vii) other matters affecting public health and safety;

(e) Suitability of the land for the proposed development; and

(f) Alternative locations in the City for the proposed development.

.3 The Regina Planning Commission reviews the report of the Development Officer and makes a recommendation to City Council.

.4 City Council reviews the recommendation of the Regina Planning Commission and may:
(a) Request further information from the Planning Commission, the Development Officer, or the applicant;

(b) Authorize advertising of the proposed amendment as originally proposed;

(c) Authorize advertising of the proposed amendment with modifications as recommended by the Planning Commission or Development Officer; or

(d) Deny the proposal.

.5 A zoning amendment proposal which has been denied shall not be resubmitted for a period of 12 months from the date of City Council's denial.

7.5 Time Limitation

.1 The City shall endeavour to render its decisions on applications for zoning amendments within 90 days. But where it is impractical to render a decision within 90 days, the Development Officer will inform the applicant before the 90 day period expires.
Figure 7.1 Zoning Amendment Procedure

- Submit an Application
- Project Circulated and Public Signage Initiated
- Planning and Sustainability Department prepares a report for Regina Planning Commission
- RPC makes recommendation and submits reports to City Council
- City Council considers reports
- Solicitors and Planning and Sustainability prepare Bylaw Amendment to City Council for approval
- Bylaw is advertised
- City Council considers Bylaw Amendment
- Approved Zoning Bylaw Amendment

Typically this is a minimum of 90 - 120 days

If denied, process stops
8.0 CONTRACT ZONING APPLICATIONS

8.1 Policy and Purpose

.1 A contract zoning application is the process of rezoning land to accommodate specified uses or developments subject to conditions, terms or time limits agreed upon by the applicant and City Council in conformance with The Act.

.2 Contract zoning is utilized when City Council enters into an agreement with an individual or individuals for the rezoning of land to permit the carrying out of a specified proposal where the proposal is consistent with the following requirements:

(a) According to the Zoning Bylaw, a contract zone may be only designated on:

(i) Small or irregularly shaped lots;

(ii) Lots restricted by physical barriers such as water courses; slopes, roadways, railways; or

(iii) Infill sites in higher density residential or mixed-use areas.

(b) No contract zone shall be designated on a part of a building or structure based on the leasehold interest of a lease in the land on which the building or structure is situated.

.3 The major advantage of contract zoning is that it enables City Council to recognize unusual zoning situations on the basis of individual merit. As well, City Council may attach appropriate conditions to the rezoning to protect and provide certainty for both the developer and the community. It should also be noted that the terms of a contract zone agreement must be in keeping with the purpose and intent of the Official Community Plan.

8.2 Pre-Application Consultation

.1 Where a contract zone agreement is sought by a member of the general public, (or in any other instance as might be required by the Development Officer), the applicant shall meet with the Development Officer to discuss the contract zoning application process and requirements, and also the nature of the proposed contract zoning agreement.

8.3 Application Requirements

.1 Complete the contract zoning application form.
.2 Payment of the applicable contract zoning process fees. Please consult the Planning and Sustainability Department for a current fees schedule. All applicable fees shall be paid prior to the processing of the application.

.3 Plans - 2 full size scaled (A1 24x36) and one reduced (8½” x 11”) of the site plan which contains the following:

(a) Dimensions of the affected lands;
(b) The intended density, height, number of units, horizontal and vertical distribution of uses;
(c) Traffic circulation patterns including:
   (i) vehicle entry and exit points, and
   (ii) points of major pedestrian access to proposed buildings on the site, including walkways and drives;
(d) Recreation amenities, open spaces and other common facilities which may be dedicated to the City;
(e) The location and height of all required and optional fences;
(f) Location and dimension of all existing and proposed buildings on the site;
(g) The location, dimension and purpose of each existing and proposed easement;
(h) The streets and lanes bordering on the property;
(i) The location, type and orientation of all exterior lighting;
(j) The location of all parking and loading areas, including a summary of the number and the exact dimensions of all parking and loading stalls;
(k) The location of all transit stops, if any;
(l) Graphic scale;
(m) North arrow;
(n) A legend showing lot area, floor area and floor area ratio;
(o) Site plans to indicate existing vegetation and boulevard plantings.

.4 Two (2) full sized scaled (A1 24x36) and one reduced (8½” x 11”) sets of:
(a) Landscape plan,
(b) Floor plan showing the dimensions of each floor, and
(c) A plan showing the elevations of the building.
8.4 Conditions

.1 The types of conditions which may be included in a contract zone agreement are:

(a) The uses of the land and buildings or forms of development, the site layout and external design, including parking areas, landscaping and entry and exit ways, but not including the colour, texture or type of materials and architectural detail;

(b) Time limits within which any part of the described proposal or terms and conditions imposed shall be carried out; and

(c) That on the rezoning of the land, none of the land or buildings shall be developed or used except in accordance with the proposal, terms and conditions and time limits prescribed in the agreement.

.2 City Council may declare the contract zone agreement void and the land will revert to the previous zoning designation:

(a) In the event the lands or buildings are developed or used contrary to the provisions of the contract, or

(b) the development fails to meet any time limit, which may be prescribed in the agreement.

.3 Before entering into a contract zoning agreement, City Council may require a person to deliver a performance bond acceptable to them to ensure implementation of the agreement.

8.5 Administration Review

.1 Unless otherwise provided in Zoning Bylaw, an application for contract zoning shall be processed by the Development Officer in accordance with the procedure specified in Figure 8.1.

.2 In reviewing the contract zoning application, the Development Officer evaluates the application and prepares a report to the Regina Planning Commission based on the following factors/criteria:

(a) Consistency with the general objectives and policies of the Official Community Plan;

(b) Consistency with the objectives and policies of any applicable study for the site area or neighbourhood, with emphasis on:

(i) land uses

(ii) intensity of development; and

(iii) the provision and availability of public facilities and services;
(c) Consistency with the purpose and intent of the zones expressed in the Zoning Bylaw;

(d) Potential adverse impact on:
   (i) adjacent property;
   (ii) the character of the neighbourhood;
   (iii) the environment;
   (iv) traffic;
   (v) parking;
   (vi) public right-of-way; and
   (vii) other matters affecting public health and safety.

.3 The Regina Planning Commission reviews the report of the Development Officer and makes a recommendation to City Council.

.4 City Council reviews the recommendation of the Regina Planning Commission and may:
   (a) Request further information from the Planning Commission, the Development Officer, or the applicant;
   (b) Authorize advertising of the proposed contract zoning amendment;
   (c) Authorize advertising of the proposed contract zoning amendment with modifications as recommended by the Planning Commission or Development Officer; or
   (d) Deny the application.

.5 No contract zoning application which has been denied shall be resubmitted for a period of 12 months from the date of City Council’s denial.

8.6 Permitted Use and Development Standards

.1 Only uses specified in the contract zoning agreement shall be allowed.

.2 The regulations respecting lot size, frontage, coverage, floor area ratio, building height and yards, parking, payment in lieu of parking, and loading shall be those specified in the contract zoning agreement.

8.7 Time Limitation

.1 The City shall endeavour to render its decisions on contract zoning applications within 90 days. But where it is impractical to render a decision within 90 days, the Development Officer will inform the applicant before the 90 day period expires.
Figure 8.1 Contract Zoning Procedures

1. Submit an Application
2. Project Circulated and Public information signs are posted
3. Terms of Contract Zoning Agreement are negotiated and defined with Planning and Sustainability
4. Report prepared for Regina Planning Commission
5. City Council makes decision
   - If Authorized for Advertising
     - City Solicitor prepare a contract zone agreement and Zoning Bylaw amendment for City Council’s consideration. Agreement to be executed by applicant/property owner prior to City Council’s approval
     - Contract Zoning Bylaw is advertised
     - City Council considers Bylaw Amendment
       - If approved
         - Approved Contract Zoning Amendment
       - If denied, process stops
   - If denied, process stops
9.0 DISCRETIONARY USE APPLICATIONS

9.1 Policy and Purpose

.1 Discretionary uses are those uses identified in a land use zone under Zoning Bylaw, that are at the discretion of City Council. The discretionary use approval may be subject to conditions that must be met.

.2 The discretionary use process is a mechanism by which City Council determines if a particular use at a particular location:

(a) Will be reasonably compatible with neighbouring uses; or

(b) May require specific conditions to ensure that it is compatible with other uses in the same land use zone, and in the vicinity of the subject property.

.3 All discretionary use applications are subject to a public and a technical review process prior to City Council's consideration.

.4 The discretionary use provisions of the Zoning Bylaw apply to the following types of uses and activities:

(a) A use specifically identified or classified as discretionary in the Zoning Bylaw;

(b) Developments involved with the use or storage of hazardous materials; or

(c) Any other uses specified by City Council.

9.2 Application Requirements

.1 Every application for a discretionary use permit is made to the Development Officer and accompanied by the following:

(a) A completed discretionary use application form;

(b) A discretionary use application fee is required. Please consult the Planning and Sustainability Department for a current fee schedule. All applicable fees shall be paid prior to the processing of the application;

(c) If different from the applicant, the owner of the property must also sign the application form or provide a letter of consent for the application to be processed;

(d) It is strongly recommended that prior to submitting a formal application, that the Planning and Sustainability Department be contacted for a preliminary consultation;

(e) The applicant shall also provide written justification of the proposed discretionary use;
(f) Required plans 2 full sized scaled (A1 24x36) and one reduced (8½” x 11”) which include the following information:

(i) dimensions of the site, yard setbacks, principal and accessory buildings;

(ii) areas of the site that are unstable or have unusual soil conditions, such as a slough or previous waste disposal site;

(iii) other physical topographic features that may influence the development of the site;

(iv) the intended density, height, number of units, horizontal and vertical distribution of uses;

(v) traffic circulation patterns including vehicle entry and exit points, as well as points of major pedestrian access to proposed buildings on the site, including walkways and driveways;

(vi) recreation amenities, open spaces and other common facilities which may be dedicated to the City;

(vii) the location and height of all required and optional fences;

(viii) location and dimension of all existing and proposed buildings on the site;

(ix) the location, dimension and purpose of each existing and proposed easement;

(x) the location of hazardous materials stored (if applicable);

(xi) the streets and lanes bordering on the property;

(xii) the location, type and orientation of all exterior lighting;

(xiii) the location of all parking and loading areas, including a summary of the number of parking stalls and labels indicating the dimensions;

(xiv) the location of all transit stops, if any;

(xv) graphic scale;

(xvi) a north arrow; and

(xvii) a legend showing lot area, floor area and floor area ratio.

9.3 Developments that Involve Hazardous Materials

1 In the case of an application that uses hazardous materials defined in Section 2 and mentioned in Section 4B.7.10, Section 4, of Zoning Bylaw, the applicant shall:

(a) Identify all hazardous substances and wastes, as defined in The Hazardous Substances and Waste Dangerous Goods Regulations, which are used or stored on the site;
(b) Identify other hazardous materials defined in Chapter 2 of *Zoning Bylaw*;

(c) Provide a description of the industrial use in terms of the industry type, products produced, processing or manufacturing processes employed;

(d) Submit a completed industrial use application form;

(e) Identify the environmental effects created by the development in terms of glare, air emissions, noise, solid waste, storm water, liquid waste and hazardous substances;

(f) Identify mitigation measures to reduce or eliminate any of the environmental effects mentioned above; and

(g) Where required by the Development Officer, in the case where he believes the proposed development could present a serious environmental hazard to the City,

   (i) Provide a Community Impact Confirmation Analysis (CICA) prepared by a qualified professional engineer. Consult the Planning and Sustainability Department for a list of the requirements to be included in the CICA.

9.4 Administration Review

.1 Unless otherwise provided in *Zoning Bylaw*, an application for a discretionary use shall be processed by the Development Officer in accordance with the procedure specified in Figure 8.1.

.2 In reviewing the discretionary use application, the Development Officer evaluates the application and prepares a report to the Regina Planning Commission based on the following factors/criteria:

(a) Consistency with the general objectives and policies of the *Official Community Plan*;

(b) Consistency with the objectives and policies of any applicable special study for the site, area or neighbourhood, with emphasis on:

   (i) land uses;

   (ii) intensity of development;

   (iii) public facilities and services;

(c) Consistency with the purpose and intent of the *Zoning Bylaw*;

(d) Potential adverse impact on:

   (i) adjacent property;

   (ii) the character of the neighbourhood;

   (iii) the environment;
(iv) traffic;
(v) parking;
(vi) public right-of-way; and
(vii) other matters affecting public health and safety.

.3 The Regina Planning Commission reviews the report of the Development Officer and makes a recommendation to City Council.

.4 City Council reviews the recommendation of the Regina Planning Commission and may:
(a) Request further information from the Planning Commission, the Development Officer, or the applicant;
(b) Approve the proposal as originally proposed;
(c) Approve the proposal with modifications as recommended by the Planning Commission or the Development Officer; or
(d) Deny the proposal.

.5 No discretionary use proposal which has been denied shall be resubmitted for a period of 12 months from the date of City Council's denial.

9.5 Time Limitation

.1 The City shall endeavour to render its decisions on applications for discretionary use applications within 50 working days of the receipt of the completed application. But where it is impractical to render a decision within 50 working days, the Development Officer shall inform the applicant before the 50 working days expire.
Figure 9.1 Discretionary Use Procedure

1. **Submit an Application**
2. **Project Circulated and Public Signage Initiated**
3. **Planning and Sustainability prepares a report for Regina Planning Commission**
4. **RPC makes recommendation and submits reports to City Council**
5. **City Council makes decision**
   - If approved, **Development permit is Issued (which may contain Conditions of approval)**
   - If denied, **process stops**

*The applicant may appeal conditions of Approval within 30 days of approval To the Development Appeals Board*

*A further appeal is available to the Saskatchewan Municipal Board after an appeal is considered by the Development Appeals Board*

**Applicant may apply for Building Permit**


10.0 SPECIAL DEVELOPMENT PERMITS

10.1 Development Permit for the Floodway Fringe Overlay Zone

.1 An application for a development permit in the floodway fringe overlay zone shall be accompanied by detailed drainage studies and plans drawn to metric scale showing:

(a) The nature, location, dimensions and elevation of the site; and

(b) The location of existing or proposed structures, fill, storage of materials and drainage facilities.

.2 The elevation shall be in relation to the Design Flood Levels (1:500) Flood Plains (GEODETIC Datum) of the lowest floor of all structures and to which any structure will be flood-proofed. (Refer to The Regina Building Bylaw No. 2003-7 Section 2.17).

.3 All plans shall be certified by a registered professional engineer that the flood-proofing methods for any structure meet the flood-proofing requirements specified in The Regina Building Bylaw No. 2003-7.

10.2 Development Permit for the Aquifer Protection Overlay Zone

.1 The aquifer protection overlay zone is intended to provide additional regulations to protect the Regina aquifer system from contamination from development activities. This purpose is achieved by:

(a) Prescribing appropriate performance regulations and allowing potential polluting land uses and operations only where the performance regulations can be fulfilled; or

(b) Prohibiting land uses and operations that create a risk of contaminating the aquifer.

.2 This zone implements the Official Community Plan objective to protect ground water resources from contamination.

.3 An application for a development permit for a commercial or industrial use in the aquifer protection overlay zone shall be accompanied by:

(a) A complete list of all chemicals, pesticides, fuels and other potentially toxic or hazardous materials to be used or stored on the premises in quantities greater than those associated with normal household use;

(b) A description of measures proposed to protect all storage containers/facilities from vandalism, corrosion and leakage, and to provide for control of spills;
(c) A description of potentially toxic or hazardous wastes to be generated, indicating storage and disposal methods;

(d) Evidence of approval by Saskatchewan Environment and Public Safety and Saskatchewan Water Corporation;

(e) A description of site development measures to protect the aquifers including proposed monitoring program; and

(f) Detailed hydrogeological report indicating underlying geology and confirming sensitivity zone classification, in the case of a challenge under Section 1.9, Subpart 10C.1 of Zoning Bylaw.

.4 Refer to Subpart 10C.1 of Zoning Bylaw which contains regulations for the aquifer protection overlay zone.
Development Standards

Section 03

Environmental Considerations
Environmental Considerations

1.0 General

1.1 Policy Goals and Objectives ........................................................................................................ 53

2.0 Environmental Issues

2.1 Development Permit for the Floodway Fringe Overlay Zone ........................................... 53
2.2 Aquifer ...................................................................................................................................... 53
2.3 Development Permit for the Aquifer Protection Overlay Zone ........................................... 54
2.4 Energy Conservation .................................................................................................................. 55
2.5 Noise Attenuation ...................................................................................................................... 55
2.6 Environmental Impact/Risk Assessment ............................................................................... 55
2.7 Air Quality .................................................................................................................................. 56
2.8 Site Contamination .................................................................................................................... 56

3.0 Water Conservation

3.1 Purpose ...................................................................................................................................... 57
3.2 Landscape and Irrigation ............................................................................................................ 57
3.3 Domestic Water Usage .............................................................................................................. 58

4.0 Liquid Waste, Hazardous Waste and Demolition Materials

4.1 Liquid Waste ............................................................................................................................ 58
4.2 Hazardous Materials/Hazardous Waste ............................................................................... 59
4.3 Construction and Demolition Materials ............................................................................... 60

5.0 Alternative Forms of Transportation

5.1 Transportation Strategy ............................................................................................................ 60

Tables

N/A

Charts

N/A

Figures

N/A
1.0 GENERAL

1.1 Policy, Goals and Objectives

.1 The City of Regina requires all development designs to be sensitive to the Environment. Developments should protect and enhance, and sustain the local urban environment, biological diversity, air, water and soil quality.

(a) The City of Regina's environment is unique and developments that pose an unacceptable risk to the environment will not be recommended.

2. The policy goals and objectives are outlined in the City of Regina Official Community Plan [Regina Development Plan Bylaw No. 7877] (Official Community Plan). In addition many of the City of Regina's bylaws address environmental requirements covering noise, drainage, solid waste, sewage disposal, aquifer protection, hazardous material storage, emissions, community impact assessment and site contamination. These documents and bylaws should be consulted where necessary.

2.0 ENVIRONMENTAL ISSUES

2.1 Development Permit for the Floodway Fringe Overlay Zone

.1 An application for a development permit in the floodway fringe overlay zone shall be accompanied by detailed drainage studies and plans drawn to metric scale showing:

(a) The nature, location, dimensions and elevation of the site; and
(b) The location of existing or proposed structures, fill, storage of materials and drainage facilities.

.2 The elevation shall be in relation to the Design Flood Levels (1:500) Flood Plains (GEODETIC Datum) of the lowest floor of all structures and to which any structure will be flood-proofed. (Refer to the Regina Building Bylaw No. 2003-7 (Building Bylaw) Section 2.17).

.3 All plans shall indicate the flood-proofing methods being used for the structure to meet the flood-proofing requirements specified in the Building Bylaw.

2.2 Aquifer

.1 Portions of the City of Regina are located above a number of regional aquifers. Developments that may pose unusual risk to the aquifer are regulated by the Regina Zoning Bylaw No. 9250 (Zoning Bylaw) Chapter 10, Overlay Zone.
Regulations. Depending on the potential hazards, a risk assessment may be required for review prior to approval of the development. Various performance standards may also apply.

2.3 Development Permit for the Aquifer Protection Overlay Zone

.1 The aquifer protection overlay zone is intended to provide additional regulations to protect the Regina aquifer system from contamination from development activities. This purpose is achieved by:

(a) Prescribing appropriate performance regulations and allowing potential polluting land uses and operations only where the performance regulations can be fulfilled; or

(b) Prohibiting land uses and operations that create a risk of contaminating the aquifer.

.2 This zone implements the Official Community Plan objective to protect ground water resources from contamination.

.3 An application for a development permit for a commercial or industrial use in the aquifer protection overlay zone shall be accompanied by:

(a) A complete list of all chemicals, pesticides, fuels and other potentially toxic or hazardous materials to be used or stored on the premises in quantities greater than those associated with normal household use;

(b) A description of measures proposed to protect all storage containers/facilities from vandalism, corrosion and leakage, and to provide for control of spills;

(c) A description of potentially toxic or hazardous wastes to be generated, indicating storage and disposal methods;

(d) Evidence of approval by the Saskatchewan Ministry of Environment and Public Safety and Saskatchewan Water Corporation;

(e) A description of site development measures to protect the aquifers including proposed monitoring program; and

(f) Detailed hydrogeological report indicating underlying geology and confirming sensitivity zone classification, in the case of a challenge under Section 1.9, Subpart 10C.1 of the Zoning Bylaw.

.4 Refer to Section 10C.1 of the Zoning Bylaw, which contains regulations for the aquifer protection overlay zone and a plan of the location of the aquifer protection overlay zone.
2.4 Energy Conservation

.1 New developments should be designed so that a minimum of energy is used for the construction and maintenance of the subdivision. During construction, the design should minimize the surface and underground infrastructure required. This then minimizes the material and energy required for construction.

.2 The urban design should provide solar access to buildings, shelter buildings from wind with trees and berms, facilitate efficient transportation flow, and promote transportation alternatives: walking, bicycles, mass transit, etc.

.3 All proposed geothermal heat recovery systems shall require review by the City and shall meet applicable CSA standards, be a closed loop system, use ethanol based fluid and be designed to protect all groundwater/aquifers. Proposals are reviewed as part of a Building Permit application process by the Environmental Services Department.

2.5 Noise Attenuation

.1 The City of Regina has a Roadway Noise Attenuation Policy that sets the traffic noise level standard at 65 dBA Ldn. Developers are responsible for the provision of noise attenuation measures to meet the City of Regina Noise Level Standards. Refer to Section 7 Subsection .7.4 or to the report City of Regina Roadway Noise Attenuation Policy, March, 1990 for standards, guidelines and procedures to effectively deal with roadway traffic noise.

2.6 Environmental Impact/Risk Assessment

.1 The Zoning Bylaw provides that should the reviewing Planner within the Planning and Sustainability Department find the proposed development may or does present an environmental risk of impact, the planner will request the developer prepare a Community Impact Confirmation Analysis (CICA). For further information, refer to the Zoning Bylaw, Chapter 18 Section 5.3(3)(f). Factors that could trigger this are emissions, noise, waste runoff, hazardous materials, risk to aquifer, risk of accident, odours, etc. Proposed developments that may pose unusual risk to the public health and safety or the environment, should submit the following information:

(a) Prepare and submit an acceptable Emergency Response Contingency Plan;

(b) Prepare a detailed assessment of the impacts and/or hazardous risk to the environment and/or surrounding community (i.e., major hazardous material fire incident). This assessment to be based on an accepted methodology and be prepared by a qualified Professional Engineer registered to practice in the Province of Saskatchewan. This information to be provided to the Planning and Sustainability Department before the application proceeds to the Regina Planning
Commission. If the hazard and risk are found to be acceptable, the results of the assessment are to be incorporated into the proponent's Emergency Response Contingency Plan as per the *Hazardous Substances and Waste Dangerous Goods Regulations*;

(c) Meet all Federal and Provincial requirements; and

(d) Where applicable, meet all requirements of the *Zoning Bylaw, Chapter 10, Overlay Zone Regulations*.

### 2.7 Air Quality

.1 Residential subdivision design shall consider neighbouring developments for possible sources of odour and air contamination, or levels of air contaminants that could result from normal operations, spills or incidents above recommended levels.

.2 Industrial developments shall be designed so that the emissions of greenhouse and noxious gases are reduced, and ambient air quality meets Federal and Provincial guidelines at the property line.

.3 Industrial developers shall incorporate appropriate set-backs and buffer zones from incompatible land uses where emissions or spill or fire hazard zones could impact on adjacent land users.

### 2.8 Site Contamination

.1 If the lands are suspected of having any site contamination issues, the applicant shall become familiar with the prior uses that have occurred at the site by conducting a Phase 1 Environmental Site Assessment as per *CAN/CSA-Z768-01: Phase I Environmental Site Assessment*. This information will help determine:

(a) If previous uses have left contaminated material;

(b) If underground pipelines or storage tanks exist that should be removed; and

(c) The level of site remediation that may be required for the proposed development.

.2 For redevelopment of land if the site is potentially contaminated where previous uses involved hazardous materials, chemicals or petroleum products, development and submission of a Site Profile is required as follows:

(a) The applicant shall conduct a Phase 2 Environmental Site Assessment as per *CAN/CSA-Z769-00: Phase II Environmental Site Assessment*, and provide a remediation plan acceptable to the Director of the Environmental Services Department for review prior to development approval. The Risk Assessment Approach is not accepted for sensitive
land uses such as residential, schools, day cares, hospitals, etc. and approval prior to issuance of a building permit; and

(b) Site remediation shall conform to Saskatchewan Environment Regulations and Canadian Council of the Ministers of the Environment (CCME) Guidelines. The level of site clean-up will depend on the zoning of the property and proposed land use.

### 3.0 WATER CONSERVATION

#### 3.1 Purpose

.1 The City of Regina's municipal Water Conservation Program was implemented to reduce the community demand for water and postpone the need to expand water and wastewater treatment facilities. The Water Conservation Program elements (such as the Xeriscape Handbook) and the CCME’s National Action Plan to Encourage Water Use Efficiency, 1994 outline and define practices that support water conservation and water use efficiency. The following guidelines should be considered to be incorporated into developments.

#### 3.2 Landscape and Irrigation

.1 Landscaping, decorative fountains and pools are specific areas where water conservation techniques can be applied. For general philosophy on design of irrigation systems as well as the requirements, see Section 12 Subsection 4.26 and 4.27 of the Development Standards Manual (DSM).

(a) Sprinkler systems should be designed and constructed to optimize watering efficiency and minimize losses due to wind drift and runoff. Generally sprinkler systems shall be automatically controlled to allow watering at night.

(b) Sprinkler systems should be laid out so that no unnecessary sprinklers are installed and spray patterns are not blocked by obstacles. Sprinklers should cover only the areas requiring irrigation and should not spray on buildings, fences or paved areas. The proper type of sprinkler heads should be used; each type of head should be matched to the type of plantings it serves.

(c) Proper selection and placement of plants can help reduce water consumption and the generation of organic yard waste. Drought-tolerant plants and xeriscape principles should be used where possible. Trees, shrubs and low water use ground covering should be considered rather than turf. A layer of organic mulch, bark chips, leaves or straw on planter boxes or shrub areas reduces evaporation, encourages root growth, extends the time between watering, improves water penetration and discourages weeds. See Section 12, Subsections 4.24 and 4.25 of the DSM for additional information.
(d) Decorative ponds, fountains and waterfalls should all be designed with recycling water systems. Fountains and waterfalls should be designed so they can be shut off whenever possible to reduce the amount of water lost to evaporation.

3.3 Domestic Water Usage

.1 Domestic water use includes water used in rest rooms, showers, toilets and faucets. The development shall consider and incorporate where feasible the following opportunities that exist for water conservation when developing new buildings, or remodelling existing buildings:

(a) Installation of low-water use toilets;
(b) Retrofit existing toilets, with low water use devices;
(c) Installation of low flow shower heads and faucets;
(d) Use of control systems for toilets, urinals, showers and faucets to deliver water only when required and to shut off water flow when not required;
(e) Use of heating and cooling systems that use a minimum amount of water.

4.1 Liquid Wastes

.1 Developers are encouraged to incorporate plans that reduce stormwater and wastewater produced by the development.

(a) Discharge of commercial or industrial waste to the City sewer system must be acceptable to the Director of Environmental Services;
(b) Developments that use wastewater holding tanks and hauling of liquid waste are discouraged. This creates additional truck traffic on City streets and potential for shock loading to the sewer system; and
(c) Developments are required to have a stormwater management plan acceptable to the General Manager of Public Works. Stormwater quality improvement measures may be a requirement of the plan for certain developments (e.g. large surface parking lots, salvage yards, or industrial sites). As per Section 9.0, Subsection 5.15 of the DSM, Stormwater Quality Improvements/Protection Measures.

4.2 Hazardous Materials/Wastes

.1 Developments involving either hazardous materials or hazardous wastes are required to meet conditions outlined in the Zoning Bylaw, and the Official Community Plan.
.2 Proposed developments involving manufacturing, handling or storage of significant quantities of hazardous materials/wastes will generally require a quantitative risk/hazard zone assessment prior to final land use approval and/or prior to final development approvals.

.3 Proposed developments near fixed facilities or pipeline corridors that involve either hazardous materials or hazardous wastes will generally require a quantitative risk/hazard zone assessment prior to land use approvals.

.4 Risk/hazard zone assessments shall be prepared by a qualified Professional Engineer registered to practice in the Province of Saskatchewan. Risk/hazard zone assessments shall meet the guidelines contained within Risk Assessment – Recommended Practices for Municipalities and Industry, 2004 by the Canadian Society of Chemical Engineers (CSChE) which is used to evaluate safe setback distances which will be specific to each site dependant on the hazard or hazards and type of development proposed. (Note: This document is based on the previous work by the Major Industry Accidents Council of Canada (MIACC) which dissolved in 1999, but whose work was transferred to CSChE’s Process Safety Management division under the Risk Assessment Expert Committee).

.5 All developments of this nature are required to proceed through the Discretionary Use process as per Section 02, Subsection 9.0 of the DSM.

.6 Depending on the potential hazard, the applicant may be required to undertake a Community Impact Confirmation Analysis.

.7 Developments involving hazardous materials located in Aquifer Protection Overlay Zone are required to meet additional performance standards specified in the Zoning Bylaw.

.8 Approval by agencies such as Regina Fire Department and the Ministry of Environment will be required.

.9 Transportation of dangerous goods to/from the site must conform to the City of Regina Traffic Bylaw No. 9900.
4.3 Construction and Demolition Materials

Developments shall incorporate a waste minimization plan for any building construction and/or demolition to ensure optimum salvage and reuse of materials. Increased efficiencies could result in lower disposal costs at the landfill.

5.0 ALTERNATE FORMS OF TRANSPORTATION

5.1 Transportation Strategy

.1 In March 1994, City Council approved the report *Transportation Strategy: Meeting Challenges of the Future* (*Transportation Strategy*) as City Policy. The goal of the *Transportation Strategy* is to "Promote a sustainable transportation system that is safe, affordable, efficient and environmentally responsible". The City plans to implement the strategy using positive incentives for people to change such as providing bicycle parking, incorporating bicycle routes, improving transit service, and encouraging infill development and developing more self-sufficient neighbourhoods. Innovative proposals for developments that meet the goals and objectives of the *Transportation Strategy* are encouraged. The objectives of the *Transportation Strategy* are provided in *Section 07, Subsection 3.2* of the DSM.
Development Standards

Section 04

Land Requirements
Land Requirements

1.0 General

1.1 Policy, Goals and Objectives ................................................................. 65
1.2 Transfer and Associated Costs ............................................................... 65

2.0 Land Dedication

2.1 Requirements of Owner ........................................................................ 65
2.2 Dedication of Property for Road Right-of-Way Widening .................. 66
2.3 Dedication of Property for Road Right-of-Way ................................... 66
2.4 Buffer Strips .......................................................................................... 66
2.5 Environmental Reserves ....................................................................... 66
2.6 Municipal Reserves ............................................................................... 67
2.7 Transfer of City Owned Lands to Private Ownership ......................... 68
2.8 Floodplains ........................................................................................... 68
2.9 Storm Channels ..................................................................................... 68

3.0 Easements & Restrictions

3.1 Utility Easements ................................................................................ 69
3.2 Access Restrictions ............................................................................... 69

4.0 Other City Land Requirements

4.1 Walkways .............................................................................................. 70
4.2 Interchange Land .................................................................................. 70
4.3 Storm Detention/Retention Facilities ................................................... 70

Tables

N/A

Charts

N/A

Figures

N/A
1.0 GENERAL

1.1 Policy, Goals and Objectives

.1 This section references Part IX Dedicated Lands of the *Planning and Development Act, 2007 (The Act)*.

.2 The section relates to land that is to be subdivided.

1.2 Transfer and Associated Costs

.1 The developer will be responsible for all costs associated with the legal transfer of title of lands to be dedicated to the City, including survey expenses. The transfer of lands is to be completed prior to the issuance of the Construction Completion Certificate.

.2 The developer will be responsible for the preparation, registration and all costs associated with obtaining City utility easements and the registration of easements and other interests as required.

.3 The developer will be responsible for all tax assessments pertaining to the lands prior to the registration of the subdivision plan that establishes crown lands.

2.0 LAND DEDICATION

2.1 Requirements of Owner

.1 The developer of the land will provide, without compensation, to the City:

(a) Land for Environmental Reserve or Municipal Reserve;

(b) Money in place of any of the land required to be dedicated as Municipal Reserve; or

(c) A combination of land and money.

.2 The developer may enter into an agreement with the City regarding the proposed development prior to subdivision for the provision of land for municipal reserve within: (as per section 182(1) of *The Act*)

(a) The area of land intended to be subdivided; or

(b) Any other area of land in the City.
2.2 Dedication of Property for Road Right-of-Way Widening

.1 Where the prospective developer owns property abutting an existing right-of-way or corridor that must be widened, any such lands required for this purpose must revert to the Crown as part of the subdivision process. Lands so dedicated will not be subsequently considered as part of the Development.

.2 Any roadway rights-of-way over 22.0 meters in width will be assessed servicing fees on the additional width, unless this is a requirement of the City.

2.3 Dedication of Property for Road Right-of-Way

.1 Developers will provide, at no cost to the City, road right-of-way for present and future traffic requirements. Refer to Section 07 of this manual for a full description of roadway geometrics and right-of-way width requirements.

.2 All road rights-of-way will be considered as part of the new subdivision. The title on all road rights-of-way shall revert to the Crown.

2.4 Buffer Strips

.1 The City may require land as a buffer between a proposed subdivision and adjacent land put to a use not compatible with that proposed for subdivision. The developer will provide land, without compensation, for that purpose.

.2 This land will be dedicated in addition to any other required. Upon registration of the subdivision, this land becomes the property of the City.

.3 In practice, the requirement for buffer strips is minimized as much as possible. In the past, buffer strips were often used as a means of controlling access. This function is now served by caveat, rather than by establishing buffer strips.

.4 Any lease, sale, transfer or exchange of buffer strips shall be in accordance with The Act.

2.5 Environmental Reserves

.1 The City may require the developer to provide land as environmental reserve.

.2 The City may consult with the following agencies to determine environmental reserve designation:

(a) Minister responsible for the administration of the Environmental Management and Protection Act,

(b) Saskatchewan Watershed Authority or

(c) any other agency that the City may determine is necessary.
.3 The Environmental reserve designation is determined where the land consists of:

(a) a ravine, coulee, swamp, natural drainage course or creek bed;
(b) wildlife habitat of areas that:
   (i) are environmentally sensitive; or
   (ii) contain historical or significant natural features;
(c) land that is subject to flooding or is, in the opinion of the General Manager of Planning and Development, unstable; or
(d) land abutting the bed and shore of any lake, river, stream or other body of water for the purpose of:
   (i) the prevention of pollution;
   (ii) the preservation of the bank;
   (iii) the protection of the land to be subdivided against flooding; or
   (iv) the preservation of the riparian zone.

2.6 Municipal Reserves

.1 The amount of land required for dedication to Municipal Reserve is:
   (a) Ten percent (10%) in the case of residential subdivisions, and
   (b) Five percent (5%) in the case of non-residential subdivisions.

.2 The calculation of the Municipal Reserve dedication requirement does not include land required as Environmental Reserve.

.3 The City may direct that the requirements of the dedication of land to Municipal Reserve be waived in whole or in part at the time of subdivision for money in lieu.

.4 The applicant would pay to the City in lieu of municipal reserve land a sum of money equal to:
   (a) Ten percent (10%) of the value of the land to be subdivided for residential purposes; or
   (b) Five percent (5%) of the value of the land to be subdivided for non-residential purposes.

.5 Land values will be based on the market value of subdivided unserviced land. A qualified appraiser selected by the City of Regina or the City’s Real Estate Branch would determine this value.
.6 Where a combination of land and money is required to be provided in respect of Municipal Reserve, the total will not exceed an amount equal to the maximum applicable requirements for land dedication:
(a) the percentage of land required; or
(b) the percentage of the value of the land required.

2.7 Transfer of City Owned Lands to Private Ownership

.1 The developer will be required to purchase any previously registered road right-of-way that is located within the proposed development, unless those portions of a right-of-way continue to be a road right-of-way.

.2 In the calculation of payment for a road right-of-way, the developer will not receive credit for dedication of a road right-of-way falling within the boundaries of the Development.

.3 The selling price of City owned lands shall be negotiated with the City of Regina's Real Estate Branch.

2.8 Floodplains

.1 The developer shall dedicate floodplain lands at no cost to the City.

.2 The developer shall obtain Saskatchewan WaterShed Authority approvals required for any floodplain crossing; and 1:500 year flow capacity must be provided for any floodplain road crossing.

.3 Floodplain crossings within a single developer's property shall be entirely paid for by that developer.

.4 In the event of a boundary situation, in which the crossing forms the boundary between two developments, or leads from one developer’s property to another’s, the cost of the crossing shall be shared by the developers.

2.9 Storm Channels

.1 The developer shall dedicate lands for smaller local storm channels to the City at no cost to the City.

.2 Where a storm channel is an element of an adopted Sector or Regional Service Plan, the basic storm channel will be funded by the Servicing Agreement Fees Reserve. Land shall be dedicated for the channel from the 1:100 year flow level to the existing property line as directed by the General Manager of Planning and Development.
.3 If the storm channel is in existence prior to the approval of a subdivision, the developer shall be responsible for the total cost of the crossing, including the drainage structure and embankment.

.4 If the subdivision is approved prior to the construction of the storm channel, the City will pay for the drainage structure and embankment with the developer being responsible for the cost of the street structure.

.5 Where the storm channel forms a boundary between developers, the crossing, including the drainage structure and embankment, shall be shared on an equitable percentage basis as determined by the City.

3.0 EASEMENTS & RESTRICTIONS

3.1 Utility Easements

.1 The developer will be required to provide or obtain, secure and grant, without cost to the City and the affected utility companies, all easements required for the installation of any services as shown on the approved engineering plans.

.2 Where an easement for sewer and/or water is required, the developer shall deliver the necessary easement in the name of the City.

.3 Failing to do so prior to the issuance of the Construction Completion Certificate, the City may expropriate the necessary land for the said easement and all costs, both compensatory and legal, shall be paid to the City by the developer upon demand.

3.2 Access Restrictions

.1 In areas where access to freeway, expressway, major or minor arterial or collector roads must be restricted, these restrictions may be accomplished by interest on titles of Restrictive Access and Use Agreements, rather than buffer strip.

.2 Restrictive Access and Use Agreements shall be filed by the developer against the property prior to issuance of the Construction Completion Certificate.
4.0 OTHER CITY LAND REQUIREMENTS

4.1 Walkways

.1 The City may require the developer to provide part of the subdivided land, without compensation, for walkways where warranted to provide adequate pedestrian access. Refer to Section 12 of this manual for the City’s policy on walkway minimization. That land will become the property of the City.

.2 Walkway parcels will not be exchanged for any other parcel of land. Walkway parcels will not be considered as part of the required Municipal Reserve dedication.

4.2 Interchange Land

.1 The developer will include future interchange land in his subdivision; and the City will pay for that part of the interchange land that is the City’s responsibility on the basis of the value of subdivided unserviced land at the time of Development.

4.3 Storm Detention/Retention Facilities

.1 Where the approved Sector Master Drainage scheme includes storm detention/retention facilities, the developer will allocate lands for these facilities in the subdivision, and the City will purchase that land on the basis of the value of subdivided undeveloped land at the time of Development.
Development Standards

Section 05

Servicing Fees for Land Development
Servicing Fees for Land Development

1.0 General

1.1 Policy, Goals and Objectives ................................................................. 75
1.2 Current Rates .......................................................................................... 75
1.3 Unit Cost Charges .................................................................................... 75

2.0 Shared Costs

2.1 Local Improvements ............................................................................... 75
2.2 Shared Cost Facilities ............................................................................... 76
2.3 Existing Infrastructure .............................................................................. 76

3.0 Roadway Costs

3.1 Freeway, Expressway and Major Arterial Construction Responsibility ........ 76
3.2 Minor Arterial Construction Responsibility .............................................. 76
3.3 Collector, Local Street and Alley Construction Responsibility ................. 77
3.4 Roadway Right-of-Way Responsibility .................................................... 77

Tables

N/A

Charts

N/A

Figures

N/A
1.1 Policy, Goals and Objectives

.1 Various servicing fees are charged for land development to aid the City in recovering costs brought on by the expansion of City Infrastructure. Servicing Agreement Fees (fees based on the area of development) are charged for providing, altering, expanding or upgrading sewerage, water, drainage, parks, recreation facilities and public streets, or highway facilities located within or outside of the proposed subdivision, and that directly or indirectly service the proposed subdivision.

.2 Other costs are charged as compensation for expenses incurred by the City that are specific to the development in question.

.3 The *Servicing Agreement and Servicing Agreement Fee Policy and Procedures Manual* outlines the process and procedures for setting and updating the rate and policy.

1.2 Current Rates

.1 A schedule of current rates for servicing agreement fees and unit rate levies can be obtained through the office of the General Manager of Planning & Development.

1.3 Unit Cost Charges

.1 A number of expenses incurred by the City as a result of development are compensated for by the levy of unit charges. These include:

   (a) Street name signs by cost per intersection,

   (b) Traffic control signs at actual cost, and

.2 These unit cost charges pertain only to expenses incurred by the City as a result of the development.

2.0 SHARED COSTS

2.1 Local Improvements

.1 In the event of mixed ownership along a street, the City may consider servicing that street under the Local Improvement Program procedures. The services covered under the Local Improvement Program shall be constructed by the City; and each developer shall be charged on the basis of assessable frontages and prepaid rates at the time of construction.
2.2 Shared Cost Facilities

.1 Where two developers are involved in shareable servicing construction across any obstructions such as pipelines, creeks, railway tracks, storm channels, etc., the construction costs shall be equitably shared between the two parties.

.2 If a facility is required prior to the development of the properties on the other side of the obstruction, the first developer shall pay for the total cost of the facility. The subsequent developer must pay their share at the time of entering into a servicing agreement with the City and reimburse the first developer.

.3 In some areas, if there is a vast inequity in the size of land to be developed on either side of an obstruction, or where there is another developer in the vicinity who may benefit from the facilities, this cost may be shared on an equitable percentage basis as determined by the City.

2.3 Existing Infrastructure

.1 When a developer develops land which is abutting any existing infrastructure, the developer may be required to replace or repair any existing water or sewerage connection required to service the site as well as cut off at the main any existing service connection which will not be required to service the site.

.2 The developer may be required to replace, rebuild, repair or recap an existing roadway surface and concrete walk and/or curb and gutter as a result of pavement and concrete cuts, roadway tie-ins and drainage requirements due to the new development.

3.0 ROADWAY COSTS

3.1 Freeway, Expressway and Major Arterial Construction Responsibility

.1 The City shall be responsible for the design and construction of all freeway, expressway and major arterial roadways.

3.2 Minor Arterial Construction Responsibility

.1 The developer shall be responsible for the design and construction of minor arterial roadways to a collector standard. The City shall be responsible for all surface improvements exceeding the collector standard.
3.3 Collector, Local Street and Alley Construction Responsibility

.1 The developer shall be responsible for the design and construction of all collector, local streets and alleys.

3.4 Roadway Right-of-Way Responsibility

.1 Any roadway rights-of-way over 22.0 meters in width will be assessed servicing fees on the additional width, unless the extra width is a requirement of the City.
Development Standards

Section 06

Subdivision Servicing
1.0 General

1.1 Policy, Goals and Objectives ................................................................. 83

2.0 Servicing Agreement

2.1 General .................................................................................................................. 83
2.2 Engineering Requirements ................................................................................. 85
2.3 Land Development Design Drawing Standards .................................................. 86
2.4 Circulation of Drawings ....................................................................................... 88
2.5 Vertical and Horizontal Controls ......................................................................... 88
2.6 Easement and Utility Parcel Grades ..................................................................... 89
2.7 Engineering Studies .............................................................................................. 89
2.8 Mix Designs ............................................................................................................ 89

3.0 Project Administration

3.1 Inspection .............................................................................................................. 89
3.2 Staging of Construction Completion and Final Acceptance Certificates ........... 90
3.3 Construction Completion Certificates ................................................................. 90
3.4 As-built Information ............................................................................................. 90
3.5 Final Acceptance Certificates .............................................................................. 91
3.6 Warranty Period .................................................................................................. 91

Tables

Table 2.3.2 Land Development Design Drawings Standards ................................ 86

Charts

N/A

Figures

N/A
1.0 GENERAL

1.1 Policy, Goals and Objectives

.1 Once Council approves a development, the process of reviewing design details and establishing agreements begins. Refer to the Development Standards Manual (DSM) Section 1 General Information, Figure 3.2.1.

(a) Developer submits engineering and landscaping drawings for review (bound separately);

(b) Development initiates process to establish legal agreements.

.2 At the same time design information is being reviewed the developer is responsible to initiate the process of establishing any agreements that are required by the conditions of approval of the development or development legislation.

.3 Once drawings are approved and agreements are in place, construction can begin on the approved portions of the development.

.4 All matters relating to land development servicing shall be processed through the General Manager of Planning & Development.

2.0 SERVICING AGREEMENT

2.1 General

.1 As per Section 172(1) of the Planning and Development Act, 2007 (The Act), if there is a proposed subdivision of land, the municipality in which the subdivision is located may require a subdivision applicant to enter into a servicing agreement to provide services and facilities that directly or indirectly serve the subdivision.

.2 As per Section 172 (2) of The Act, subdivision applications shall not receive a certificate of approval from the approving authority if a servicing agreement is required by the municipality and has not been executed.

.3 As per Part 1 (4)3 of the Subdivision Bylaw No.7748, the applicant shall enter into a servicing agreement within 90 days from the day on which the application is determined to be in its complete and final form.

(a) An application’s determination of “complete and final form” will be made by the Development Officer.

.4 As per Section 172(3) of The Act, servicing agreements may provide for:
(a) the undertaking by the applicant to install or construct within the proposed subdivision, and in accordance with the specifications stated in the agreement, any storm sewers, sanitary sewers, drains, watermains and laterals, hydrants, sidewalks, boulevards, curbs, gutters, streetlights, graded, graveled or paved streets and lanes, connections to existing services, area grading and leveling of land, street name plates, connecting and boundary streets, landscaping of parks and boulevards, public recreation facilities or other works that the council may require;

(b) the payment by the applicant of fees that the council may establish as payment in whole or in part for the capital cost of providing, altering, expanding or upgrading wastewater, water, drainage infrastructure and other utility services, public highway facilities and park and recreation space facilities, located within or outside the proposed subdivision, and that directly or indirectly serve the proposed subdivision;

(c) the time limits for the completion of any work or the payment of any fees specified in the agreement, which may be extended by agreement of the applicant and the municipality; the General Manager of Planning & Development Division will have the authority on the part of the City to negotiate extensions.

.5 An agreement pursuant to this section may provide that it runs with the land when an interest with an attached copy of the agreement is submitted for registration to the Information Services Corporation of Saskatchewan (ISC). The agreement is deemed to bind the owner of the land affected by the agreement and his heirs, executors, administrators, successors and assigns.

.6 The City shall use the Servicing Agreement Fees:

(a) to pay the capital cost of providing the services and facilities described above; or

(b) to pay a debt incurred by the City as a result of an expenditure for works described above.

.7 The City shall deposit all Servicing Agreement Fees received by it under a servicing agreement into one or more separate servicing agreement accounts.

.8 The developer must make written application to the Planning & Development Division to enter into a Servicing Agreement. This application is to include:

(a) submission of engineering and landscape drawings and specifications for review and approval;

(b) proposed start date of construction;

(c) proposed date of completion;
(d) plan of survey in digital format;
(e) plan outlining the area to be developed;
(f) value of all services:
   (i) underground facilities;
   (ii) surface improvements;
   (iii) landscaping.
(g) total area to be developed; and
(h) type of payments to be made (i.e. staged or single payment).

.9 Servicing Agreement Fee payments and Performance Security details may be obtained by contacting the Supervisor of Development Services.

2.2 Engineering Requirements

.1 After the drawings have been reviewed and signed by the General Manager of Planning & Development, the City will make all the necessary copies required by City staff for the purpose of inspection and reference.

.2 The developer shall engage a professional engineer and/or landscape architect to prepare and submit original engineering and/or landscape design drawings to the City of Regina that are complete, accurate, and in accordance with the standards presented and referred to in this manual. The plans shall be sealed by a registered professional engineer and/or landscape architect. The Planning & Development Division will review the drawings with respect to adherence to the standards presented in this manual and the City of Regina Construction Specifications Manual, but shall not be responsible for engineering omissions and errors shown on or relating to these plans.

.3 The engineering and landscaping drawings must be found to be acceptable prior to the issuance of the Servicing Agreement and reference that the current Standard Construction Specifications are being used for the construction of the development.

.4 The developer shall submit drawings a minimum of six (6) weeks before the proposed initial date of construction. In the event that the General Manager of Planning & Development finds that any part of the developer’s plans or proposals do not meet with the standards presented in this manual, the plans shall be returned to the developer for revisions to the satisfaction of the General Manager of Planning & Development. The time period from return to re-submission of such plans or proposals shall be deemed to be additional to that specified in this paragraph.
2.3 Land Development Design Drawing Standards

.1 The design drawings are to be submitted to the General Manager of Planning & Development for review as a complete set composed of, but not necessarily limited to the following:

Table 2.3.2 Land Development Design Drawing Standards

<table>
<thead>
<tr>
<th>DESIGN DRAWINGS</th>
<th>DETAIL</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Plan</td>
<td>Location; City; Subdivision</td>
<td>1:500 to 1:2500</td>
</tr>
<tr>
<td>Key Plan (Index of Drawings)</td>
<td>Street Lighting; Easements; Civic Addresses; Building Grades; Legend; Driveway Locations; Hydrants; Catch Basins; Mail Boxes; Bus Stops; Lot and Block Numbers; Water Curb Boxes; Tie ins to the property lines and pipe material specified</td>
<td>Variable</td>
</tr>
<tr>
<td>Building Grade Plan</td>
<td>Water: pipe Diameter type classification tie-ins to property lines. Fittings: size, tie-ins to the property lines. Valves: tie-ins to the property lines. Hydrants: tie-ins to the property lines.</td>
<td>1:500</td>
</tr>
<tr>
<td>Water Layout Plan</td>
<td>Water: pipe Diameter type classification tie-ins to property lines. Fittings: size, tie-ins to the property lines. Valves: tie-ins to the property lines.</td>
<td>1:500 to 1:1000</td>
</tr>
<tr>
<td>Storm Sewer Plan</td>
<td>Storm: pipe diameter, type, lengths, classification, and direction of flow; inverts, slope calculations, sump elevations, tie-ins to property lines. Fittings: tie-ins to property</td>
<td>1:500 to 1:1000</td>
</tr>
<tr>
<td>DESIGN DRAWINGS</td>
<td>DETAIL</td>
<td>SCALE</td>
</tr>
<tr>
<td>----------------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>Sanitary Sewer Plan</td>
<td>Sanitary: pipe diameter, type, lengths, classification, and direction of flow; inverts, slope calculations, tie-ins to the property lines. Fittings: size, tie-ins to the property lines</td>
<td>1:500 to 1:1000</td>
</tr>
<tr>
<td>Sidewalk Site Plan</td>
<td>Street traffic width and right-of-way; Concrete; Concrete Walk, Concrete Curb and Gutter, Concrete Curb Only (referenced from the Top of Curb), Curb Elevations, Pavement types;</td>
<td>1:500 to 1:1000</td>
</tr>
<tr>
<td>Major Storm Drainage Plan</td>
<td>Ponding areas, Storm pipe diameter, type, lengths, classifications and direction of flow; inverts, slope calculations, sump elevations, tie-ins to the property lines. Fittings: tie-ins to the property lines.</td>
<td>1:500 to 1:1000</td>
</tr>
<tr>
<td>Street Signage, Signals, and Pavement Markings Plans</td>
<td>All required street signs, intersection traffic control signs or signals, no parking signs, special school zone or park signs; All required pavement markings</td>
<td>1:500 to 1:1000</td>
</tr>
<tr>
<td>Detailed Engineering Plan and Profiles</td>
<td>All underground and surface dimensions and elevations and type of materials used;</td>
<td>H 1:500 V 1:50</td>
</tr>
<tr>
<td>Landscaping Plan</td>
<td>Irrigation Design; Grading; Plant Material; Plant List; All Hard Surfaces; Bicycle Paths; Foot Paths; Underground</td>
<td>1:500</td>
</tr>
</tbody>
</table>
### DESIGN DRAWINGS

| Utilities; Details as Necessary; Summary Table of Landscape Areas; Electrical plans for lighting; tie-ins required for all listed. |

2. All plans shall be submitted in hard copy & in digital format in metric, with elevations referenced to geodetic metric, on City of Regina standard sheet size. All symbols used to denote various infrastructures will be consistent with those used by the City.

3. The title block shall be located in the lower right hand corner of each sheet.

   NOTE: Each drawing sheet must have the following:
   - Name of the developer;
   - Name of the design firm;
   - Legal and/or civic description of the property;
   - Name of the designer and a professional seal and signature.

### Circulation of Drawings

1. The City will make copies of all engineering, landscape and utility drawings submitted by the developers' consultant engineer, and circulate them among the affected City departments for review. It is expected that all plans submitted will be correct. Where many or significant errors, omissions or inconsistencies are noted, plans may be rejected after cursory examination and may not again be reviewed until it is evident the developer has made a diligent attempt to provide correct plans.

2. The more presentable and the more accurate the plans are, the more quickly circulation, review and acceptance is likely to occur, all else being equal.

### Vertical and Horizontal Controls

1. Vertical and horizontal controls shown on plans and profiles shall be referenced to North American Datum (NAD) 83 UTM coordinates and shall be tied to the City bench mark system noting the number, description and elevation used.
.2 All subdivision survey plans shall be tied to the ISC monument system. Digital information must be in the most current format used by the City (AutoCAD 2007 as of Jan 1, 2010) tied to the I.S.C. base map.

2.6 Easement and Utility Parcel Grades

.1 Prior to the installation of underground power, gas and telephone services, the developer shall provide the appropriate utility companies with a certified plan showing the easement and utility parcel grades; accurate within ±50 millimetres. Any costs for lowering underground services, due to inaccurate grades in any subdivision, shall be borne by the developer.

.2 Final grading, to be undertaken and certified by the developer, shall be within a tolerance of ±50 millimeters. These grades are to be submitted to the City by the developer.

2.7 Engineering Studies

.1 The developer, if requested by the General Manager of Planning & Development, shall provide engineering studies, at the developers cost, pertaining to the servicing of the development.

2.8 Mix Designs

.1 The developer shall be responsible for the submission to the General Manager of Planning & Development of current asphalt, granular materials and concrete mix designs prepared by a qualified testing lab or professional engineer. These mix designs shall meet with the General Manager of Public Works’ acceptance prior to construction.

3.0 PROJECT ADMINISTRATION

3.1 Inspection

.1 The developer shall engage a professional engineer to inspect, supervise and certify that all materials and the construction, installation and inspection of the work being carried out under the Servicing Agreement conforms in all respect to the City's specifications and designs, or as otherwise required by the General Manager of Planning & Development.

.2 The developer is to provide the City with copies of inspection reports, material test results, sanitary sewer ex-filtration tests, watermain pressure test and sewer camera (CCTV) test results as specified in the Developer's/Consultant's Field Services Guidelines.
.3 City staff will conduct random inspections and testing to confirm that City specifications are being met.

3.2 Staging of Construction Completion and Final Acceptance Certificates

.1 All certificates shall be issued in conformance with the current standard Servicing Agreement.

3.3 Construction Completion Certificates

.1 October 1 of each year shall be recognized as the final date for the developer to request Construction Completion Certificates, although, the City may process requests for Construction Completion Certificates received after that date, if time and weather conditions allow. Construction Completion Certificates will be provided by the City within three weeks of the developer’s request subject to all conditions of the Servicing Agreement and required information having been satisfied.

3.4 As-Built Information

.1 The developer shall provide accurate detailed as-built information within 120 calendar days of the issuance of the Construction Completion Certificate, otherwise, the certificate will be considered void. The City will require the correction of the drawings such as errors and omissions on the as-built drawings at the developer's expense. Returned as-built drawings shall be corrected and returned to the City within 30 working days of the developer receiving the returned copies.

.2 The developers engineer shall provide the City with copies of field inspection reports and test results upon request.

.3 One (1) complete set of accurate detailed as-built drawings shall include those drawings listed in table 2.3.2. In addition to submitting the as-built information in digital form (current version of AutoCAD), one set of the as-built drawings shall be submitted in the hard copy format. Digital record drawings shall be in NAD 83 UTM coordinates.

.4 Symbols and conventions on all as-built drawings will be consistent with all City legends and standards. As part of the as-built information, provisions are that the developer shall provide the City with all as-built drawings and quality control and quality assurance reports on testing data as required by the General Manager of Planning & Development.

.5 The City may, from time to time, audit as-built information for accuracy. If substantial inaccuracies are found on as-built plans, the cost of this audit operation may be assessed against the developer.
3.5 Final Acceptance Certificates

.1 The Final Acceptance Certificates shall be issued by the City in conformance with the current standard Servicing Agreement. Final inspection of works shall be a joint effort between City of Regina representative and the developer's engineer. The developer may apply for the Final Acceptance Certificate eight weeks prior to the expiration date of the Warranty period. The General Manager of Planning & Development shall, within three weeks of such an application, arrange for a final inspection. Cash compensation in lieu of physical repair of defects may be considered. Where the long term quality or performance of work is in doubt, a security bond may be required for warranty purposes.

3.6 Warranty Period

.1 Upon the issuance of Construction Completion Certificate #1, the warranty period for Infrastructure Services shall commence. Unless expressly stated to the contrary in the Contract Documents, the warranty period shall be 1 year.
Development Standards

Section 07

Transportation Design
1.0 General

1.1 Requirements .............................................................................................................. 99
1.2 Responsibility ................................................................................................................ 99
1.3 Design References ...................................................................................................... 100
1.4 City Bylaws ................................................................................................................. 100
1.5 Approved Policy and Specifications ........................................................................... 100
1.6 Guidelines and Codes ................................................................................................. 101

2.0 Functional Definitions

2.1 Scope ..................................................................................................................... 101
2.2 Right of Way ........................................................................................................... 101
2.3 Street ......................................................................................................................... 102
2.4 Freeway ................................................................................................................... 102
2.5 Expressway .............................................................................................................. 102
2.6 Major Arterial .......................................................................................................... 102
2.7 Minor Arterial ........................................................................................................... 102
2.8 Collector Street ....................................................................................................... 102
2.9 Local Street ............................................................................................................. 102
2.10 Industrial Street ....................................................................................................... 102
2.11 Alley ......................................................................................................................... 102
2.12 Cul-de-sac ................................................................................................................ 103
2.13 Service Street ......................................................................................................... 103
2.14 Temporary Road .................................................................................................... 103
2.15 Private Street .......................................................................................................... 103
2.16 Greenway ................................................................................................................. 103

3.0 Subdivision Design Requirements

3.1 Scope ..................................................................................................................... 103
3.2 Transportation Strategy ......................................................................................... 103
3.3 Regina Road Network Plan ..................................................................................... 104
3.4 Transportation Planning Model EMME/3 ................................................................. 104
3.5 Street Layout .......................................................................................................... 104
3.6 Street Classifications .............................................................................................. 105
3.7 Intersection Spacing ............................................................................................... 105
3.8 Street Widths and Street Lengths .......................................................................... 105
3.9 Alignment Standards For Proposed Streets ......................................................... 106
3.10 Access Control ..................................................................................................... 107
3.11 Alleys ..................................................................................................................... 107
3.12 Pedestrian Routes ................................................................................................. 108
3.13 Sidewalk Locations ............................................................................................... 108
3.14 Walkway Locations ................................................................. 109
3.15 Bicycle Routes ................................................................. 109
3.16 Bus Routes ................................................................. 110

4.0 Site Design Requirements

4.1 Scope ................................................................................. 110
4.2 Site Impact Traffic Studies .................................................... 110
4.3 Driveways/Commercial Crossings ........................................... 111
4.4 Clear Throat Distances at Driveways ........................................ 113
4.5 Driveway Grades ............................................................. 113

5.0 Roadway Design Requirements

5.1 Design Speed ................................................................. 113
5.2 Survey Monuments ............................................................ 113
5.3 Geometric Design Standards ................................................ 114
5.4 Alignment Standards .......................................................... 116
5.5 Pavement Structures .......................................................... 116
5.6 Temporary Roads and Turnarounds ........................................ 116
5.7 Alleys .............................................................................. 117
5.8 Cul de Sacs ........................................................................ 118
5.9 Centre Medians ................................................................. 118
5.10 Curbs and Gutters .............................................................. 118
5.11 Sidewalk Widths ................................................................. 119
5.12 Pedestrian Ramps .............................................................. 119
5.13 Laybys ........................................................................... 120
5.14 Mail Boxes ...................................................................... 120
5.15 Bicycle Routes ............................................................... 120

6.0 Traffic Design Requirements

6.1 Traffic and Parking Control Devices ......................................... 121
6.2 Street Name Signs ............................................................... 121
6.3 Street Suffix Policy ............................................................... 121
6.4 Traffic Control Requirements ................................................ 123
6.5 Pedestrian Crosswalk Signs ............................................... 125
6.6 Playground Signs ............................................................... 125
6.7 School Zone Signs .............................................................. 125
6.8 Parking Restrictions ............................................................ 125
6.9 Subdivision Signs ............................................................... 126
6.10 Signals ........................................................................... 126
6.11 Pavement Markings ............................................................ 127
6.12 Traffic Accommodation During Construction ....................... 127
6.13 Security Fence ................................................................. 127
6.14 Traffic Control Fence ........................................................ 128
6.15 Street Lighting

7.0 Other Design Requirements

7.1 Traffic Calming
7.2 Landscaping on Medians
7.3 Noise Attenuation
7.4 Landscape Berms

Tables

Table 3.8.1 Right-of-Way Requirements
Table 3.13.1 Sidewalk Provision Guidelines
Table 5.3.1 Summary of Geometric Design Standards
Table 5.4.3 Minimum Stopping Sight Distance Requirements
Table 6.3.1 Street Suffix by Road Classification
Table 6.4.1 Traffic Control Requirements

Charts

N/A

Figures

Figure 4.3.6 Driveway Located at Tee Intersection
Figure 4.3.7 Offset Driveways at Tee Intersection
Figure 5.12.1 Pedestrian Ramp Locations
1.0 GENERAL

1.1 Requirements

.1 Previous Sections of the Development Standards Manual (DSM) outline the planning process and the financial responsibility of the City and Developer. This Section provides design guidelines for use by the developers when designing any aspect of the transportation system. The Transportation Design Sections 1.0 and 2.0 refer to all stages of development. Transportation Design Section 3.0 refers to the requirements for development proposals such as concept plan, subdivision, discretionary use and zoning amendment applications. All subsequent sections refer to design requirements for implementation of approved developments such as subdivision servicing and building permits.

1.2 Responsibility

.1 Previous sections outline the responsibility of the City and of developers in general. In terms of transportation functions, the City is responsible for the following functions:

(a) Design/construction of all arterial, expressways and freeways including legal boundaries, curbs, walks, pavement, street lights, traffic control devices, pavement markings, culverts, drainage features, and pedestrian protection devices;

(b) Preparation of Sector Road Network, the Regina Road Network Plan, Street Classification Map, Bicycle Route Plan, and Bus Route Plan;

(c) Coordination of requests for all on-street construction requiring closures or restrictions of public streets, alleys, or sidewalk;

(d) Construction of survey monuments;

(e) Preparation and ongoing maintenance of current design/construction standard documents and bylaws; and

(f) Projections of traffic for arterial, expressway and freeway streets.

.2 In terms of transportation functions, the developer is responsible for the following functions:

(a) Preparation or amendment of a Concept Plan Transportation Study when proposing a new subdivision or changing the nature of an approved plan;

(b) Preparation or amendment of a Site Impact Traffic Study for specific development sites where required by the General Manager of Planning and Development;

(c) Traffic projections to quantify effect of development;

(d) Design/construct all collector and local roadways including street layout and design of curbs, walks, pavement, street lights, traffic control devices, pavement markings and pedestrian protection;
(e) Design/construction of all necessary noise, vehicle or pedestrian control fences;

(f) Meet or exceed all City design/construction standards and comply with all bylaws; and

(g) Comply with the transportation plan and road network plan as outlined in the appropriate sector road network study.

1.3 Design References

.1 All aspects of road design and road construction, such as underground work, structure, traffic, and parking controls shall be carried out in accordance with the bylaws, policies and specifications, and guidelines listed in the following subsections.

.2 The General Manager of Planning and Development shall make the final decision regarding the design of non-conforming work or work where standards or specifications do not apply.

1.4 City Bylaws

.1 All design work must be done to comply with the following City bylaws:

(a) Traffic Bylaw No. 9900 (Traffic Bylaw);

(b) Regina Zoning Bylaw No. 9250 (Zoning Bylaw);

(c) Subdivision Bylaw No. 7748 (Subdivision Bylaw); and

(d) Building Bylaw No. 2003-7 (Building Bylaw).

1.5 City Approved Policy, Guidelines and Specifications

.1 All design work must be done to comply with the following policies and specifications, as listed below or the most recent version if a newer update is available:

(a) Regina Official Community Plan [Regina Development Plan Bylaw No. 7877] (Official Community Plan);

(b) Standard Construction Specifications Manual, 2008;

(c) Transportation Strategy: Meeting Challenges of the Future, 1994 (Transportation Strategy);

(d) The Bikeway Study, 1994;

(e) Regina Noise Attenuation Policy, 1990;

(f) Temporary Traffic Control Manual, 2004;
(g) Roadway Fencing Policy, 1989;
(h) Pavement Marking Standards;
(i) Traffic Control Warrant Policies;
(j) Temporary New Subdivision Signing on Public Right of Way Guidelines;
(k) Site Impact Traffic Study Guidelines, 2009;
(l) Street Name Signing Policy, (reproduced in Subsection 6.3);
(m) Regina Road Network Plan, 2007.

1.6 Guidelines and Codes

.1 The design of all transportation infrastructures shall meet the Transportation Association of Canada (TAC) guidelines and standards and other standards and codes as listed below or the most recent version if a newer update is available:

(a) Geometric Design Guide for Canadian Roads, TAC;
(b) Manual of Uniform Traffic Control Devices for Canada, TAC;
(c) Turning Vehicle Templates, 1993, TAC;
(d) Trip Generation, Institute of Transportation Engineers (ITE);
(e) Canadian Guide to Promoting Sustainable Transportation Through Site Design, TAC;
(f) Canadian Traffic Signal Warrant Matrix Procedure, 2005, TAC;
(g) Canadian Guide to Traffic Calming, 1998, TAC;
(h) Bikeway Traffic Control Guidelines for Canada, 1998, TAC; and

2.0 FUNCTIONAL DEFINITIONS

2.1 Scope

.1 The definitions listed below are functional definitions for the purpose of this manual and are not intended to supersede the official definitions in Section 2 of the Zoning Bylaw nor to be used for pavement design.

2.2 Right of Way

.1 The area of land acquired for or devoted to the provision of a road.
2.3 Street

.1 "Street" includes the part of every highway or public road that exists or is proposed for use by vehicles.

2.4 Freeway

.1 A Street that provides unimpeded traffic flow at high speeds. All access points are grade separated. Direct access to abutting properties is not permitted.

2.5 Expressway

.1 A Street that provides for relatively unimpeded traffic flow at high speeds. Intersections are at-grade and signalized. Direct access to abutting properties is not permitted.

2.6 Major Arterial

.1 A Street that carries major traffic flows between major traffic generators and communities. Residential frontage is not allowed. Direct access is not desirable and median openings are not permitted except at intersections. Parking is not permitted on major arterial streets.

2.7 Minor Arterial

.1 Divided or undivided street that carries major traffic flows between major traffic generators and communities. Direct access and parking lanes may or may not be permitted. Intersections are widely spaced. Residential frontage is not desirable.

2.8 Collector Street

.1 A Street designed to intercept, collect, and distribute traffic between local and arterial streets with direct access to abutting properties permitted.

2.9 Local Street

.1 A Street designed primarily to provide access to abutting property.

2.10 Industrial Street

.1 A Street designed primarily to provide access to abutting industrial property.

2.11 Alley

.1 A Street intended to provide vehicular access to side or rear of properties.
2.12 Cul-de-sac
   .1 Local dead-end streets with one end open to traffic and with a turnaround at the other end.

2.13 Service Street
   .1 A Street adjacent to a highway, freeway, expressway or major arterial, providing direct access to abutting properties.

2.14 Temporary Road
   .1 A Street to provide temporary access to a development until the permanent street system is complete.

2.15 Private Street
   .1 A Street constructed on private property that has similar features to a public street.

2.16 Greenway
   .1 Primarily, a Greenway is a linear connector that ties open space components together to form a continuous system. A Greenway allows for extended, safe and unimpeded walking and cycling (and other forms of non-motorized transport). Further information can be found in Section 12 of the DSM, Subsection 3.3.

3.0 SUBDIVISION DESIGN REQUIREMENTS

3.1 Scope
   .1 This section refers to the requirements for more substantial development proposals, including concept plans, subdivision, discretionary use and zoning amendment applications. The street layout in the Concept Plan is important for developing a good transportation system in a development area. Development proposals must show enough detail to ensure the developer is aware and working toward meeting all City of Regina standards before the detail design component is started.

3.2 Transportation Strategy
   .1 In March, 1994 City Council approved the Transportation Strategy as City policy, which established the long-term goal for the City's transportation system. All developments shall try to achieve the objectives of the Transportation Strategy, which are listed below:
.2 Goal - Promote a sustainable transportation system that is safe, affordable, efficient, and environmentally responsible.

(a) Objective 1: Encourage greater use of alternate forms of transportation;
(b) Objective 2: Reduce the number of single occupant vehicles travelling during peak times;
(c) Objective 3: Reduce the need to widen or build new roads;
(d) Objective 4: Provide for safe movement of people and goods throughout the city;
(e) Objective 5: Encourage vehicles to travel on arterial and collector streets to minimize through traffic on local streets;
(f) Objective 6: Promote land use that supports a sustainable transportation system; and
(g) Objective 7: Reduce the amount of energy consumed by transportation.

3.3 Regina Road Network Plan

.1 The Regina Road Network Plan shows the location of existing and proposed collector and higher classification streets. The general layout of collectors and arterials is a grid pattern. Local street layout is designed by developers and approved by the City if it is complementary to the Regina Road Network Plan and it meets the criteria discussed in this Manual.

3.4 Transportation Planning Model EMME/3

.1 The City of Regina uses the modeling software EMME 3 to forecast trip generation and distribution on collectors and higher classifications. Use of the model is generally applicable for larger developments. The developer should discuss applicability with the City to determine whether EMME 3 should be used to estimate the impact of a development on the transportation system.

3.5 Street Layout

.1 Access to Transit: Street layouts should be designed to facilitate direct transit routes and good access to the routes by local residents and businesses. Local street design should be direct, avoid backtracking and be oriented towards bus stop locations. The shortest walking distance along a road is preferred over a pedestrian walkway. Cul-de-Sacs should be perpendicular to transit routes. Ninety percent (90%) of all the residences shall be located within 365 m walking distance (approximately a 5 minute walk) of a transit route. Higher density residential development and commercial development should be located along transit corridors.
.2 Curves: Care should be taken in designing a street’s horizontal alignment. Curves near school entrances or pedestrian crossings should be avoided in order to ensure good sight distances. In order to reduce the potential for run-off-the-road collisions, traffic calming features should be included when a curve follows a long segment of straight road.

.3 Walkability: Street layouts and pedestrian facilities shall be designed to facilitate good pedestrian access to neighbourhood facilities including: parks, multi-use pathways, playgrounds, community centers, and schools. The shortest distance along a road is preferred over a pedestrian pathway. Residences located within a 75m radius of neighbourhood facilities should have no more than a 365m walking distance (approximately a 5 minute walk) to the given facility.

3.6 Street Classifications

.1 Street classifications of proposed and existing streets must be shown in development proposals in order that road right-of-way requirements can be determined. Street classifications should be based on the TAC guidelines.

3.7 Intersection Spacing

.1 The Geometric Design Guide for Canadian Roads by TAC presents the desired spacing between intersections. All proposed designs should comply with these standards in cases when City standards do not apply.

.2 The Subdivision Bylaw prohibits streets with jogs or centerline offsets of less than 45 m. The centerline of two intersecting streets of different widths must be aligned.

3.8 Street Widths and Street Lengths

.1 Street classification and the corresponding right-of-way width must be shown on the Concept Plan. The Subdivision Bylaw lists the minimum right-of-way widths required for each street classification. Traffic widths and cross sections are shown on drawing R-2 of the Standard Construction Specifications Manual. The requirements of these two documents are summarized in Table 3.8.1.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Right-of-Way Width</th>
<th>Traffic Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>15.0 m</td>
<td>8.7 m</td>
</tr>
<tr>
<td></td>
<td>18.0 m (bus route)</td>
<td>11.0 m</td>
</tr>
<tr>
<td>Collector</td>
<td>22.0 m</td>
<td>13.4 m</td>
</tr>
<tr>
<td></td>
<td>22.0 m</td>
<td>14.8 m</td>
</tr>
<tr>
<td>Industrial</td>
<td>24.0 m</td>
<td>13.4 m</td>
</tr>
<tr>
<td>Arterial</td>
<td>Four-Lane Undivided</td>
<td>13.4 m</td>
</tr>
<tr>
<td></td>
<td>Four-Lane Divided</td>
<td>2 x 7.9 m</td>
</tr>
</tbody>
</table>
Six-Lane Divided | 30.0 m | 2 x 11.0 m
---|---|---
Add Greenway | +3.1 m to above right-of-way widths |
Add Bike Path | +3.1 m to above right-of-way widths |

1. Requires a no parking sign to be installed on one side of the road. See item (2).
2. Minimum allowable traffic width for parking on both sides of the road.
3. Provides two 3.7 m lanes and two 3.0 m lanes. Can be reduced to 8.0 m traffic width.
4. Provides four 3.7 m lanes.

.2 The *National Fire Code*, Section 2.5 requires access routes for fire response to have a clear width of not less than 6.0 m. For traffic widths less than 11.0 m but greater than 8.7m, the developer is responsible for installing “No Parking” signs on one side of the road. For traffic widths less than 8.7 m, “No Parking” signs are required for both sides of the road. The distance between the signs shall be no greater than 30 m. Fire access to a site must also comply with the 6.0 m clearance requirement.

.3 For collector roads that have no direct residential frontage and are fenced, the traffic width can typically be reduced to 8.0 m between intersections as long as sufficient turn bays are provided in addition to the through lane. The developer must install “No Parking” signs on both sides of the street. Alternative cross-sections will be considered on a case by case basis, at the discretion of the General Manager of Planning and Development.

.4 The *Subdivision Bylaw* states that street lengths measured between successive intersections should not be excessive. Cul-de-sacs shall not exceed 120 m. Continuous residential street frontage shall not exceed 365 m. Refer to the *Subdivision Bylaw* for more details.

### 3.9 Alignment Standards for Proposed Streets

1. Subsection 5.4 of this section discusses the alignment standards for collector and higher classification streets. The layout of a proposed road must be checked at the planning stage to ensure alignment standards can be physically met at a later date when the detailed design of a road is completed. Intersections at the inside of curves are undesirable and should be avoided whenever possible. If a proposed development will cause a sight distance deficiency for the adjacent landowner, the sight distance problem must be corrected before a subdivision is approved. An example is the addition of an alley next to an existing residential house.
3.10 Access Control

.1 Access control is necessary on arterial and higher classification streets and near intersections to ensure safe and efficient traffic flow is maintained. Chapter 4 of the Zoning Bylaw controls the location and size of driveways. Access from the front or side of a lot is controlled by installing raised center medians or pavement markings on the street. Access for the side and rear of lots is controlled by alleys.

.2 Driveways are not permitted along highways, freeways or expressways.

.3 Driveways and median openings on major arterial streets will be permitted at locations that meet the requirements of the Zoning Bylaw, including the approval of the General Manager of Planning and Development.

.4 The driveway crossing regulations in the Zoning Bylaw require a driveway to be a minimum of 7.5 m from a street intersection as measured along the property line from the intersection of the two property lines. The 7.5 m requirement represents the minimum separation and is intended for low volume locations.

.5 For medium to high volume locations driveways that are within 30 m of an intersection may have an adverse impact on the adjacent street's traffic flow and movements to and from the driveway. The following options could be considered to prevent a traffic flow problem:

(a) Recommend the subdivision request be denied;
(b) Require the builder to construct a raised center median; or
(c) Require the driveways be placed farther from the intersection.

.6 The centerline of driveways should align with median openings and the centerlines of other driveways on the opposite side of the street.

.7 Under unavoidable circumstances, the City may consider a driveway within 7.5 m of the intersection of two local streets. The driveway for the corner lot must be placed as far as possible from the intersection and cannot be within 2 m of the back of curb.

3.11 Alleys

.1 The Subdivision Bylaw, Subsection 17 states that alleys need not be provided, except where in the opinion of City Council or Development Officer rear access to lots and parcels is required. The City has been discouraging the use of alleys in residential areas in an effort to reduce maintenance costs with the following exceptions:

(a) As a buffer between commercial and residential land;
(b) When commercial property fronts onto an arterial street with a raised center
center or a double yellow center striping, to serve as access for the
commercial property; or
(c) For residential subdivision with closely spaced lots;
(d) To accommodate rear lot access to lots fronting on collector roads.

.2 As per the Subdivision Bylaw, where alleys are required and they abut multiple
housing, commercial or industrial parcels, the alleys shall be 9 m in width. In all
other cases alleys should be 6 m in width. The bylaw requires a 3 m corner cut-
off where two alleys intersect.

3.12 Pedestrian Routes

.1 The purpose of this guideline is to describe the requirements of pedestrian route
plans, and describes where sidewalks shall be constructed in areas of new
development.

.2 At the concept plan stage, pedestrian attractions and generators should be
identified along with neighbourhood level pedestrian routing. Progressively
increasing detail shall be provided before subdivision. Collector Street sidewalk
locations and recreational paths and walkways need to be shown in the Concept
Plan to ensure consistency for Neighbourhoods that are developed in several
stages.

.3 A pedestrian route plan shall be included with all new concept plans and all
subdivision proposals with the following considerations:

(a) Sidewalk locations, walkways, recreational paths, bus routes and major
pedestrian attractions such as parks, local commercial land, schools and
churches will be included;

(b) Personal security and pedestrian safety are considerations in locating and
designing pedestrian routes;

(c) Visibility, lighting, snow removal eligibility, encouraging pedestrians to cross
at intersections are key factors in providing a safe walking environment; and

(d) Pedestrian route plans should show connections to existing neighbourhoods
around the new community.

3.13 Sidewalk Locations

.1 The Sidewalk Guidelines in Table 3.13.1 list the amount of sidewalk as a
function of the type of street. These guidelines shall be used except if a
pedestrian route plan demonstrates a need for more or fewer sidewalks. There
should be an increase in the amount of sidewalks in high or medium density
neighbourhoods above the guidelines provided below as demonstrated by a pedestrian route plan.

Table 3.13.1 Sidewalk Provision Guidelines

<table>
<thead>
<tr>
<th>Type of Street</th>
<th>Amount of Sidewalk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freeway &amp; Expressway</td>
<td>No Sidewalk</td>
</tr>
<tr>
<td>Arterial</td>
<td>Both Sides</td>
</tr>
<tr>
<td>Residential &amp; Commercial Collector</td>
<td>Both Sides</td>
</tr>
<tr>
<td>Industrial Collector</td>
<td>One Side &lt;sup&gt;(1)&lt;/sup&gt;</td>
</tr>
<tr>
<td>Bus Route</td>
<td>Both Sides</td>
</tr>
<tr>
<td>Local Street &gt;240 m long</td>
<td>One Side</td>
</tr>
<tr>
<td>Local Street &lt;240 m long,</td>
<td>No Sidewalk</td>
</tr>
<tr>
<td>Cul-de-Sac</td>
<td>No Sidewalk</td>
</tr>
</tbody>
</table>

<sup>(1)</sup> Unless directed by the General Manager of Planning and Development.

.2 The City's Transportation Strategy encourages building only what the City can afford to maintain and it encourages an increase in walking. The two objectives can not be fully accomplished at the same time. The above guidelines limit the amount of sidewalk that is built without compromising the needs of pedestrians.

3.14 Walkway Locations

.1 Ideally, subdivisions should be designed in a manner that additional walkways, pedestrian routes, not adjacent to streets, are not necessary because the street layout provides for sufficient walkability. If walkways are required they shall be positioned to discourage mid-block pedestrian crossings.

.2 Walkways will only be allowed when the Pedestrian Route Plan indicates a walkway is necessary such as to meet the requirement that no residence be more than 365 m from a public transit stop or neighbourhood facility located within 75 m of a residency. Pedestrians crossing mid-block, maintenance costs, snow removal costs and security are reasons that walkways are discouraged.

3.15 Bicycle Routes

.1 The City plans to incorporate several bicycle routes on existing arterial and collector streets. Bicycle routes within subdivisions are encouraged and should connect with the proposed routes on existing streets. Bicycle routes should be designed to conform with the Geometric Design Guide for Canadian Roads, TAC.
3.16 Bus Routes

.1 Bus routes are planned in the concept plan stage, but are not usually implemented until a large portion of a subdivision has been built.

4.0 SITE DESIGN REQUIREMENTS

4.1 Scope

.1 This section refers to the requirements for development proposals pertaining to specific sites and projects, including discretionary use, zoning amendment, and building permit applications. Site design standards are important in ensuring that developments will not compromise the safety or efficiency of the transportation system.

4.2 Site Impact Traffic Studies (SITS)

.1 A Site Impact Traffic Study (SITS) should be completed when and in accordance with the Site Impact Traffic Study Guidelines. Some developments may require additional analyses at the request of the City. Similarly, some analyses may not be required for some developments. When requested, the City will work with applicants to develop the requirements for a specific SITS.

.2 The SITS will provide the following information:

(a) Determine how a proposed development will impact the safety and capacity of the road network, as well as impacts on parking and transit;

(b) Identify what modifications may be required of the developer in order to minimize adverse impacts on safety, traffic flow, transit, or parking; or

(c) Determine how a proposed road impacts existing Neighbourhoods.

.3 If a development proposal will result in traffic safety or capacity problems, the City may require:

(a) The proposal be changed; or

(b) Any special requirements for road improvements or deficiencies be identified at this stage to identify financial responsibility; and

(i) The developer to fund roadway improvements or deficiencies as identified.
.4 All traffic studies must be authorized by a registered member of the Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS) with Permission to Consult in transportation engineering.

.5 The Zoning Bylaw states that every application for a Zoning amendment shall be accompanied by a SITS outlining the traffic, parking, safety and public transit impacts in terms of daily and peak hour trip generation and assignments.

.6 The Zoning Bylaw also requires the site plans for Discretionary Use Applications to show the traffic circulation patterns including vehicle entry and exit points and points of major pedestrian access to proposed buildings. Discretionary Use applications will be reviewed for potential adverse impacts on traffic and parking.

.7 The Regina Planning Commission has requested any development report requiring the Commission's approval show the increase in traffic that will result from the development as:

(a) For single-family, detached dwellings, the City will assume a trip generation rate of ten vehicle trips per day per household unit; and

(b) For all other land uses, the developer shall provide the trip generation estimates in accordance with the Institute of Transportation Engineers trip generation rates.

4.3 Driveways/Commercial Crossings

.1 Driveway crossing regulations are in the Zoning Bylaw. Refer to that section for geometric design details. Structural requirements and dimensions are specified in the Standard Construction Specifications Manual.

.2 A culvert is required where a driveway crosses a ditch or a drainage course. They are to be sized consistent with the function and capacity of the ditch or drainage course. Design must be approved by the General Manager of Planning and Development.

.3 Driveways should be avoided on horizontal and vertical curves or at locations where the road super-elevation exceeds 4%.

.4 The developer is responsible for the cost of:

(a) Closing any existing driveways not required for the new development;
(b) Any new driveways, walks, curbs, or paving required adjacent to site;
(c) Any legal surveying;
(d) Any utility upgrading, replacing, adjusting, modifying or relocating; and
(e) Restoring City facilities damaged during construction.
.5 The dimensions of all existing and proposed driveways that cross barrier curbing must be shown on the sidewalk plan of the engineering drawings.

.6 If a driveway is required at a T-Intersection, it is recommended that the centerline of the driveway is aligned with the centerline of the intersection as shown in Figure 4.3.6. Driveways will not be allowed at T-Intersections if one of the intersecting roadways is an arterial roadway.

Figure 4.3.6 Driveway Located at a Tee Intersection of a collector or local roadway

.7 If alignment of the driveway centerline is not possible and the driveway must be offset, it is recommended that the driveway be offset from the centerline the T-Intersection by a minimum of 25 m, as illustrated in Figure 4.3.7

Figure 4.3.7 Offset Driveways at Tee Intersection
4.4 Clear Throat Distance at Driveways

.1 Clear throat distance or setback distance is defined as the distance between the end of a driveway’s curb return radii and the first point of conflict on-site, as shown in Figure 3.2.5.2 of the Geometric Design Guidelines for Canadian Roads, TAC.

.2 The first point of conflict may be a traffic sign, pedestrian crossing, parking ticket dispenser, a parking stall, or other point where a queue may develop. The minimum throat distance requirements are provided in Table 3.2.9.3 of the Geometric Design Guidelines for Canadian Roads, TAC.

4.5 Driveway Grades

.1 Desirable driveway grades vary with road classification. Geometric Design Guidelines for Canadian Roads, TAC provides recommended guidelines for driveway grades. Grades for parkade driveways are detailed in the Zoning Bylaw.

.2 City of Regina Standard Construction Specifications Manual for driveways are applicable for lower volume commercial driveways. For high volume driveways a design shall be submitted, showing the cross slope of the roadway, the sidewalk cross slope and the cross slope back of sidewalk.

5.0 ROADWAY DESIGN REQUIREMENTS

5.1 Design Speed

.1 Design speed of all roadways will be in accordance with the practice outlined in the Geometric Design Guide for Canadian Roads, TAC. The posted speed limit is generally:

(a) 50 kilometres per hour for arterials and collectors;

(b) 70 kilometres per hour for Expressways; unless

(c) Otherwise specified by the Planning and Development Division.

5.2 Survey Monuments

.1 The developer is responsible to maintain any survey monument through to the completion of the work. Any monuments disturbed by the developer or its agents shall be reinstated at the cost of the developer.
.2 Should disruption of a monument be necessary to accommodate any work, the developer shall be responsible for establishing suitable offsets for subsequent reinstatement.

.3 Should any of the monuments fall within any new surfaces being constructed or require reinstatement, a frame and cover, satisfactory to the General Manager of Planning and Development, shall be installed by the developer at its cost.

5.3 Geometric Design Standards

.1 Road geometric design standards are in Table 5.3.1. Refer to the Construction Specifications Manual or Geometric Design Guide for Canadian Roads, TAC for any design elements not specified in this manual.
Table 5.3.1  Summary of Geometric Design Standards

<table>
<thead>
<tr>
<th>Classification</th>
<th>Operating Speed</th>
<th>Cross-Slope</th>
<th>Super-Elevation</th>
<th>Minimum Curve Lengths</th>
<th>Maximum Gradient</th>
<th>Minimum Gradient</th>
<th>Minimum Tangent Lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>8.7 m T.W. Local Residential</td>
<td>50</td>
<td>2.5%</td>
<td>TAC</td>
<td>60 m</td>
<td>6%</td>
<td>0.6%</td>
</tr>
<tr>
<td></td>
<td>11.0 m T.W. Local</td>
<td>50</td>
<td>2.5%</td>
<td>TAC</td>
<td>60 m</td>
<td>6%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Collector</td>
<td>13.4 m T.W. Collector</td>
<td>50</td>
<td>2.5%</td>
<td>TAC</td>
<td>60 m</td>
<td>5%</td>
<td>0.6%</td>
</tr>
<tr>
<td></td>
<td>14.8 m T.W. Collector</td>
<td>50</td>
<td>2.5%</td>
<td>TAC</td>
<td>60 m</td>
<td>5%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Arterial</td>
<td>13.4 m T.W. Four-Lane Undivided Arterial</td>
<td>60</td>
<td>2.5%</td>
<td>TAC</td>
<td>TAC</td>
<td>4%</td>
<td>0.6%</td>
</tr>
<tr>
<td></td>
<td>2 x 7.9 m T.W. Four-Lane Divided Arterial</td>
<td>70</td>
<td>2.5%</td>
<td>TAC</td>
<td>TAC</td>
<td>4%</td>
<td>0.6%</td>
</tr>
<tr>
<td></td>
<td>2 x 11.0 m T.W. Six-Lane Divided Arterial</td>
<td>70</td>
<td>2.5%</td>
<td>TAC</td>
<td>TAC</td>
<td>4%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Industrial</td>
<td>13.4 M T.W. Industrial</td>
<td>50</td>
<td>2.5%</td>
<td>TAC</td>
<td>TAC</td>
<td>4%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Alleys</td>
<td>Residential</td>
<td>N/A</td>
<td>2.0%</td>
<td>TAC</td>
<td>N/A</td>
<td>6%</td>
<td>0.6%</td>
</tr>
<tr>
<td></td>
<td>Industrial</td>
<td>N/A</td>
<td>2.0%</td>
<td>N/A</td>
<td>N/A</td>
<td>6%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Rural Roads</td>
<td>Two-Lane Rural Roadway</td>
<td>60</td>
<td>3.0%</td>
<td>TAC</td>
<td>TAC B.3.1.4b</td>
<td>6%</td>
<td>N/A</td>
</tr>
<tr>
<td>Temporary Roads</td>
<td>Access/Detour Road</td>
<td>N/A</td>
<td>3.0%</td>
<td>TAC</td>
<td>60 m</td>
<td>8%</td>
<td>N/A</td>
</tr>
</tbody>
</table>
5.4 Alignment Standards

.1 Collector and higher classification streets shall be designed to meet or exceed the alignment standards of the *Geometric Design Guide for Canadian Roads* TAC such as radius, stopping sight distance, intersection angle and intersection sight distance.

.2 Minimum stopping sight distance shall be provided for all collector and arterial road segments. The criteria for measuring sight distance on horizontal curves are that the driver's eye and the object to be seen are in the center of the inside lane. A longer sight distance called Decision Sight Distance shall be provided for all streets with playground or school frontage or any anticipated hazard.

.3 The horizontal and vertical alignment must provide at least minimum stopping sight distance for the design speed at all points. This includes visibility at intersections and pedestrian crossings, as well as around curves and roadside development. The required stopping distance for a given design speed is as follows:

Table 5.4.3 Minimum Stopping Sight Distance Requirements

<table>
<thead>
<tr>
<th>Posted Speed Limit (km/hr)</th>
<th>Design Speed (km/hr)</th>
<th>Minimum Stopping Sight Distance (m)</th>
<th>Desirable Stopping Sight Distance (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 or 50</td>
<td>50</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>50 or 60</td>
<td>60</td>
<td>75</td>
<td>85</td>
</tr>
<tr>
<td>60</td>
<td>70</td>
<td>95</td>
<td>110</td>
</tr>
<tr>
<td>70</td>
<td>80</td>
<td>115</td>
<td>140</td>
</tr>
<tr>
<td>80</td>
<td>90</td>
<td>130</td>
<td>170</td>
</tr>
<tr>
<td>90</td>
<td>100</td>
<td>160</td>
<td>210</td>
</tr>
</tbody>
</table>

.4 Vertical alignments with grade differential greater than 1% will require a vertical curve on roadways with a design speed of 70 km/hr or less. For roadways with a design speed of greater than 70 km/hr, vertical curves are required where the grade differential is greater than 0.5%.

5.5 Pavement Structures

.1 Pavement structures shall be constructed in accordance with the *Standard Construction Specifications Manual*.

5.6 Temporary Roads and Turnarounds

.1 When it has been determined that a temporary road is required in a new subdivision to provide an alternate access route for the residents, Fire
and/or Police Departments, the road shall be built in accordance to plans approved by the General Manager of Planning and Development. The Standard Construction Specifications Manual provides for a minimum structure. The developer shall design the road to carry the expected traffic and submit the design along with the calculations for approval to the General Manager of Planning and Development.

.2 When the temporary road will be used by the residents of the developer's proposed subdivision, it shall be constructed to the completed paving stage of a roadway. A temporary road constructed through or flanking an R-1 lot shall have screen fencing provided to buffer the adjacent lot.

.3 When the temporary road will be used by construction traffic only, and will be taken out of service before residential occupancy of the subdivision the road shall be constructed to the interim gravel stage with no curbs and gutters. When the temporary road crosses the curbs, gutters and sidewalks of the adjoining roads, provision shall be made to permit regular vehicle movement across the curbs.

.4 Where a road terminates in mid-block and has no provision for egress, a temporary paved turnaround shall be constructed. It shall be constructed to the approval of the General Manager of Planning and Development. The temporary paved turnaround shall be designed to permit expected traffic (minimum of a single unit truck) to perform a 180° turn manoeuvre in one operation. A temporary paved turnaround is not required where the termination is easily visible from the intersection, a distance usually less than 15 m.

5.7 Alleys

.1 The City of Regina has developed alley classifications including:

(a) Residential alleys primarily serve cars and weekly residential garbage pick-up; and

(b) Industrial alleys are alleys adjacent non-residential land use and serve a significant portion of delivery vehicles.

.2 The pavement standard for each type is provided in the Standard Construction Specifications Manual.

.3 The alley shall be designed:

(a) Centered on its right-of-way wherever possible; and
(b) With vertical alignment in conjunction with the grades on the adjacent roadways.

5.8 Cul de Sac
d

.1 The minimum requirements for cul de sacs are in Standard Construction Specifications Manual. Islands in cul-de-sacs are to be avoided because they cause manoeuvring problems for emergency vehicles. However, where there is a need for islands, they shall be designed to facilitate minimum turning movements of emergency vehicles plus sufficient width for parallel parking along the outside curb.

5.9 Centre Medians

.1 Medians are roadway reserves used as a means to separate and control lanes carrying traffic in opposite directions. Refer to Section 12 of the DSM for landscape design criteria for medians.

.2 Medians adjacent to intersections are encouraged on streets where driveways are too close to arterial and some collector streets. The median on both arterial streets should extend for a minimum length of 30 m.

.3 Medians may be necessary on some collector streets intersecting with arterial streets, such as:

(a) Major entrances (gates) to a large residential area, or
(b) Commercial frontage on the collector.

.4 Residential collectors and local streets should not be designed with medians.

5.10 Curbs and Gutters

.1 Curbs and gutters shall be constructed on all urban streets, except on roads with rural cross-section, alleys and freeways.

.2 The type of curb constructed will vary by land use, with:

(a) Rolled curbs normally constructed for all locations with single family residential frontage so that driveway crossings are not required; or

(b) Barrier curbs used for any other type of land use.

.3 Unless otherwise approved, intersection curb radii will be as follows:
5.11 Sidewalk Widths

.1 Sidewalks on local streets and cul-de-sacs shall be 1.2m wide. Sidewalks on collector and arterial streets shall be 1.5 m wide except where a pedestrian route plan justifies departure from the standard. Refer to section 3.14 for sidewalk provision guidelines.

5.12 Pedestrian Ramps

.1 Pedestrian ramps shall be installed at all intersection corners where a sidewalk is located.

.2 For intersections with 12 m radii curbs, two pedestrian ramps shall be installed such that pedestrians are directed perpendicularly across the street.

.3 On the continuous side of T-intersections (the side of the street with no corners), pedestrian ramps shall be installed as shown in Figure 5.12.1:

(a) On both sides of the intersection perpendicular to one of the corners if deemed necessary on the pedestrian route plan; or
(b) If there is no sidewalk on one side of the non-continuous leg of a T-intersection, the pedestrian ramp can be eliminated on the continuous leg opposite that side.

.4 Specific location of recreational paths and walkways must be indicated at time of subdivision to ensure the appropriate location of pedestrian ramps is chosen in the design stage.
5.13 **Laybys**

1. Layby can be constructed to provide an unloading area, normally in front of a building where "on-street" unloading/parking is not readily available.

2. The design and use of a layby must be approved by the General Manager of Planning and Development prior to construction taking place.

5.14 **Mail Boxes**

1. Mail Box locations must be shown on the sidewalk plan of the detailed design drawings. The developer should contact the Canada Post Corporation to establish mailbox locations.

2. The location chosen is usually adjacent to flankage or a park. Mailbox locations must not interfere with sightline standards or normal traffic flow, and should be placed on the far side of an intersection.

5.15 **Bicycle Routes**

1. Bicycle routes may be designated on roads with a minimum curb lane width of 3.6m. This will allow a cyclist to pass a parked car without encroaching into the traffic lane.
.2 For new recreational pathways refer to Section 12 of the DSM and the City of Regina The Bikeway Study (Approved in principle by City Council June, 1994).

.3 All bicycle routes should have identification and information in accordance with the Bikeway Traffic Control Guidelines for Canada.

.4 Manhole covers and sewer grates on the bicycle route or pathway shall be flush with the surface. Grate design shall prevent bicycle tires from falling into the space in the grates.

6.0 TRAFFIC DESIGN REQUIREMENTS

6.1 Traffic and Parking Control Devices

.1 All traffic and parking control devices, except traffic signals, required for a proposed development are funded by the Developer through the Servicing Agreement.

.2 The City arranges installation of the signs when construction of the road is complete. All signs shall conform to the Manual of Uniform Traffic Control Devices for Canada, TAC.

6.2 Street Name Signs

.1 Street name signs are a requirement at all intersections and where private roads intersect with City streets. The Developer is responsible for funding street name signs where two private roads intersect. The signs will be installed by the City.

.2 Arterials streets are named by the City. The developer may request a particular name for these streets. Collector and local streets are named by the Developer from a list of approved street names.

.3 Streets may not change names when they pass from one subdivision to the next. Discontinuous streets should not have the same street name; and street names that sound similar to other existing or proposed streets should be avoided.

.4 A copy of the City's Street Name Signing Policy (subsections 6.2 & 6.3) and a list of currently approved street names are available from the General Manager of Planning and Development.

6.3 Street Suffix Policy

.1 Street types or suffixes are an important feature of the street naming system. It is important to apply the correct suffix to the proper street in order to:
(a) Provide a sense of familiarity with the road configuration;
(b) Enable one street name to be used for several thoroughfares;
(c) Reduce the number of street names required for any given subdivision; and
(d) Reflect the hierarchy of roadways in Regina (as presented in the definition list following).

.2 Each street type is descriptive of a particular road function or configuration. There may be several choices available for any given road configuration, but only one type will be selected for use.

.3 The following table is a list of all valid street types available in Regina according to the typical configuration for which they are appropriate. The name in full or the abbreviated version is to be applied to signage and computer database applications.

Table 6.3.1 Street Suffix by Road Classification

<table>
<thead>
<tr>
<th>Street Type</th>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Speed, Limited Access Roadways</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway</td>
<td>Hwy</td>
<td>Refers to federal or provincial designated roadways (e.g. Trans Canada Highway, Highway 11, etc.).</td>
</tr>
<tr>
<td>Expressway</td>
<td>Exp</td>
<td>Usually used for limited-access roadway</td>
</tr>
<tr>
<td>Freeway</td>
<td>Fwy</td>
<td>Usually used for limited-access roadway.</td>
</tr>
<tr>
<td>Bypass</td>
<td>Byp</td>
<td>Used for limited-access roadway. Usually used after another suffix, for example: &quot;Trans-Canada Highway Bypass&quot;)</td>
</tr>
<tr>
<td><strong>Major Streets and Collectors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avenue</td>
<td>Ave</td>
<td>Traditionally used to describe numerically named east-west roadways (e.g. 2nd Ave.). It is used for a variety of major streets, collectors or local streets. It is recommended that avenues run east-west.</td>
</tr>
<tr>
<td>Boulevard</td>
<td>Blvd</td>
<td>A wide street, often tree-lined, that is of major importance. Applied to major streets which may or may not be contained within a single subdivision area.</td>
</tr>
<tr>
<td>Drive</td>
<td>Dr.</td>
<td>Applied to major streets and collector roadways, especially scenic ones, as in or along a park</td>
</tr>
<tr>
<td>Parkway</td>
<td>Pkwy</td>
<td>Occasionally designates limited-access highways, but usually used in a way similar to boulevard.</td>
</tr>
<tr>
<td>Road</td>
<td>Rd.</td>
<td>A roadway which may change direction.</td>
</tr>
<tr>
<td>Street</td>
<td>St.</td>
<td>Traditionally used to describe north-south roadways. It is used for a variety of major streets, collectors or local streets. It is recommended that streets run north-south.</td>
</tr>
<tr>
<td><strong>Local Streets (Non cul-de-sacs)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alley</td>
<td>Aly</td>
<td>Generally, applied to narrow roadways, often private.</td>
</tr>
</tbody>
</table>
| Avenue                    | Ave          | Traditionally used to describe numerically named east-west roadways (e.g. 2nd Ave.). It is used for a variety of major streets,
collectors or local streets. It is recommended that avenues run east-west.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circle</td>
<td>A minor or major roadway which completes a loop upon itself.</td>
</tr>
<tr>
<td>Crescent</td>
<td>A curved street, especially one that opens onto the same street at each end.</td>
</tr>
<tr>
<td>Estate(s)</td>
<td>A private roadway.</td>
</tr>
<tr>
<td>Gate</td>
<td>A short street giving access to a subdivision area from a major street.</td>
</tr>
<tr>
<td>Grove</td>
<td>A minor roadway adjacent to, or embracing, an open space area or where vegetation is noticeable.</td>
</tr>
<tr>
<td>Heights</td>
<td>Generally, applied to private roadways, but also valid for other roadways, particularly those located on hills or escarpments, culs-de-sac overlooking valleys, etc.</td>
</tr>
<tr>
<td>Highlands</td>
<td>For roadways located on escarpments or lands with a noticeable slope.</td>
</tr>
<tr>
<td>Lane</td>
<td>Usually referring to a small residential street, commonly used for dead-end streets.</td>
</tr>
<tr>
<td>Loop</td>
<td>Usually for streets whose shape is that of a half-circle.</td>
</tr>
<tr>
<td>Meadows</td>
<td>A minor roadway.</td>
</tr>
<tr>
<td>Ridge</td>
<td>For roadways located on escarpments or with a view.</td>
</tr>
<tr>
<td>Road</td>
<td>A roadway which may change direction. (Also valid for major roadways).</td>
</tr>
<tr>
<td>Service Road</td>
<td>A minor road that runs alongside a main road, especially a major highway, giving access to houses, stores, offices, and other businesses.</td>
</tr>
<tr>
<td>Square</td>
<td>Generally for use in describing an open area at the meeting of streets, usually quadrilateral, planted with trees and surrounded by buildings or could be used to describe a roadway embracing an open space area or park.</td>
</tr>
<tr>
<td>Street</td>
<td>Traditionally used to describe north-south roadways. It is used for a variety of major streets, collectors or local streets. It is recommended that streets run north-south.</td>
</tr>
<tr>
<td>Walk</td>
<td>Applied to pedestrian walkways.</td>
</tr>
<tr>
<td>Way</td>
<td>A roadway which may change direction.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Local Streets (Cul-de-sacs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bay</td>
</tr>
<tr>
<td>Circle</td>
</tr>
<tr>
<td>Court</td>
</tr>
<tr>
<td>Cove</td>
</tr>
<tr>
<td>Mews</td>
</tr>
<tr>
<td>Place</td>
</tr>
<tr>
<td>Point</td>
</tr>
</tbody>
</table>

6.4 Traffic Control Requirements

.1 The type of traffic control required at an intersection is dependent on the street classification of the intersecting streets. Table 6.3.1 lists the type of
control initially required at an intersection. Refer to the Traffic Control Warrant Policies for intersections not covered in the table.

.2 On streets where right-of-way has already been established, the type of control shall be the same as the control currently provided on that street.

.3 The Developer shall submit design plans for all stop and yield signs required within new subdivisions to the Infrastructure Development Branch for approval.

Table 6.4.1 Traffic Control Requirements

<table>
<thead>
<tr>
<th>Minor Street</th>
<th>Major Street</th>
<th>Intersection Control(^{(2)})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>Local</td>
<td>None</td>
</tr>
<tr>
<td>Collector (&lt; 4000 vpd)</td>
<td>Yield</td>
<td>![Yield Sign]</td>
</tr>
<tr>
<td>Collector (&gt;= 4000 vpd)</td>
<td>Stop</td>
<td>![Stop Sign]</td>
</tr>
<tr>
<td>Arterial</td>
<td>Arterial</td>
<td>Stop (1)</td>
</tr>
<tr>
<td>Collector (&lt; 4000 vpd)</td>
<td>Collector (&gt;= 4000 vpd)</td>
<td>Stop</td>
</tr>
<tr>
<td>Collector (&gt; 4000 vpd)</td>
<td>Collector (&gt;= 4000 vpd)</td>
<td>Stop (1)</td>
</tr>
<tr>
<td>Arterial</td>
<td>Arterial</td>
<td>4x Stop (1)</td>
</tr>
</tbody>
</table>

\(^{(1)}\) Traffic signal warrants to be reviewed prior to implementing traffic control. Stop signs may be warranted as a short term measure until traffic volumes warrant traffic signals.

\(^{(2)}\) Traffic signals are warranted if there are three or more approach lanes in any direction at an intersection.
6.5 Pedestrian Crosswalk Signs

.1 The need for pedestrian crossing protection is determined based from projected traffic volumes, and predicted pedestrian movements for the first five years of the developments. Intersections near schools, churches, leisure centers, and commercial areas adjacent to residential areas are common locations that should be considered.

.2 The City's pedestrian Protection Warrant System shall be used to determine what type of pedestrian crosswalk is warranted.

.3 Although mid-block pedestrian crosswalks are strongly discouraged, they are sometimes inevitable. There are varying design criteria for mid-block crossings by road classification, such as:
   (a) Mid-block crossings on arterial streets shall not be permitted;
   (b) Mid-block crosswalks on collector streets shall have overhead crosswalk signs and painted crosswalks; and
   (c) Mid-block crosswalks on local streets shall have side-mount crosswalk signs and painted crosswalks.

.4 If a development is going to create a significant number of pedestrian movements at an existing intersection and the pedestrian protection at the location requires upgrading, the developer is responsible for the cost of upgrading the pedestrian protection at the existing intersection.

6.6 Playground Signs

.1 “Playground Ahead” and “40 km/h” advisory speed limit signs are required on streets adjacent to parks equipped with play structures or athletic fields. The signs would not be installed until the park becomes active.

.2 The signs are not required for parks that are fenced along the street side.

6.7 School Zone Signs

.1 All schools require a school zone and reduced regulatory 40 km/h speed limit signs on streets adjacent to the school.

6.8 Parking Restrictions

.1 Parking restrictions may be required in front of schools, at intersections where there are insufficient sightlines, and at adjacent mid-block pedestrian crosswalks.
6.9 Subdivision Signs

.1 Temporary subdivision signs are intended to direct motorists to or within new subdivisions. Guidelines entitled *Temporary New Subdivision Signing on Public Right of Way* control the installations of these signs.

.2 Two types of subdivision signs allowed on the road right-of-way are:

(a) Subdivision Map Sign: illustrating the layout of the streets within a subdivision and information directing the public to a particular attraction within the subdivision such as a parade of homes or a specific show home; and

(b) Subdivision Name Sign: bearing the name of the subdivision accompanied by an appropriate directional arrow.

.3 The developer may apply for a Street Use Permit or include new subdivision signs as a component of the Servicing Agreement. All costs required for the installation and removal of new subdivision signs shall be the responsibility of the developer. For details outlining all the restrictions and requirements for new subdivision signs, contact the Infrastructure Development Branch to obtain a copy of the regulations.

6.10 Signals

.1 The need for new traffic signals will be based on a warrant point calculation completed according to the *Canadian Traffic Signal Warrant Matrix Procedure* as established by the TAC.

.2 The City will determine when and where traffic signals are to be installed. In determining the location of a new signal, traffic progression must be a major consideration. The Recommended Road Network shows which intersections are proposed to have signals.

.3 Developers may apply to have signals installed in advance of the intersection meeting warrants, but they must front end the costs of the signals with the following conditions:

(a) Costs will be returned to the Developer when the signal warrants are met, provided that this occurs within ten years of installation;

(b) The City will only reimburse the original cost of the traffic signals; and

(c) Interest will not be paid.
6.11 Pavement Markings

.1 Pavement marking design shall conform to the Pavement Marking Standards, and meet minimum specifications within the Manual for Uniform Traffic Control Devices for Canada (MUTCD).

.2 Unusual circumstances may result in the need for pavement markings on roadways with a street classification of collector and/or lower, such as pedestrian crossings, non-standard intersections. The developer shall submit design plans for all pavement markings required within new subdivisions to the Infrastructure Development Branch, for approval.

6.12 Traffic Accommodation During Construction

.1 Anyone working on a road is responsible and liable for his or her actions. The Infrastructure Development Branch coordinates all street closures. Private contractors, developers, utilities, other City departments and provincial government departments must inform Infrastructure Development Branch of planned street closures.

.2 A Street Use Permit is required when construction or maintenance activities by private contractors and developers encroach on any portion of an existing street in the City.

.3 The Temporary Traffic Control Manual prescribes standards for traffic accommodation based on street classification. A copy of the manual can be obtained from the Public Works Division.

6.13 Security Fence

.1 Security Fencing should be designed to control and protect pedestrians, motorists and residents that live near or must cross major City streets or railways.

.2 The fence may be made of various materials such as metal or wood, but shall be designed to prevent smaller children from crawling over, under or through the fence.

.3 All subdivisions constructed next to an existing roadway with a posted speed limit greater than 50km/hr must be fenced.

.4 Security fencing is to be installed along roadways with a posted speed limit greater than 50km/hr and railways that are dangerous for pedestrians to cross, in accordance with the City policy on security fence.
6.14 Traffic Control Fence

.1 Traffic Control Fence shall be placed to prevent vehicle access at the following locations:

(a) Across the end of a walkway which terminates in an alley;
(b) Across the end of an alley cul-de-sac which abuts a roadway;
(c) Along the length of an alley which parallels an adjacent roadway or park area;
(d) At the end of a temporary road;
(e) Where a short cutting problem exists or potentially exists whereby vehicles access/egress a roadway by driving through ditches or side boulevards to their destination; or
(f) At a railway or pipeline right-of-way as required by the City or the railway/pipeline company.

.2 Traffic Control Fence shall be installed according to City policy on Traffic Control Fence and shall meet or exceed the specification in the Standard Construction Specification Manual. When fencing is used to physically close a street or alley, signing must be installed and approved by the Infrastructure Development Branch.

6.15 Street Lighting

.1 SaskPower operates street lights on behalf of the City. The same design and financial responsibility applies to street lights as it does for road construction. Electrical costs required to operate the lights will be borne by the City.

.2 Street lights must meet SaskPower standards and specifications. The developer is responsible for meeting the following criteria:

(a) Ensuring street light poles do not interfere with proposed driveways;
(b) If a street light is close to an intersection, the developer should try to position the pole in a place that is acceptable for erecting a stop, yield, or pedestrian crossing sign on it;
(c) Street lights shall not be located between two adjoining driveway pads; and
(d) Street light poles shall be located no closer than one meter to a driveway pad.
.3 For roads that end temporarily, a street light shall be temporarily installed at
the end to ensure the street adjacent the last developed lot has sufficient
lighting.

.4 Decorative lighting is not recommended unless the developer has designed
a system that will not increase operating costs to the City and has the
approval of SaskPower.

.5 In cases where a proposed design requires additional capital costs and
increased maintenance over and above the typical street light designs, the
additional costs will be the responsibility of the developer.

7.0 OTHER DESIGN REQUIREMENTS

7.1 Traffic Calming

.1 Traffic calming tools are an important part of any new neighbourhood.
Unlike existing neighbourhoods, it is the responsibility of the Developer
and the City to choose the appropriate traffic calming tools for the future
residents of the area.

.2 It is not practical to provide an empirical list of data that will clearly define
when traffic calming should be included in a new development. Factors to
be considered, however, include:
   (a) The size and nature of the development;
   (b) The likelihood that collector or local streets will be subjected to high
       volumes of short-cutting traffic;
   (c) The presence of geometric features that would likely encourage
       excessive speeds; and
   (d) The presence of direct residential frontage, schools, playgrounds,
       pedestrian crossings, and other speed/volume sensitivities.

For more information, refer to the Canadian Guide to Traffic Calming.

.3 The General Manager may require a Developer to install traffic calming
measures in new neighbourhoods or in existing neighbourhoods that are
impacted by the proposed development.

7.2 Landscaping on Medians

.1 Landscaping on centre medians must comply with sight line requirements
such as:
   (a) Trees should not be planted adjacent to left-lanes;
(b) No planting should occur within 10 m of an intersection or pedestrian crossing; and

(c) The use of coniferous trees at locations where they may interfere with sight lines as they mature is not permitted.

7.3 Noise Attenuation

.1 The Roadway Noise Attenuation Policy defines acceptable standards for community noise levels originating from roadway traffic standards and provides implementation strategies, standards, guidelines, and procedures. Refer to the policy for details.

.2 In the case of new residential development to determine the need for noise barriers, the following criteria will be used in noise studies:

(a) The twenty year projection of future traffic volumes,

(b) Traffic volume projections will be provided by the developer’s consultant with input from the Planning & Development Division,

(c) Vehicle speed shall be the proposed or posted speed, and

(d) Truck volumes shall comprise six percent (6%) of the total projected traffic flow, unless known by actual traffic count or by trip generation rates and land use.

.3 The developer shall be responsible for provision of noise attenuation measures to meet the City’s noise level standards for proposed development adjacent to roadways where projected traffic noise levels exceed these standards.

7.4 Landscape Berms

.1 If berms are determined to be required on divided major arterial streets or as designated in the concept plans, they shall meet the following criteria:

(a) Toe of slope set back not less than 3.0 m from back of walk, or back of curb where no walk is proposed;

(b) Height shall not exceed 2.0 m above top of curb; and

(c) Slopes shall be not less than 5H:1V.
1.0 General

1.1 Policy, Goals and Objectives ..................................................................................... 135
1.2 Types of Wastewater .................................................................................................. 136
1.3 Private Sewage Systems ............................................................................................. 136
1.4 Wastewater Collection System .................................................................................. 136
1.5 Trunk Sewers .............................................................................................................. 136
1.6 Sanitary Sewer Mains ................................................................................................. 136
1.7 Service Connections .................................................................................................. 137
1.8 Design Flow Sheets .................................................................................................... 137
1.9 Pump Stations ............................................................................................................. 137
1.10 Siphons ........................................................................................................................ 137

2.0 Concept Design Standards

2.1 General Servicing Concept ........................................................................................ 137
2.2 Sewage Contribution Projections .............................................................................. 138
2.3 Proposed Trunk and Sewer Location and Sizing ...................................................... 138
2.4 Pumping Station & Foremain Requirements ............................................................ 138
2.5 Capacity Assessment and Downstream Receiving ................................................... 138
2.6 Neighbourhood Concept Plan Drawings ................................................................... 139
2.7 Requirements of Stubs for Future Extensions ......................................................... 139

3.0 Detailed Design Standards

3.1 Sizing of Mains ........................................................................................................... 139
3.2 Estimated Wastewater Flows ..................................................................................... 139
3.3 Extraneous Flow Allowance ...................................................................................... 141
3.4 Sewer Slope Requirements ....................................................................................... 141
3.5 Spacing and Location of Manholes ........................................................................... 142
3.6 Sewer Depths .............................................................................................................. 142
3.7 Design Summary Flow Sheets ................................................................................... 143
3.8 Sewer Service Connection ......................................................................................... 143
3.9 Locations of Main in Streets, Alleys and Easements .............................................. 143
3.10 Trench Width Requirements ..................................................................................... 144
3.11 Monitoring Manholes ............................................................................................... 144
3.12 Use of Trenchless Installation Methods .................................................................... 144
3.13 Pump Station Design Requirements ........................................................................ 144
3.14 Use of Non Standard Materials ............................................................................... 144
3.15 Other Authorities and Standards ............................................................................. 145

List of Tables

Table 3.4.3 Minimum Sewer Slope ................................................................................ 142
List of Charts

N/A

List of Figures

Figure 3.2.2  Wastewater Flow Formula ................................................................. 140
Figure 3.2.3  Harmon Equation ................................................................................. 140
Figure 3.2.4  Manning Equation ............................................................................... 140
1.1 Policy, Goals and Objectives

.1 The basic objective of a wastewater collection system is to safeguard public health and minimize impact on the environment by collecting wastewater generated within the City of Regina for treatment and disposal at the municipal wastewater treatment plant. The environmental objective is the prevention of escape or discharge of untreated wastewater to the environment, such as watercourses or onto public or private lands, either directly or through overflows to the drainage system.

.2 The key design and service level standards to meet this objective are outlined in this section. They are intended to meet objectives, methods and standards contained in the National Guide to Sustainable Municipal Infrastructure (InfraGuide) Best Practices on Storm and Waste water, a collection of reports available from the Federation of Canadian Municipalities. Where it is possible to obtain improvements on these standards, proposals shall be submitted to the General Manager of Planning and Development for review and possible approval.

.3 All new systems or extensions from existing systems are to be designed such that drainage run-off from roofs, lots, streets and other outside areas including yards and parking areas is excluded from the wastewater collection system. In addition, where possible, weeping tile drainage should be excluded from the wastewater collection system.

.4 Minimization of the life-cycle costs for providing wastewater service to new development areas is the prime consideration in the selection of servicing alternatives. Economic analysis must include evaluation and comparison on the basis of operation and maintenance costs as well as capital cost differences. Extension of wastewater servicing using gravity flow systems to the maximum extent possible is preferred. Utilization of pumping systems may be permitted only when insurmountable constraints cannot be resolved. Economics will not necessarily be the deciding factor in evaluation of the acceptability of servicing proposals.

.5 The City promotes an orderly progression of development and extension of wastewater collection systems. The objective is to achieve permanent system extensions in the most cost-effective manner. Temporary servicing schemes are not recommended where a permanent solution is feasible. Construction of connecting sewers through undeveloped areas ("leapfrogging") shall be avoided whenever possible.
1.2 **Types of Wastewater**

.1 The wastewater collection system shall be designed to accept and convey waste liquid flows from:
   (a) Domestic wastewater from residential developments;
   (b) Commercial and Institutional developments, when compatible with residential wastewater; and
   (c) Industrial developments, where wastewater strengths, rates and discharge times are approved.

.2 *Sewer Service Bylaw #5601* addresses normal aspects of wastewater management (definition, parameters, strength, quantity and charges).

1.3 **Private Sewage Systems**

.1 New development is to be served by extension of the existing wastewater collection system for areas as indicated in the *Official Community Plan*. Other forms of servicing and/or separate treatment facilities are not allowed without the approval of the General Manager of Planning and Development.

1.4 **Wastewater Collection System**

.1 A wastewater collection system is made up of the following components:
   (a) Sanitary Sewer Mains,
   (b) Sanitary Trunks,
   (c) Sanitary Manholes, and
   (d) Sanitary Services (from the property line to the main).

1.5 **Trunk Sewers**

.1 A sanitary trunk is defined as a large main generally serving an area of 65 ha or more and 300 mm or larger in diameter. Flows to it are contributed mostly by sanitary sewer mains. Direct connections from service connections are not permitted. Oversized mains 300 mm or larger, where approved, shall be funded through Service Agreement Fees funding as per the *Servicing Agreement and Servicing Agreement Fee Policy and Procedures Manual*.

1.6 **Sanitary Sewer Mains**

.1 A sewer main receives flows from service connections and conveys them to a trunk sewer. Minimum size shall be 200 mm in diameter.
1.7 Service Connections

.1 A sanitary service connection runs from the Building Drain and conveys flow to a sanitary sewer main. Minimum size shall be a 150 mm diameter and a minimum slope of 1%.

1.8 Design Flow Sheets

.1 Information on projected population, flows and design, pipe sizing and grades shall be compiled on a standard flow sheet to allow for review and future reference. These shall be submitted together with the detailed servicing plans and specifications. Flow sheets shall be signed and sealed by a qualified Professional Engineer registered to practice in the Province of Saskatchewan.

1.9 Pump Stations

.1 Pump stations are wastewater Collection system components constructed to convey flows under pressure to a point in the wastewater collection system where gravity flow can continue.

1.10 Siphons

.1 A siphon is a component of piping that allows flows to be conveyed under an obstruction with a downstream outlet to a gravity sewer or trunk. Siphon design must accommodate maintenance issues such as:

(a) Removal of grease at the upstream end; or
(b) Removal of settled solids at the low point.

.2 The siphon design must allow adequate drop in elevation between the two ends to accommodate a wide range in flows. Siphons are to be avoided if possible in the design of the wastewater collection system. All new siphons shall be designed to have a minimum of two pipes.

2.0 CONCEPT DESIGN STANDARDS

2.1 General Servicing Concept

.1 The Official Community Plan provides for overall development within the City limits. A Sector Plan provides regional servicing concepts for wastewater and drainage. A Neighbourhood Concept Plan is then required to provide detail within each subdivision. The Neighbourhood Concept Plan is to be provided by the Developer.
.2 It shall be the responsibility of the Developer to demonstrate the serviceability of the development. In particular no new development shall reduce the service level of the existing collection system below an acceptable level.

2.2 Sewage Contribution Projections

.1 Sewage flow rates shall be determined from consideration of the present and probable future quantities of wastewater and commercial and industrial wastes and appropriate allowances for wet weather infiltration and inflow of stormwater.

.2 The expected life of new sewers in Regina is 100 years. New sewers are to be designed for anticipated flows from land use zoning shown in the Official Community Plan.

2.3 Proposed Trunk and Sewer Location and Sizing

.1 A Sector Plan identifies areas for future expansion and outlines required trunk design flows, pipe sizes and general routing. Development can then be planned and constructed at which time exact routing is fixed.

.2 A Concept Plan must be submitted by the Developer. This plan shall show all trunk sizing in the proposed development area.

.3 Developers shall model flows from proposed development to support the design and determine the change in performance to the existing system so that the impact can be assessed.

2.4 Pumping Station and Forcemain Requirements

.1 The need for pumping will be addressed at the planning stage describing the need for the station, location, type of station, size, and connection to the wastewater collection system.

.2 Interim pumping (temporary) to accommodate out-of-phase development, if allowed, will be at the Developer's cost. The Concept Plan submitted by the Developer shall show all pumping stations located within the proposed development.

2.5 Capacity Assessment and Downstream Receiving

.1 A Sector Plan addresses concerns related to available capacity in the downstream receiving system. Where a capacity deficiency has been identified, the Developer and the City will jointly resolve the issue through the development approval process.
.2 Consideration will be given to allowing new development to proceed based on the storage of wastewater flows which will then be released after surcharging in the downstream system has subsided. Off-line peak flow storage schemes shall be sized to provide a minimum of 12 hour wet weather flow volume and be designed with odour control measures.

2.6 Neighbourhood Concept Plan Drawings

.1 The Developer shall submit a wastewater collection system concept plan showing particulars of sewers required by the development. The plan shall also show trunks within this area, as identified in the Sector Plan.

2.7 Requirements of Stubs for Future Extensions

.1 The design for each wastewater collection system extension shall include provision for further extensions adjacent to and future development areas in accordance with the City Development Plan and Area Sector Plan, as they apply to each development area.

3.0 DETAILED DESIGN STANDARDS

3.1 Sizing of Mains

.1 New sewers shall be designed to have hydraulic capacity such that the sewer is flowing at no more than full depth when conveying the total design peak flow rate. The design peak flow rate shall be determined for the total planned contributing area, and be based on the ultimate anticipated zoning and density of development.

.2 No sewer main shall be less than 200 mm inside diameter to allow for pipe cleaning and maintenance.

3.2 Estimated Wastewater Flows

.1 The average daily wastewater flow used in the design of residential areas is 225 Lpcd (litres per capita per day). Where available, detailed area design population densities shall be used.

.2 In the absence of detailed design population projections, densities are obtained from the anticipated future zoning floor space ratio (F.S.R.) using:
   (a) one person per 55 square metres of floor space in detached dwelling residential areas,
   (b) one person per 35 square metres in apartments, and
   (c) one person per 23 square metres in commercial buildings.
.3 In all other areas the average daily wastewater flows used in the design shall be 454 Lpcd (litres per capita per day).

.4 The wastewater flow shall be derived using the following formula:

Figure 3.2.2: Wastewater Flow Formula

\[ Q = \frac{FDMA + I}{K} \]

Where

- \( Q \) = the wastewater flow (ft\(^3\)/s imp; L/s metric)
- \( F \) = the average daily per capita water consumption
- \( D \) = the population density (persons/acre imp; persons/hectare metric)
- \( M \) = the Harmon Peaking Formula (unitless)
- \( A \) = area (ac imp; ha metric)
- \( K \) = a constant (540,000 imp; 86,400 metric)
- \( I \) = infiltration (ft\(^3\)/s imp; L/s metric)

.5 Peak wastewater flow is established by multiplying the average daily flow with a peaking factor. The peaking factor used is determined from the Harmon formula, shown as follows:

Figure 3.2.3: Harmon Formula

\[ M = 1 + \frac{14}{4 + \sqrt{P}} \]

Where:

- \( P \) = population in thousands

.6 Wastewater facilities are designed to convey peak flow, infiltration, and other unavoidable contributions.

(a) The pipe capacity used in the design of all sewers is determined from the Manning equation using an appropriate roughness coefficient where:

(i) \( n = 0.013 \) for pipe made of wetting surfaces, and

(ii) \( n = 0.011 \) for non-wetting surfaces.

(b) The Manning equation is defined as:

Figure 3.2.4: Manning Equation

\[ Q = VA = A \frac{1}{n} R^{2/3} S^{1/2} \]

Where:

- \( Q \) = Flow (m\(^3\)/s)
- \( n \) = Manning's Roughness Coefficient
- \( R \) = Hydraulic Radius (cross sect. area of flow/wetted perimeter)
- \( S \) = Slope (m/m)
- \( A \) = cross Sectional Area (m\(^2\))
3.3 Extraneous Flow Allowance

.1 In computing the total peak flow rates for design of sewer trunks, the designer shall include allowances as specified below to account for inflow/infiltration flow from extraneous sources:

(a) An allowance of 31,100 L/ha/day shall be applied:
   (i) Irrespective of land use classification,
   (ii) To account for wet-weather infiltration to the wastewater collection system, and
   (iii) Including inflow from weeping tiles in buildings that are draining to the wastewater system; or

(b) An allowance of 21,000 L/ha/day shall be applied:
   (i) Irrespective of land use classification,
   (ii) To account for wet weather infiltration to the wastewater collection system, and
   (iii) Where all weeping tile in the development is excluded from the wastewater system.

.2 The design of the wastewater collection system should avoid placement of manholes in major system depressed areas or street ponding areas where possible.

.3 All sanitary sewers and manholes shall be designed with approved joint seals.

3.4 Sewer Slope Requirements

.1 Sewers shall be designed to achieve a mean flow velocity when flowing full of not less than 0.6 m/s, to provide for self cleansing.

.2 The maximum slope for sewer design will be based upon limiting the maximum flow velocity to 5.0 m/s. The maximum velocity is to prevent undue turbulence, so as to avoid unacceptable levels of odours due to sulphide generation, and to limit erosion effects of the flow. No sewer shall have a slope of less than 0.1 percent.

.3 The minimum slope for the most upstream reaches of any wastewater system shall be 0.4 percent, from the terminal manhole downstream to a point where the design peak dry weather flow exceeds 10 L/s. Where existing systems depth constraints render this requirement unfeasible, the City may approve an exemption for a specific design.

(a) Minimum slopes permitted for various sewer sizes:
Table 3.4.3 Minimum Sewer Slope

<table>
<thead>
<tr>
<th>Sewer Size</th>
<th>Minimum Slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 mm</td>
<td>0.40%</td>
</tr>
<tr>
<td>250 mm</td>
<td>0.28%</td>
</tr>
<tr>
<td>300 mm</td>
<td>0.22%</td>
</tr>
<tr>
<td>375 mm</td>
<td>0.15%</td>
</tr>
<tr>
<td>450 mm</td>
<td>0.12%</td>
</tr>
<tr>
<td>525 mm</td>
<td>0.10%</td>
</tr>
<tr>
<td>600 mm</td>
<td>0.10%</td>
</tr>
</tbody>
</table>

.4 For sewers aligned in a curve, the minimum slope shall be increased to 1.5 times those shown above.

3.5 Spacing and Location of Manholes

.1 Manholes are to be located at junctions, change of pipe size/slope/alignment and where monitoring may be required to allow for proper operation and maintenance of the wastewater collection system.

.2 Maximum spacing between manholes shall be:
   (a) 100 m for pipes sizes 300 mm or less, and
   (b) 150 m for pipes sizes greater than 300 mm.

3.6 Sewer Depths

.1 Sanitary sewers shall be installed with sufficient depth to meet the following requirements:
   (a) Lower than the water main on the street;
   (b) Sufficient depth to provide frost protection;
   (c) Adequate depth to permit installation of sanitary services with a minimum of 2.6 m of cover and a minimum 2.74 m depth to the invert elevation of the service pipe at the property line; and
   (d) Adequate depth to permit gravity drainage from all building services to the sewer main. Special consideration should be given when property elevations may be low with respect to the surface elevation at the road right-of-way. Typically, the sewer obvert should be at least 1.0 to 1.5 m lower than proposed basement elevations.

3.7 Design Summary Flow Sheets

.1 All detail subdivision servicing design plans submitted shall be accompanied by a complete set of design flow sheets signed and sealed by a qualified Professional Engineer registered to practice in the Province of Saskatchewan.
3.8 Sewer Service Connections

.1 Sanitary service connections are to be provided to all detached residential properties. They shall be constructed to the property line when mains are constructed. Such connections shall be secure and permanent and unless otherwise approved, shall be made with an integral tee or wye at the main. The use of cut-in/strap-on saddles for new services off existing sewers will be considered on a case by case basis.

.2 The minimum pipe size for connections is 150 mm in diameter.

.3 Service connections shall be installed at a minimum slope of 1% and a maximum slope of 3%. A minimum slope provides for better flushing velocities, which is required due to the more variable flows through these pipes and the non-routine maintenance they receive. For cleaning and maintenance purposes, where services require slopes of greater than 3%, a drop structure shall be used at the connection to the sewer main.

.4 Services to detached residential properties shall not be permitted off sewer mains located in easements.

.5 Service connections to industrial and commercial/institutional properties may be permitted from sewer mains located in easements, provided the proposed development will permit access to the easement and allow excavation as may be necessary for maintenance or repair or reconstruction of service connection.

.6 All redundant or unused service connections shall be disconnected and capped at the main.

.7 No building shall be erected over a service connection, nor shall a service connection be installed under a building.

.8 A separate service connection to the collection system is required for each lot with distinct certificates of title. Sewer service pipes are not permitted to traverse any private property other than that on which the buildings that the piping serves are located, unless a legal easement and permission from the City of Regina has been obtained.

3.9 Location of Main in Streets, Alleys and Easements

.1 Sanitary sewers shall be located in the centre for the street Right-of-Way to provide maximum construction room, to make best use of elevation and to locate manholes at height to reduce inflow through manhole tops during major runoff events. Routing through alleys and/or easements is discouraged due to access problems for maintenance.
3.10 **Trench Width Requirements**

.1 The trench width at the pipe level shall not exceed the maximum allowable width required for the design pipe material and pipe class as recommended by the supplier.

3.11 **Monitoring Manholes**

.1 Manholes shall be provided where the City identifies a need to monitor wastewater flows and/or strengths. The location, size and other particulars is site specific and is to be determined at the servicing design stage of a project.

3.12 **Use of Trenchless Installation Methods**

.1 The Developer shall identify opportunities for installation of underground piping by trenchless methods to reduce risk of long-term settlement/shifting problems caused by open trench methods.

3.13 **Pump Station Design Requirements**

.1 Extending wastewater collection system servicing by means other than gravity flow sewers shall be considered only where constraints dictate a requirement for a sewage pumping station.

.2 The need for a sewage pumping station will be defined in the Concept Plan. A design summary report prepared under the supervision of, and sealed by, a Professional Engineer registered to practice in the Province of Saskatchewan, shall be submitted to the General Manager of Planning and Development.

.3 The station design shall conform to the City’s guidelines for pumping station design including:

(a) The pump station building requirements design,
(b) The lift station standby power requirements design,
(c) The pump station landscaping design, and
(d) The pump station forcemain design.

.4 The pump station controls, instrumentation and alarms design shall conform to the City’s guidelines for pumping station design.

3.14 **Use of Non Standard Materials**

.1 The City encourages economic and efficient servicing of development using tested and approved materials and methods. Where the Developer has identified opportunity to improve delivery/performance by use of new knowledge and/or technology, the Developer shall bring proposals for review
to the General Manager of Planning and Development for consideration well in advance of construction.

3.15 Other Authorities and Standards

.1 Design Plans and Specifications are required to be submitted for review to the Saskatchewan Ministry of Environment as a condition of Permit to Construct, Extend, or Alter Existing Works. The approval of Saskatchewan Environment shall be obtained prior to commencement of construction.

.2 In addition, the design and construction of sanitary sewers must meet all the current requirements of other governmental and public utility authorities having jurisdiction.
Development Standards

Section 09

Storm Water Collection System
1.0 GENERAL

1.1 Policy, Goals and Objectives ................................................................................. 151
1.2 Allowable Types of Drainage ................................................................................. 151
1.3 Area Master Drainage Plan .................................................................................... 151
1.4 Subdivision Drainage Plan .................................................................................... 151
1.5 Building Site and Parking Lot Development Drainage .......................................... 152

2.0 SPECIFICATIONS

2.1 Standard Construction Specifications .................................................................... 152

3.0 DEFINITIONS

3.1 Trunk Storm Sewers ............................................................................................... 153
3.2 Minor System .......................................................................................................... 153
3.3 Major System .......................................................................................................... 153
3.4 Return Period .......................................................................................................... 153
3.5 Design Flow Sheets/Computer Design Sheets ......................................................... 154
3.6 Detention/Retention Facilities ............................................................................... 155
3.7 Pump/Lift Stations ................................................................................................. 156
3.8 Storm Outfalls ........................................................................................................ 156
3.9 Receiving Bodies .................................................................................................... 156
3.10 Floodway/Flood Fringe ........................................................................................ 156
3.11 Storm Channels .................................................................................................... 157

4.0 CONCEPT DESIGN STANDARDS

4.1 General Servicing Concept ..................................................................................... 157
4.2 Storm Water Runoff Analysis ............................................................................... 158
4.3 Minor/Major Design ............................................................................................... 158
4.4 Intensity Duration Frequency (IDF) Relationships ............................................... 158
4.5 Proposed Trunk Location & Sizing ....................................................................... 160
4.6 Retention/Detention Facilities Design .................................................................. 160
4.7 Storm Channels ...................................................................................................... 160
4.8 Requirements for Stubs for Future Developments ................................................. 161
4.9 Flood Fringe Development ..................................................................................... 161

5.0 DETAILED DESIGN STANDARDS

5.1 Sizing of Minor System ......................................................................................... 161
5.2 Major System Runoff Analysis .............................................................................. 163
5.3 Storm Sewer Slope Requirements ....................................................................... 163
5.4 Spacing of Manholes and Catch Basins for Roadways ....................................... 163
5.5 Sewer Depths/Size Requirements ......................................................................... 164
5.6 Design Summary Flow Sheets ............................................................................... 164
5.7 Storm Sewer Service Connections ................................................................. 164
5.8 Location of Sewer in Street, Alleys & Easements ......................................... 165
5.9 Trench Width Requirements ......................................................................... 165
5.10 Use of Trenchless Installation Methods ...................................................... 165
5.11 Pump/Lift Station Design Requirements ...................................................... 166
5.12 Forcemain Design Requirements ................................................................. 166
5.13 Storm Water Retention (Wet Facilities) ....................................................... 166
5.14 Storm Water Detention Facilities (Dry Facilities) ......................................... 167
5.15 Water Quality Improvement / Protection Measures ...................................... 168
5.16 Storm Channels ............................................................................................ 168
5.17 Use of Non-Standard Materials ................................................................. 168
5.18 Other Standards/Approvals ........................................................................ 168

List of Tables

1.4.5 Lot Grading ............................................................................................... 152
5.1.2 Storm Effect on Runoff Coefficient ......................................................... 162

List of Charts

N/A

List of Figures

4.4.1 IDF Curve .................................................................................................. 159
1.0 GENERAL

1.1 Policy, Goals and Objectives

.1 The long-term goal of the storm drainage program is to provide a reasonable, safe and cost effective, storm drainage level of service. This level of service shall provide a drainage system that shall minimize property flood damage by reducing frequency of and degree of flooding. The drainage system shall reduce and control surface flooding in such a manner as to provide safety for road traffic, pedestrians and children.

1.2 Allowable Types of Drainage

.1 The drainage system is designed to handle runoff from rainstorms and snowmelt. Drainage shall not be contaminated by any component of domestic sewage, commercial or industrial effluent. A discharge of any drainage into the storm sewer system other than normal precipitation runoff shall not be allowed without approval.

1.3 Area Master Drainage Plan

.1 The Area Master Drainage Plan is an adopted drainage plan that describes the main drainage elements for the respective areas of the city as developed from a master plan drainage engineering study. It addresses the main elements of the minor system and the major system including trunk sewers, detention/retention, overland flow routes, and drainage quality.

.2 The Area Master Drainage Plan for existing built up areas is prepared and funded by the Utility. In new development areas the Area Master Drainage Plan is prepared and funded using Servicing Agreement Fee Funding.

1.4 Subdivision Drainage Plan

.1 The subdivision concept and detailed drainage plans must conform to the adopted Area Master Drainage Plan. Drainage for a subdivision must accommodate upstream runoff.

.2 The developer shall submit detailed servicing plans composed of minor and major drainage components for the acceptance of the General Manager of Planning and Development. The Area Master Drainage Plan post-development runoff rates shall not exceed pre-development runoff rates.

.3 The rear of lot grades provide for the conveyance of runoff from the contributing area of split drainage lots (approximately mid-lot to the rear of lot) to catch basins or to outlet to roadways and land easements. It is a
component of the major system but is not to be used as a major overland flow route for runoff from other contributing areas.

.4 For new subdivisions:

(a) The grade of rear of lot drainage swales shall be a minimum 0.6% to a maximum of 6%;

(b) Spacing of catch basins or release points for storm water drainage shall be a maximum of 75 meters; and

(c) Drainage swales shall be designed with turns no greater than 135 degrees (Interior angle of turn).

.5 Lot grading will conform to the following criteria:

Table 1.4.5 Lot Grading

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building grade above curb</td>
<td>0.3m</td>
<td>1.0m</td>
</tr>
<tr>
<td>Building grade above back lot</td>
<td>0.3m</td>
<td>1.0m</td>
</tr>
<tr>
<td>Building grade to side lot</td>
<td>0.06m</td>
<td>0.3m</td>
</tr>
<tr>
<td>Grade at back of lot</td>
<td>0.6%</td>
<td>6.0%</td>
</tr>
</tbody>
</table>

Note: where side yard grades cannot be maintained, the building grade plan shall indicate terracing or a retaining wall is required.

1.5 Building Site and Parking Lot Development Drainage

.1 Drainage from residential development (single and duplex) is allowed to be graded off and to drain onto the public right of way. All other developments are required to design an on-site drainage plan to manage drainage. The City of Regina Building Bylaw No. 2003-7 (Building Bylaw) requires all building developments (other than single and duplex residential) to incorporate an approved site drainage plan.

2.0 SPECIFICATIONS

2.1 Standard Construction Specifications

.1 The Development Standards Manual must be read in conjunction with the City of Regina Standard Construction Specifications Manual.
3.0 DEFINITIONS

3.1 Trunk Storm Sewers

.1 All storm sewers of a size 1350 mm or greater are classified as trunk storm
sewers and where approved shall be paid for from Servicing Agreement
Fees.

3.2 Minor System

.1 A minor drainage system is a network of sewers, inlets, and street gutters,
which are designed to rapidly convey storm runoff from minor rainfall
events.

.2 For the purpose of these standards, a minor rainfall event is defined as a
storm having a 1 in 5 year return period.

.3 The minor system conveys stormwater flows from the road surface during
minor rainfall events. All runoff in excess of the minor system capacity is
considered part of the major drainage system.

3.3 Major System

.1 A major drainage system is comprised of overland flow routes, swales,
roadways, watercourses, and storage facilities, and outfalls into storage or
watercourses, planned, designed, and incorporated as part of the urban
infrastructure to convey runoff from major rainfall events.

.2 For the purpose of these standards, a major rainfall event is defined as a
storm having a 1 in 100 year return period.

.3 In the existing built up urban areas the City of Regina requires major
system design to the 1:25 year return period.

.4 Re-development of areas such as former school sites, shopping centers,
institutional lands, equal to or greater than one (1) city block (1.3 hectares),
shall be designed to prevent impact on neighbouring development from
major system blockage or re-routing of the 1:100 year return period.

3.4 Return Period

.1 The return period of a rainfall event is the inverse of the statistical chance that a
storm of a given size will occur in any given year based on historical data.
3.5 Design Flow Sheets/Computer Design Sheets

.1 Design flow sheets with an accompanying reproducible plan showing drainage areas, drainage criteria and sewers shall be utilized to design a storm sewer system. Flow sheets with the accompanying drainage area plan, showing contributing areas and sewers, are part of submission requirements for subdivision approval.

a) Storm Sewer Design Sheets shall generally include:

(i) A description of system design, operation and computational methods
(ii) Design criteria, design storm, runoff coefficients (C), and assumptions
(iii) Catchment area (A) (ha)
(iv) Total Area (ha)
(v) AxC
(vi) Cumulative AC
(vii) Time of Concentration (min)
(viii) Flow (Q) (m³/sec)
(ix) Pipe size (m)
(x) Slope (%)
(xi) Actual Capacity (m³/sec and/or %)
(xii) Velocity (full flow or actual) (m²/sec)
(xiii) Pipe length (m)
(xiv) Flow time (min)
(xv) Fall in sewer (m)
(xvi) US invert, DS invert, and Manhole Rim elevation (m)
(xvii) Cover (m)
(xviii) Any other information that may be required by the City

b) Computer model reports shall generally include:

(i) A description of system design, operation and computational methods
(ii) Input/output files in hard copy and digital format (on CD/DVD)
(iii) A description of system design and operation and computational methods
(iv) Model Name and version number
(v) Modelling parameters and assumptions
(vi) Design storms, type of distribution and rainfall hyetograph in tabular and graphical form
(vii) Type of unit hydrograph used
(viii) Catchment areas and their hydrologic characteristics in a tabulation and on a plan
(ix) Runoff hydrographs in both tabular and graphical form
(x) Hydrograph routing methods used
(xi) Both inflow and outflow from each segment of detention/retention facility
(xii) Inflow and outflow at critical sections for conveyances
(xiii) Rating and mass curves for detention/retention facilities and associated structures
(xiv) Time to drain detention/retention facilities
(xv) Final outflow hydrographs used to compute detention volumes
(xvi) Any other information that may be required by the City

.2 The flow sheets shall show all design flows calculated by the standard Rational Method and shall include all information required in this method to calculate peak flow in sizing the storm sewer system. The flow sheets shall also provide information for sewer sizing, energy calculations and elevations of sewer inlet and outlet at manholes.

.3 The design flow sheets and accompanying plans are to be of the same quality as the plan and profile drawings and signed by a qualified Professional Engineer registered to practise in Saskatchewan. Computer models, acceptable to the General Manager of Planning and Development, are to be used to design areas larger than 65 ha; computer design sheets shall be submitted with accompanying plans for subdivision acceptance.

3.6 Detention/Retention Facilities

.1 A Detention facility holds a volume of runoff, for a short duration, then releases the volume with an outflow rate that is less than the inflow rate. Detention is used to attenuate the peak flows and release them at reduced rates.

.2 Dry bottom detention facilities in new development areas are to be designed to manage runoff from a 1:100 year return period and shall be paid for by Servicing Agreement Fees, provided they are accepted as an element of a Sector Master Drainage Plan.

.3 A Retention facility holds a permanent body of water or lake and has a permanent water level. The water level is hydraulically controlled by an outlet structure. All runoff in the detention volume above the permanent water level shall be detained for a short period of time and then released at the reduced rate allowed by the control structure.

.4 Detention above the permanent water level in new development areas is to be designed to manage runoff for a 1:100 year return period.

.5 Water quality management plans and sediment accumulation and removal shall be factors considered in the design of detention or retention facilities.
.6 Costs of development of a retention facility shall be paid by Servicing Agreement Fees to the equivalent of a detention facility, where it is an accepted element of a Sector Master Drainage Plan. All other costs of a retention facility will be borne by the developer.

3.7 Pump/Lift Stations

.1 Storm pump or lift stations are mechanical/hydraulic devices that are used to solve drainage problems that cannot be solved by standard gravity methods. The Subdivision Drainage Plan shall not include pump/lift stations without prior acceptance of the General Manager of Planning and Development.

.2 The pump/lift station design shall conform to the City of Regina Guidelines for Wastewater/Drainage Pumping Station Design and the City of Regina Wastewater and Storm Water Lift Stations – Electrical Basis of Design Manual. The cost of a pump/lift station that is an approved element of a Sector Master Drainage Plan and approved as a capital project under Servicing Agreement Fee criteria, shall be paid for by Servicing Agreement Fees.

3.8 Storm Outfalls

.1 Storm outfalls are storm sewers that outlet into the receiving bodies such as detention/retention facilities, channels and creeks.

.2 All outfalls shall be designed to safely discharge storm water without presenting risk to life. The outfall design shall minimize erosion potential at the point of entry into the receiving body. If required, the General Manager of Planning and Development may request an erosion control plan or study demonstrating the risk of erosion.

3.9 Receiving Bodies

.1 The receiving bodies for drainage in Regina are Wascana Lake, Wascana Creek, Pilot Butte Creek, Chuka Creek, Cottonwood Creek, man-made channels and detention/retention facilities.

3.10 Floodway/Flood Fringe

.1 The floodway is the channel of a creek or other watercourse and the adjacent land areas, as shown in Section 12 - Figure 3.9 where:

(a) The majority of floodwaters of a 1:500 year flood will flow, and

(b) Flow velocities and depths are prohibitive to structural development; and
(c) Any proposed changes to the floodway require approval of Saskatchewan Watershed Authority and the General Manager of Planning and Development.

.2 The floodway fringe is all that land in the floodplain:

(a) Not lying in a delineated floodway;
(b) Where the depth of water is less than one meter; and
(c) The velocity of the water is less than one meter per second.

.3 The floodplain is any land area:

(a) Usually low lying,
(b) Adjoining the channel of a creek or stream, and
(c) Has been or may be covered by floodwater in a 1:500 year flood event.

.4 Floodway and floodway fringe areas are identified and discussed in the Regina Zoning Bylaw No. 9250 (Zoning Bylaw), chapter 9 and chapter 10.

3.11 Storm Channels

.1 Storm channels serve as a major receiving stream. New channels shall be designed for the runoff from a 1:100 year return period. Land provided for channels shall be dedicated by the developer in new development areas as detailed in Section 4 Land Requirements.

4.0 CONCEPT DESIGN STANDARDS

4.1 General Servicing Concept

.1 The developer shall include in the concept plan submission the following:

(a) A description of the general storm drainage servicing scheme;
(b) A plan showing:
   (i) Approximate trunk sewer location, routes and sizing,
   (ii) Retention and detention facilities, and
   (iii) Major system flow routes;
(c) Confirmation the design will meet the City Development Design Standards; and
(d) Confirmation the design conforms to the Sector Master Drainage Plan.

4.2 Storm Water Runoff Analysis

.1 The concept plan shall include the results of a storm water runoff analysis for the proposed development area. Drainage analysis requires use of computer modeling that can realistically simulate rainfall events and model a drainage system, over a time period, using well established hydraulic and hydrologic methods acceptable to the City.

.2 The Dual Drainage Storm Water Management Model (DDSWMM) is a preferred model with planning models such as XPSWMM, SWMHYMO to be used as a supplement to the DDSWMM model. Other models may be used, upon approval by the General Manager of Planning and Development. The models must be able to simulate minor systems under surcharge and major system conditions for Regina applications.

4.3 Minor/Major Design

.1 The storm drainage system shall provide storm water management for areas that have been developed or are under development.

.2 The minor storm sewer system is modeled using the standard RATIONAL Method and designed for 1:5 year return period events utilizing (KGS or AE) Intensity Duration Frequency (IDF) rainfall curves developed from rainfall data gathered at Regina Municipal Airport.

.3 In new development areas the major system shall be designed to handle all runoff from storms in excess of the 1:5 year return period and shall control drainage from storms up to a 1:100 year return period.

.4 In the existing built up urban areas the City of Regina requires major system design to the 1:25 year return period.

.5 Re-development of areas such as former school sites, shopping centers, institutional lands equal to or greater than one (1) city block (1.3 Hectares) shall be designed to prevent impact on neighboring development from major system blockage or re-routing of the 1:100 year return period.

4.4 Intensity Duration Frequency (IDF) Relationships

.1 The IDF curve data in Figure 4.5.1 may be used for hydrologic computations of rainfall intensity values.
Figure 4.4.1 Regina IDF Curve Annual Period (1941-2004)

Annual IDF is representative of summer storms (June-July-August)
The derivation of the Chicago Distribution using the updated IDF relationship developed for the city of Regina is given below. The Chicago distribution synthetic hyetograph is defined by the equation:

\[
i = \frac{a}{(t_d + b)^c}
\]

Where:

- \(i\) = average rainfall intensity (mm/hr)
- \(t_d\) = storm duration (minutes)
- \(a, b, c\) = constants which define the shape of the IDF curve for the return period of the storm.

4.5 Proposed Trunk Location & Sizing

.1 Storm sewer trunks and collectors shall be strategically located to minimize length and depth and shall generally be located in the road right of way.

.2 Storm sewers shall be sized to accommodate minor system flows from future upstream developments and shall be designed to allow for appropriate maintenance.

.3 The Concept Plan shall provide information on all proposed trunk and collector sewers within the proposed development area.

.4 Trunk sewers where approved, 1350 mm or greater, shall be paid for by Servicing Agreement Fees.

4.6 Retention/Detention Facilities Design

.1 A detention facility does not permanently retain a portion of the storm water runoff to the facility. Water is contained in the facility for only a short period of time. The storage in the facility attenuates the inflow peak flow resulting in a smaller outflow peak.

.2 A storm water retention facility retains a portion of the storm water runoff permanently in the facility. This is referred to as a wet facility.

.3 For design requirements refer to section 3.5.

4.7 Storm Channels

.1 The developer shall identify in the concept plan any proposed new or extended storm channels. The routing and land requirements shall be identified on a plan and be designed to handle the 1:100 year return period.
4.8 Requirements for Stubs for Future Developments

.1 All extensions of new drainage systems shall provide provision for further extension to adjacent and future development areas in accordance with the accepted development plan.

.2 All costs associated with the stubs will be borne by the developer except those on Servicing Agreement Fee funded trunks.

4.9 Flood Fringe Development

.1 The areas that are defined as flood fringe may be developed subject to flood proofing provisions in the *Building Bylaw*.

.2 Filling in flood fringe is discouraged and any proposed filling requires prior approval of the General Manager of Planning and Development in accordance with the *Zoning Bylaw*, as well as Saskatchewan Watershed Authority for areas along Pilot Butte and Wascana Creek.

5.0 DETAILED DESIGN STANDARDS

5.1 Sizing of Minor System

.1 The minor system drainage method used to design new subdivisions shall be the standard Rational Method. The Rational Method may be used to design system components in drainage areas not to exceed 65 ha.

.2 The Rational Method in metric units calculates peak runoff flows as follows:

\[ Q = \frac{CIA}{K} \]

- \( Q \) is the design flow rate (m\(^3\)/s)
- \( C \) is the runoff coefficient (dimensionless)
- \( I \) is the rainfall intensity (mm/hr metric) for a storm of duration \( t \)
- \( A \) is the effective area of the drainage basin (ha metric), and
- \( K \) is a constant (360)
- \( T \) is the time of concentration for the basin for the particular event (minutes)

(a) The Rational C (Runoff coefficient) should be consistent with the imperviousness for the respective land use. Selection of runoff coefficients is highly subjective and is not constant, but varies with:

(i) ground cover,

(ii) soil characteristics,
(iii) ground slope,
(iv) depression storage,
(v) antecedent rainfall,
(vi) rainfall intensity and
(vii) rainfall duration.

(b) For storms up to the 1:5 year return period, considering the flat nature of the City of Regina and typical Regina clays, the best correlation of imperviousness with C should be calculated as follows:

(i) \[ C = 0.95 \text{(Imperviousness)} + 0.1 \times (1.0 - \text{Imperviousness}) \]
(ii) For example, if a typical residential lot in Regina has an Imperviousness of 35 percent, this would give a resultant \( C = 0.4 \), to be used in the Rational Formula.

(c) A table for other storm events shows the runoff coefficient (C) increases as follows:

Table 5.1.2 Storm Event Effect on Runoff Coefficient

<table>
<thead>
<tr>
<th>Return Period</th>
<th>Percent Increase of C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:25</td>
<td>10 %</td>
</tr>
<tr>
<td>1:50</td>
<td>20 %</td>
</tr>
<tr>
<td>1:100</td>
<td>25 %</td>
</tr>
</tbody>
</table>

Note: For typical Regina residential lot

(d) The Time of Concentration (T) for runoff is when the basin is at maximum contribution to the design location and is the time required for runoff to reach the point of design from the furthest point within the contributing catchment area. The time of concentration has two components, inlet and travel time, where:

(i) Inlet time is the travel time for flow from the basin extremity to reach the first inflow point to the system;
(ii) Inlet time is site specific and is dependent upon criteria such as imperviousness and slope;
(iii) Minimum inlet time is 15 minutes;
(iv) Travel time describes the time of travel from the first inflow point to the point of design;
(v) Travel time is the length of time it takes the peak flow to travel the length of the sewer using the pipe specific
characteristics of diameter, slope and roughness coefficient as applied to the Manning equation.

(e) The value of the Design Rainfall Intensity (I) for the Rational formula is selected from the KGS or Regina Airport IDF curves with a chosen duration matching the Time of Concentration (T).

(f) The Intensity-Duration-Frequency (IDF) Curves are the Atmospheric Environment rainfall curves for the City of Regina for selected return period events as recorded at the Regina Airport.

.3 Flow sheets signed by a qualified Professional Engineer registered to practise in Saskatchewan shall be submitted with an accompanying drainage area plan showing sub catchments and runoff criteria. Appropriate labeling of the drawing and flow sheets is required.

5.2 Major System Runoff Analysis

.1 Major system design shall provide a surface drainage path and outlet to a receiving body. Computer modeling shall be used to simulate the major system flows, establish flow paths, velocities and depths.

.2 Computer simulation methods are required for design of drainage elements for areas larger than 65 ha.

.3 The major system runoff analysis should be carried out with a computer simulation model such as SWMHYMO or the more sophisticated DDSWMM model.

.4 All storm water management storage facilities shall be designed using a computer model(s) acceptable to the General Manager of Planning and Development. The SWMHYMO, DDSWMM and XPSWMM models are preferred. The developer shall consult with the Planning and Development Division for model approval and model criteria acceptable to the City for application to a specific development.

5.3 Storm Sewer Slope Requirements

.1 The minimum slope allowed for storm sewer design using the Manning flow equation shall give a minimum cleansing velocity of 0.9 m/sec at full flow.

5.4 Spacing of Manholes and Catch Basins for Roadways

.1 The maximum spacing of storm manholes is not to exceed 100 m for storm sewers and not to exceed 175 m for storm trunk sewers unless otherwise approved by the General Manager of Planning and Development.
.2 Every storm sewer should have a manhole or manhole/catch basin at the upper end of the system for the purpose of maintenance. Catch basin spacing in general shall range from 90 m to 150 m as required for various road slopes.

5.5 Sewer Depths/Size Requirements

.1 Storm sewers shall have a minimum 1.8 m cover to the top of pipe and shall be situated at an elevation above the adjacent watermain and lower than the adjacent gas line. Large storm sewers may have to be buried at greater depth to avoid conflict with the watermain. The minimum size of storm sewer and catch basin leads shall be 250 mm.

5.6 Design Summary Flow Sheets

.1 Detailed subdivision plans shall be accompanied by detailed sewer design flow sheets for the storm sewer system design using Rational or modelled data. The subdivision servicing plans will also show:

(a) surface ponding locations,
(b) depths of trapped water,
(c) overflow routes,
(d) ponding overflow rates,
(e) street flow depths,
(f) rear lot drainage routes,
(g) pipe sizes, slopes, diameter, and materials,
(h) manhole depths,
(i) catch basin locations, and
(j) invert elevations.

.2 A qualified Professional Engineer registered to practice in the Province of Saskatchewan shall sign and seal all plans and flowsheets.

5.7 Storm Sewer Service Connections

.1 As required by the Building Bylaw, every institutional, commercial and industrial site shall be serviced by a connection to the storm sewer system. The minimum storm connection size shall be 200 mm and shall enter the storm system at a manhole unless otherwise approved by the General Manager of Development Engineering. Catch basins contributing to the
connection shall contain the sump requirements as defined in the *Standard Construction Specifications Manual*.

.2 Service connections shall not have less than 1.8 m of cover to the top of the pipe while maintaining serviceability of the lot (i.e., increase cover when necessary to meet grade).

.3 Generally service connections are to connect at a perpendicular angle to the storm main. Where changes in direction are unavoidable refer to *Saskatchewan Plumbing and Drainage Regulations 1996* section 4.7.1.5.

.4 All redundant or unused storm service connections shall be disconnected and capped at the main.

.5 No building shall be erected over a service connection, nor shall a service connection be installed under a building.

.6 A separate service connection to the storm system is required for each lot with distinct certificates of title. Storm service pipes are not permitted to traverse any private property other than that on which the buildings that the piping serves are located, unless a legal easement and permission from the City of Regina has been obtained.

### 5.8 Location of Sewer in Street, Alleys & Easements

.1 On street right-of-way, the location of the storm sewer is 3.05 m from center line on the side opposite the watermain. The location of storm sewers on alleys and easements is site specific and as such requires individual approval of the General Manager of Planning and Development.

### 5.9 Trench Width Requirements

.1 The trench width at the pipe spring line shall not exceed the maximum allowable width required for the design sewer pipe material and pipe class as recommended by the supplier.

### 5.10 Use of Trenchless Installation Methods

.1 Application of trenchless installation is site specific and shall require site approval of the General Manager of Planning and Development. Trenchless methods shall be used to cross existing highways, expressways, arterials and collectors except where otherwise approved.
5.11 Pump/Lift Station Design Requirements

.1 Pump or lift stations designs shall consist of site selection, accessibility, power requirements, soil conditions, aesthetics, design flows, wet well/dry well pump design, emergency operation, monitor and alarms. All pump or lift stations shall have a building enclosure. Exceptions shall require the approval of the General Manager of Planning and Development.

5.12 Forcemain Design Requirements

.1 Forcemains shall be designed to avoid high points, which may cause air locks. The forcemain shall drain by gravity when the pumps are shut off. The forcemain shall be suitably outfitted with backflow check valves to prevent backflow through the pumps. A gate valve shall be installed to isolate the check valve for repairs. Water hammer shall be considered in the design where necessary.

5.13 Storm Water Retention (Wet Facilities)

.1 A storm water retention facility retains a portion of the storm water runoff permanently in the facility. This is referred to as a wet facility. The permanent body of water has depths of no less than 1.8 m to maintain water quality except where otherwise approved.

.2 The minimum water surface area at normal water level should not be less than two (2) hectares and fluctuate no more than one meter during a 1:25 year return period.

.3 Designs to accommodate a 1:100 year event shall require no freeboard, however the full supply level (FSL) should be not less than 0.35 m below the basement floor level (walkout) or below the main floor level of non walkouts in adjacent housing.

.4 When the 1:100 year return period level is surpassed, the design must provide for a safe overflow route for the major system of the pond catchment area. If no overflow route is available the retention facility shall be designed to a higher standard and approved by the General Manager of Planning and Development. The location of the retention facility should be situated with a suitably sized upstream contributing area that provides adequate volumes of runoff that will meet water demands, from quality (water turnover) and quantity (water supply) considerations. City domestic water addition shall not be required, except for severe drought conditions.

(a) Water balance modeling using many years of rainfall and evaporation data available from Prairie Farm Rehabilitation Administration (PFRA) reports will be required to ensure adequate water supply for
the facility. The retention facilities are project specific and involve not only storm water quantity but quality considerations.

(b) Maintenance costs for the long term must be addressed since water quality problems do not develop until several years after construction of a storm water storage facility.

(c) A pre-design engineering report addressing sizing, shape, inlet/outlet structures, soils, costs, water supply and water quality and long term maintenance shall be submitted for approval to the General Manager of Planning and Development.


5.14 Storm Water Detention Facilities (Dry Facilities)

.1 A detention facility does not permanently retain storm water runoff. Water is contained in the facility for only a short period of time. The maximum water surface elevation allowed shall not be greater than 0.35 m below the basement floor level (walkout) or below the main floor level of non-walkouts in adjacent housing.

.2 Detention facilities are to be designed to handle runoff from a 1:100 year return period.

.3 Detention facilities are located in single use and multi land use areas (e.g., parks, sports fields, school yards, greenbelts, etc.) and as such, are site specific and require the approval of the General Manager of Planning and Development.

.4 When the 1:100 year return period level is surpassed, the design must provide for a safe overflow route for the major system of the pond catchment area. If no overflow route is available, the detention facility shall be designed to a higher standard approved by the General Manager of Planning and Development.

(a) Gross evaporation and rainfall records from 1911 to 1986 are available in PFRA report Determination of Gross Evaporation for Small to Moderate-sized Water Bodies in the Canadian Prairies using the Meyer Formula - Hydrology Report # 113 dated January, 1988 and

5.15 Water Quality Improvement/Protection Measures

.1 Developments 0.2 hectares or greater incorporating surface parking for large number of vehicles such as high-density residential, commercial shopping malls, land uses such as salvage yards, or heavy industrial/manufacturing land uses shall incorporate approved storm water quality improvement measures in the on-site minor system prior to connecting to the City owned minor system.

.2 Developments incorporating fuel or chemical storage shall install shut-off valve(s) in the on-site minor system at location(s) which would prevent migration of potential contaminants into the City of Regina storm sewer system.

5.16 Storm Channels

.1 Major storm channels shall be designed for the 1:100 year runoff flow. Side slopes shall not be steeper than 4:1. Channels shall be designed with consideration of erosion factors, gradient requirements for efficient flow, and long term maintenance aspects relating to vegetation control and periodic sediment removal and an incorporated low-flow pipe drainage system shall be considered.

5.17 Use of Non-Standard Materials

.1 Use of non-standard materials for pipes, valves, fittings, catch basin, and appurtenances shall not be permitted unless fully documented as to need. Approval by the General Manager of Planning and Development is required for use of non-standard materials.

5.18 Other Standards/Approvals

.1 The storm system design plans require the approval of the City of Regina, and may require Department of Fisheries and Oceans (DFO), Saskatchewan Ministry of Environment (sewers), and Saskatchewan Watershed Authority (retention facilities and receiving creeks) for Approval to Construct. As-buit drawings shall be submitted to the City and to the above-mentioned provincial authorities to obtain Approval to Operate.
Development Standards

Section 10

Water Design
1.0 General

1.1 Policy, Goals and Objectives .......................................................................................... 173

2.0 Specifications

2.1 Standard Construction Specifications ......................................................................... 173
2.2 Submittals ....................................................................................................................... 173

3.0 Definitions

3.1 Supply Watermain ......................................................................................................... 174
3.2 Trunk Watermain .......................................................................................................... 174
3.3 Feeder Watermain ......................................................................................................... 174
3.4 Distribution Watermain ............................................................................................... 174
3.5 Oversize Watermain ..................................................................................................... 175
3.6 Primary Network ......................................................................................................... 175

4.0 Concept Design Standards

4.1 General Concept Servicing .......................................................................................... 175
4.2 Distribution Service Pressure ...................................................................................... 175
4.3 Development Water Supply Staging Requirements ..................................................... 175

5.0 Detailed Design Standards

5.1 Alignment of Watermain ............................................................................................. 176
5.2 Depth of Cover ............................................................................................................. 176
5.3 Watermain Sizing ........................................................................................................ 177
5.4 Pipe Material ............................................................................................................... 177
5.5 Watermain Looping ..................................................................................................... 177
5.6 Fire Hydrants ............................................................................................................. 177
5.7 Valves .......................................................................................................................... 178
5.8 Service Connections .................................................................................................... 179
5.9 Service Connections to Properties Containing Underground Storage Tanks ........... 180
5.10 Service to Parks ......................................................................................................... 181
5.11 Building Service and Fire Systems Booster Pumps .................................................... 181
5.12 Water Meter Installation Standards and Backflow Prevention Requirements ............ 182

6.0 Hydraulic Network Analysis

6.1 Hydraulic Analysis Design Standards .......................................................................... 182
6.2 Fire Flow ....................................................................................................................... 183
6.3 System Performance and Submissions ................................................................. 184

List of Tables

6.1 Table 6.1.5 Design Population .............................................................. 183
6.2 Table 6.2.3 Fire Flow ........................................................................ 184

List of Charts

N/A

List of Figures

N/A
1.0 GENERAL

1.1 Policy, Goals and Objectives

   .1 Design and provide water distribution facilities which meet the requirements and recommendations of the following:

   (a) *The Environmental Management and Protection Act, 2002*  
       Saskatchewan Environment approval is required prior to constructing, extending, altering or operating any waterworks.

   (b) *Water Regulations, 2002*  
       A Permit to Operate a Waterworks contains requirements for the protection and health of the water user as well as water quality and testing standards.

   (c) *City of Regina, Water Bylaw 8942*  
       The Bylaw contains the requirements for water servicing, backflow prevention, metering, maintenance and fees and charges.

   (d) *City of Regina, Building Bylaw 2003-7*  
       This Bylaw includes requirements from the National Building Code, National Plumbing Code and Canadian Standards Association.

   (e) *City of Regina Water Conservation Program*  
       Water use efficiency and water conservation are key aspects of the City’s future water supply planning. Developers are encouraged to incorporate applicable conservation techniques and technology in new development in the City.

   (f) *Canadian Plumbing Code of Canada, 1995.*

   (g) *Plumbing and Drainage Regulations - The Public Health Act, 1994 P-37.1 Reg1*

2.0 SPECIFICATIONS

2.1 Standard Construction Specifications

   .1 The *Development Standards Manual* must be read in conjunction with the City of Regina *Standard Construction Specifications Manual.*

2.2 Submittals

   .1 Submit detailed, dimensioned design plans that have been prepared under the supervision of, and sealed by, a Professional Engineer registered to practice in the Province of Saskatchewan at least 30 calendar days prior to the proposed date of commencement of work. Submit the plans to the attention of the Infrastructure Development Branch of Planning and Development Division.
2. Submit detailed design plans and specifications to Saskatchewan Ministry of Environment on behalf of The City of Regina in accordance with the requirements to obtain Approval to Construct, Extend, or Alter Existing Works.

3. Obtain approvals from all affected private and public agencies to construct works across or adjacent to their infrastructure or within their jurisdiction.

4. Resubmit plans returned for revision following review. Work may not commence until the City of Regina has approved the submission.

5. Promptly submit record drawings to the City of Regina in accordance with the requirements of Subdivision Servicing - Sub-Section 3.4 of the Development Standards Manual.

### 3.0 DEFINITIONS

**3.1 Supply Watermain**

.1 A supply watermain is one which delivers water from a supply source, such as the Buffalo Pound Water Treatment Plant, to a water storage reservoir or water pumping station.

**3.2 Trunk Watermain**

.1 A trunk watermain (trunkmain) is a pipe over 450 mm nominal diameter which delivers potable water within the distribution system network. Service connections to trunkmains are not permitted.

**3.3 Feeder Watermain**

.1 A feeder watermain (feedermain) is a pipe between 300 mm and 450 mm which delivers potable water within the distribution system network. Service connections to feeder mains are permitted.

**3.4 Distribution Watermain**

.1 A distribution watermain is a pipe between 150 mm and 250 mm which delivers potable water within the distribution system network. Service connections to distribution watermains are permitted.
3.5 Oversized Watermain

.1 An oversized watermain is one which is designed to serve adjacent or extended development and is larger than would be determined by standard sizing criteria. Oversized watermains, where approved, shall be funded through Service Agreement Fees funding as per the Servicing Agreement and Servicing Agreement Fee Policy and Procedures Manual.

3.6 Primary Network

.1 The primary network is the system of trunkmains and feeder mains within the water distribution system.

4.0 CONCEPT DESIGN STANDARDS

4.1 General Concept Servicing

.1 Overall water servicing concept plans must, at a minimum, show the design of the primary network within the development. The design shall include proposed pipe sizes, connection points to the existing City system as well as proposed extensions into future adjacent development areas.

.2 It shall be the responsibility of the Developer to demonstrate the serviceability of the development. New development shall not degrade the service level of the existing distribution system below an acceptable level.

4.2 Distribution Service Pressure

.1 Normal distribution service pressure leaving the pumping station(s) in the Primary Pressure Zone is approximately 414 kPa measured at a datum elevation of approximately 576.2 m ASL geodetic. System pressure losses are generally in the range of 14 to 28 kPa under Peak Day Demand conditions.

.2 Pressures within a Second Pressure Zone, when implemented, will differ from the primary zone. Contact the City of Regina for hydraulic information within this area.

4.3 Development Water Supply Staging Requirements

.1 For subdivisions ≥ 2 ha and < 10 ha in total final area, provide a minimum of two independent connections to the distribution system within 5 years of initiating development.
.2 For subdivisions ≥ 10 ha and < 20 in total final area, provide a minimum of two independent connections to the distribution system within 3 years of initiating development.

.3 For subdivisions ≥ 20 ha in total final area, provide a minimum of two independent connections to the distribution system within 2 years of initiating development.

.4 Each connection must be at least feedermain classification or as approved by the City of Regina.

5.0 DETAILED DESIGN STANDARDS

5.1 Alignment of Watermain

Design watermains using the following alignment criteria:

.1 Wherever possible design watermain to avoid high points which can act as air pockets.

.2 Wherever possible design watermain to cross above sewer mains. Minimum clear vertical separation of watermain and any sewer main to be 0.3 m for watermains passing above sewer mains and 0.5 m for watermains passing below sewer mains.

.3 Locate watermains a minimum of 3.0 m horizontally from sewer mains.

.4 Locate watermains in street right-of-way at an offset of 3.0 m from centerline.

.5 For installation in walkway or easement - provide a minimum walkway or easement width of 6.0 m for mains 400 mm or less in diameter and 10.0 m for watermains larger than 400 mm. Locate mains in the centre of walkway or easement unless specifically approved otherwise.

5.2 Depth of Cover

.1 Minimum depth of cover on distribution watermains is 2.7 m to top of pipe. Minimum depth of cover on feeder and trunk watermains is 2.3 m to top of pipe. Proposed depth of cover exceeding 3.2 m to top of pipe must be approved by the City of Regina. Proposed depth of cover less than specified must be approved by the City of Regina and will be considered only where it can be demonstrated to the satisfaction of the City that circumstances preclude practical installation at the specified depth of cover. Watermains proposed for installation at depths less than specified must be insulated in a
manner satisfactory to the City and to a degree that will provide at least equivalent thermal protection as the specified depth of cover.

5.3 **Watermain Sizing**

.1 Sizing of water mains will be determined by hydraulic network analysis as set out in Section 6.0.

.2 The minimum size of a distribution main shall be 150 mm.

5.4 **Pipe Material**

.1 Refer to Section 02511-Water mains in the *Standard Construction Specifications Manual* for products which are approved for use in the construction of water mains.

5.5 **Watermain Looping**

.1 Design of dead-end water mains is permissible only in cul-de-sacs and locations specifically approved by the City of Regina.

.2 Include a standard flushout, in accordance with the *Standard Construction Specifications Manual* Drawing W-12, at the end of all dead-end water mains. Hydrants may not be used as flushouts except in locations where the watermain has been stubbed to allow for future expansion.

.3 Maximum allowable length of dead-end watermain is 150 m.

.4 Interconnect 150 mm mains in Level 1 areas at least every 300 m.

.5 Interconnect 150 mm mains in Level 1 areas zoned R5 and NC at least every 200 m or provide minimum 200 mm mains interconnected at least every 300 m.

.6 Interconnect 200 mm mains in Level 2 and higher areas at least every 200 m.

.7 Provide primary mains spaced such that no point in the system is in excess of 2000 m from a minimum 400 mm feeder main. This is to be measured lineally along the pipe.

5.6 **Fire Hydrants**

.1 Design public and private fire hydrant installations in accordance with the following standards and criteria, whichever is more stringent, and to the approval of the City of Regina Fire Department:

(a) National Fire Protection Association (NFPA) Standards
(b) National Building Code of Canada, 1995
(c) Locate Hydrants:
   (i) On the watermain side of the street.
   (ii) At the entrances to streets.
   (iii) At the entrance to cul-de-sacs. Place hydrants on the right hand side (when entering the cul-de-sac) where possible.
   (iv) Within 3.0 m of the property line.
   (v) A minimum of 300 mm from back of walk.
   (vi) 1.5 m from back of curb on streets designated as residential.
   (vii) 1.8 m from back of curb on all other streets.
(d) Fire hydrants shall be spaced such that:
   (i) In Level 1 areas, there is a maximum of 150 m unobstructed distance between hydrants.
   (ii) In Level 2 and higher areas, there is a maximum of 90 m unobstructed distance between hydrants.
   (iii) A fire hydrant coverage map, which shows the coverage provided by each hydrant, shall be submitted with the engineering plans.
(e) Use minimum 150 mm pipe for hydrant leads or as required to limit pressure loss between the connection points to the main and the hydrant to less than 21 kPa at a flow rate of not less than 90 L/s at the hydrant.

5.7 Valves

.1 Design and provide valves in accordance with the following criteria. Valves shall be:
   (a) Equal to the nominal size of the watermain.
   (b) Located on or in line with property lines and within the paved portion of streets.
   (c) Located at all street intersections and additional locations in residentially zoned areas so that the closure of adjacent valves will not result in an interruption of service to:
      (i) More than 26 individual residential addresses, including those within detached single family, duplex or townhouse units.
      (ii) Apartment block(s) containing a total of 52 or more individual apartment units.
      (iii) Any combination of the above.
(d) Located in Fire Flow Level 1 areas so that a maximum of two hydrants would be out of service by the closure of the nearest adjacent valve on either side of any point on the watermain.

(e) Located in Fire Flow Level 2 or higher areas so that a maximum of one hydrant would be out of service by the closure of the nearest adjacent valve on either side of any point on the watermain.

(f) Located on every hydrant lead.

(g) Located on all interconnections to feeder and trunk watermains.

(h) Spaced at a maximum of 1000 m along trunkmains.

(i) Located at either end of sections of watermain passing through an easement or walkway.

(j) Located such that the closure of a maximum of 4 valves will isolate any section of watermain.

5.8 Service Connections

A service connection extends from the connection point to the watermain to the property line and is deemed to consist of: a main stop (valve for services larger than 50 mm), water service pipe and, a curb stop (valve for services larger than 50 mm) located on the property line. Construct service connections in accordance with the Standard Construction Specifications Manual and the following criteria:

(a) Water service connections are to connect to the watermain at a perpendicular angle where possible. Exceptions may be approved at the discretion of the City of Regina.

(b) Service connections for commercial and industrial zoned applications are to be a minimum 50 mm diameter.

(c) Individual residential service size to be not less than 20 mm for services less than 20 m long.

(d) Individual residential service size to be not less than 25 mm for services more than 20 m long and for all lots having a centre of lot elevation between 585.0 and 590.0 m ASL.

(e) Service size to be not less than 25 mm for a fourplex unit.

(f) Provide individual services to side by side duplex units.

(g) Service superimposed duplexes from a single connection to the watermain. Minimum service size to be 25 mm. Split the main service into two individual services immediately inside the building and provide a lockable main shutoff valve on each branch.

(h) Service front to back duplexes from a single connection to the watermain. Minimum service size to be 25 mm for services less than 20
m long and 40 mm for services over 20 m long or where the center of the lot elevation is above 585.0 m ASL. Provide a minimum 20 mm service into the front unit and a minimum 25 mm service into the back unit. Provide a curb stop on the property line for each service. Space curb stops a minimum of 750 mm apart.

(i) Private developments containing more than 26 residences require either provision of an isolating valve on either side of the service connection on the watermain being connected to or, service connections from at least two separate distribution watermains (looped system). Maximum length of a single connection system is 150 m. Refer to Section 5.5.3.

(j) Private developments containing more than one multi-residence building require the provision of a shutoff valve on the water service branch into each building.

(k) Private developments containing more than one multi-residence building or more than 26 residences connected to an un-looped watermain require provision of a flushout or hydrant located to enable the private watermain to be flushed out over its entire length.

(l) Service connections having less than 2.7 m of cover to the top of pipe are not permitted.

(m) Service connections may not pass within a horizontal distance of 1.5 m from manholes or catchbasins. Where circumstances prevent achieving the required clearance, consideration may be given to insulation of the service pipe as a means to reduce this clearance requirement.

(n) Service connections to the City of Regina trunkmain system known as the ‘City Loop’ must be at least 300 mm diameter.

(o) All redundant, unused or lead water service connections shall be disconnected and capped at the main.

(p) No building shall be erected over a service connection, nor shall a service connection be installed under a building.

(q) A separate service connection to the distribution system is required for each lot with distinct certificates of title. Water service pipes are not permitted to traverse any private property other than that on which the buildings that the piping serves are located, unless a legal easement and permission from the City of Regina has been obtained.

5.9 Service Connections to Properties Containing Underground Storage Tanks

.1 For servicing property containing or which has contained underground storage tanks for the storage of petroleum or any other material classified as hazardous, use copper pipe for services 50 mm and smaller. Use ductile iron pipe or as approved for services 100 mm and larger. Install an impermeable barrier of bentonite or other approved material in the service trench at the
property line in accordance with the City of Regina *Standard Construction Specifications Manual*.

5.10 Services to Parks

.1 Park irrigation systems are to be provided with either 50 mm or 100 mm service. Generally, parks having an irrigated area of 1.25 ha or less require a 50 mm service and parks with an irrigated area greater than 1.25 ha require a 100 mm service. However, where parks are located in areas of lower distribution pressure, or are of a shape requiring very long sprinkler runs, these guidelines can vary. Additional requirements may include the use of a larger service or the provision of a looped system supplied from two points on the distribution system. Obtain pre-approval of system designs proposing the use of booster pumping. Systems employing booster pumping will be considered only for special circumstances.

5.11 Building Service and Fire Systems Booster Pumps

.1 Generally, service lines are to be designed so that booster pumping is not required. Where the use of a booster pump is unavoidable, design the service and booster pump in accordance with the following:

(a) With backflow preventer assembly and water meter on the upstream (suction) side of the booster pump. Water meters are not required on fire booster pumps.

(b) Minimum pressure at pump suction connections shall be greater than 140 kPa at a flow rate of 110% of the booster pump design flow.

(c) Where operation of a domestic supply booster pump at the above criteria results in a pressure less than 245 kPa at the service connection point to the watermain, as determined by WaterCAD® modeling with the system operating at Peak Day Demand, provide a modulating suction pressure sustaining valve, or other device acceptable to the City of Regina, set to preserve a minimum 245 kPa pressure as measured at the watermain connection point. Provide modeling results for review/approval.

(d) Where operation of a fire system booster pump at the above criteria results in a pressure less than 140 kPa at the service connection point to the watermain, as determined by WaterCAD® modeling with the system operating at Peak Day Demand, provide a modulating suction pressure sustaining valve, or other device acceptable to the City of Regina, set to preserve a minimum 140 kPa pressure as measured at the watermain connection point. Provide modelling results for review/approval.
5.12 Water Meter Installation Standards and Backflow Prevention Requirements

.1 Metering is required on each water service connected to the City of Regina supply or distribution systems. Water meters are sized, supplied and installed by the City of Regina and remain City of Regina property.

.2 All new water services, except those for single, duplex and fourplex residential services, require the completion of a Meter Sizing Form so that the appropriate meter size can be determined by the Public Works Division. Meter Sizing Forms can be obtained from the Water and Sewer Engineering Branch of the Public Works Division.

.3 Applicants are encouraged to contact the Cross Connection Control Coordinator in the Water and Sewer Engineering Branch for direction regarding the requirement for backflow prevention within their proposed facility or development.

.4 Details on the installation of water meters and backflow preventers can be found in the City of Regina Standard Construction Specifications Manual.

6.0 HYDRAULIC NETWORK ANALYSIS

6.1 Hydraulic Analysis Design Standards

.1 Carry out computerized modeling of all proposed watermains within each development using WaterCAD® by Bentley Systems Inc®. The City of Regina will provide hydraulic grade line (HGL), pressure and elevation data extracted from the City’s WaterCAD® base model for each existing node to which connection is proposed.

.2 Set node elevations in the model to design street elevation not design watermain elevation.

.3 Distribute projected domestic demands as equally as possible throughout the system in accordance with land use and zoning adjacent to each node. In the event that a node represents a significantly greater number of services than average, the demand should be modified to reflect the larger requirement at the node.

.4 Design Criteria:

(a) Fire Flow: As per Section 6.2

(b) Average Day Demand: 415 Lpcd

(c) Design Peaking Factors:

(i) Peak Day Demand = 2.1 x Avg. Day Demand

(ii) Peak Hour Demand = 3.2 x Avg. Day Demand.
Utilize the following Hazen-Williams C-factors for all hydraulic modeling:

(i) PVC pipe – Design C-factor = 130
(ii) HDPE pipe – Design C-factor = 130
(iii) Steel pipe – Design C-factor = 120
(iv) Other – To be determined by City of Regina

5 Design Population

Table-6.1.5

<table>
<thead>
<tr>
<th>Zoning</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Residential</td>
<td>3.3 persons/unit</td>
</tr>
<tr>
<td>Multi-Family Residential</td>
<td>2.3 persons/unit</td>
</tr>
<tr>
<td>High Rise Residential</td>
<td>235 persons/ha</td>
</tr>
<tr>
<td>Commercial</td>
<td>65 persons/ha</td>
</tr>
<tr>
<td>Institutional</td>
<td>50 persons/ha</td>
</tr>
<tr>
<td>Industrial</td>
<td>25 persons/ha</td>
</tr>
</tbody>
</table>

Note: Residential populations are based upon minimum lot sizes as defined in the City of Regina Zoning Bylaw No. 9250 and are subject to adjustment on a case by case basis

6.2 Fire Flow

1 Size and locate watermains and fire hydrants in accordance with this manual and any other applicable Codes and Bylaws.

2 Fire flow is to be assumed to occur concurrently with Peak Day Demand in the system.

3 Initial fire flow design requirements are as follows and are subject to adjustment on a case by case basis:
Table-6.2.3: Fire Flow

<table>
<thead>
<tr>
<th>Zoning Designation</th>
<th>Fire Flow Requirement Designation</th>
<th>Required Minimum Fire Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>FW, NC, PS, PUD, R1, R1A, R2, R3, R4, R5, UH</td>
<td>Level 1</td>
<td>90 L/s</td>
</tr>
<tr>
<td>HC, LC1, LC2, MAC, MAC3, MS, MX, R6, R7, R8, TAR</td>
<td>Level 2</td>
<td>150 L/s</td>
</tr>
<tr>
<td>D, DSC, I, IA, IA1, IB, IB1, IP, IT, RR, WH</td>
<td>Level 3</td>
<td>250 L/s</td>
</tr>
<tr>
<td>IC, IC1</td>
<td>Level 4</td>
<td>300 L/s</td>
</tr>
<tr>
<td>Airport, Airport Industrial</td>
<td>n/a</td>
<td>Requirements as per Regina Airport Authority</td>
</tr>
<tr>
<td>Wascana Centre</td>
<td>n/a</td>
<td>Requirements as per Wascana Centre Authority</td>
</tr>
<tr>
<td>University of Regina</td>
<td>n/a</td>
<td>Requirements as per the University of Regina</td>
</tr>
</tbody>
</table>

Note: Zoning to be checked against recently revised zoning designations.

6.3 System Performance and Submissions

.1 Simulate and verify the following maximum pressure drop requirements corrected for node elevation differences under Peak Day and Peak Hour flows. Pressure drops to be calculated between the City of Regina tie-in node(s) and the node with the lowest hydraulic grade line in the complete development (not in a partial system). Pressure drop should be calculated in the form of hydraulic grade line.

(a) Peak Day Demand maximum allowable pressure drop ≤ 17 kPa.
(b) Peak Day Demand minimum allowable pressure corrected to proposed ground elevation ≥ 280.0 kPa.
(c) Peak Hour Demand maximum allowable pressure drop ≤ 27.6 kPa.
(d) Peak Hour Demand minimum allowable pressure corrected to proposed ground elevation ≥ 269.4 kPa.

.2 Simulate and verify the following maximum pipe velocities:
(a) ≤ 1.5 m/s at Peak Hour Demand
(b) \( \leq 3.2 \text{ m/s at Peak Day Demand + Fire Flow} \)

3. A hydraulic network analysis shall be submitted which includes the following:

(a) An introduction with a general description of the proposed development.
(b) A section outlining any assumptions made for modelling (e.g. pipe material and size, Hazen-Williams C-factor, per capita consumption rates, any other relevant information).
(c) A section discussing the design population of the proposed development and how it was calculated. All calculations should be shown.
(d) Calculations showing the Average Day, Peak Day and Peak Hour Demands for the proposed development.
(e) A description of calculations outlining how the demands are distributed among the nodes in the proposed system.
(f) A section that describes where the proposed pipe network will be tied in to the City of Regina’s network. This should include all hydraulic information for the City of Regina tie-in junctions.
(g) A drawing showing the pipe network and lot layout along with proposed land zoning.
(h) A drawing showing the assigned pipe and node numbers. Pipe sizes and material types are also to be shown.
(i) An electronic copy of the hydraulic model completed in Bentley WaterCAD®. The model should be developed and tested, complete with the following run scenarios:
   (i) Average Day Demand
   (ii) Peak Day Demand
   (iii) Peak Hour Demand
   (iv) Fire Flow Analysis (Flows to meet zoning requirements)
(j) A section describing the results of all simulations.
Development Standards

Section 11

Waste Management
1.0 General

1.1 Policy, Goals and Objectives ............................................................... 191

2.0 Collection Services for Residential Developments

2.1 Requirements .................................................................................................. 191
2.2 Accessibility to Site .......................................................................................... 192
2.3 Type of Service .................................................................................................. 192

3.0 Collection Services for Non-Residential Developments

3.1 Requirements .................................................................................................. 193
3.2 Accessibility to Site .......................................................................................... 193
3.3 Type of Service .................................................................................................. 194

4.0 Site and Building Design Requirements

4.1 Site Design ........................................................................................................ 194
4.2 Building Design .................................................................................................. 195

5.0 Waste Minimization Options

5.1 Diversion .............................................................................................................. 195

Tables

N/A

Charts

N/A

Figures

N/A
1.0 GENERAL

1.1 Policy, Goals and Objectives

.1 Waste management in the City of Regina is governed by The Environmental Management and Protection Act, 2002 of the Province of Saskatchewan and the associated Municipal Refuse Management Regulations, Regina Waste Management Bylaw No. 9935 and the Solid Waste Management Plan as approved by City Council.

.2 The City of Regina has the responsibility to ensure proper waste management and this includes the provision of certain services and regulations for the scavenging and disposal of discarded materials and waste, waste collection, waste diversion/minimization programs and waste disposal.

.3 The City of Regina operates a waste management system using services, advocacy and regulation to protect the natural environment and to achieve safety and convenience for the citizens of Regina.

.4 Without proper waste management, higher-density urban development can experience health and safety, odour, environmental, economic and aesthetic problems.

.5 Proposed developments, in order to qualify for City of Regina waste collection services, must meet the City’s requirements for maximum allowable waste volume generation limits, site accessibility, roadway design standards and collection operations.

.6 Proposed developments involving private roads or lanes, higher density development, bare-land condominium developments and/or unusual and unique land development patterns should consult the City during very preliminary design stages. Failure to meet City requirements and standards may preclude the property from receiving waste collection services.

2.0 COLLECTION SERVICES FOR RESIDENTIAL DEVELOPMENTS

2.1 Requirements

.1 All residential developments will include a Discard Management Plan to direct proper planning for design and construction of the development, and the efficient post-development servicing and use of the site for handling discarded materials, the optional separation of recoverable materials and the disposal of the remaining waste. This section pertains to all residential developments.

.2 The Discard Management Plan should include temporary storage areas for recoverable materials and waste destined for disposal, specific collection truck
access routes with roadway dimensions, specific set-out locations for waste collection, and estimated waste generation and recoverable material weights. In addition, the Plan is recommended to include a review of options to reduce both waste generation and to facilitate the diversion of recyclable materials in a cost-effective manner.

.3 The Discard Management Plan should be submitted for review and approval prior to the site being considered for possible City of Regina waste collection service.

.4 A City of Regina waste collection service, subject to qualifying for the service, will generally not commence until the development has both paved roads and either sidewalks or curbs installed.

2.2 Accessibility to Site

.1 The developer shall construct public or private roadways and alleys to meet the requirements within the City of Regina Standard Construction Specifications Manual.

.2 The developer, in order to provide for City waste collection service, shall not restrict access to the site through the use of permanent or temporary gated structures with or without locking features.

2.3 Type of Service

.1 The City, at its option, will decide if the proposed residential development is eligible for waste collection service, and if so, whether it would be serviced by

(a) automated right side-loading service,
(b) front street automated carts, or
(c) other system.

.2 There will be no residential manual collection as of June 2009.

.3 The City will not provide a mixed waste collection service within the same development. (e.g., partially automated front or rear alley service)

.4 In general, infill development areas qualifying for waste collection service will be serviced by the same type of waste collection service provided within the encompassing neighbourhood.
3.0 COLLECTION SERVICES FOR NON-RESIDENTIAL DEVELOPMENTS

3.1 Requirements

.1 A proposed non-residential development should include a Discard Management Plan to direct proper planning for design and construction of the development, and the efficient post-development servicing and use of the site for handling discarded materials, the optional separation of recoverable materials and the disposal of the remaining waste.

.2 The Discard Management Plan should include temporary storage areas for recoverable materials and waste destined for disposal, specific collection truck access routes with roadway dimensions, specific set-out locations for waste collection, estimated waste generation and recoverable material weights. In addition, the Plan is recommended to include a review of options to reduce both waste generation and to facilitate the diversion of recyclable materials in a cost-effective manner. Non-residential developments can generate high volumes of paper and cardboard material, which can be recovered and recycled.

.3 The Discard Management Plan shall be submitted for review and approval prior to the site being considered for possible City of Regina waste collection service.

.4 A City of Regina waste collection service, subject to qualifying for the service, will generally not commence until the development is complete.

.5 Non-residential developments not requiring and/or not eligible for City of Regina waste collection service should contact a waste collection business during the initial site and building design stage to ensure efficient waste collection and accommodation of appropriate diversion of recyclable materials.

3.2 Accessibility to Site

.1 The developer shall construct public or private roadways and lanes to meet all City of Regina Construction Specifications Standards.

.2 The developer, in order to provide for City waste collection service, shall not restrict access to the site through the use of permanent or temporary gated structures with or without locking features.

.3 The developer shall provide a minimum vehicle turning roadway radius of 12.8 metres outside and 10 metres inside in addition to curb-side parking for waste collection trucks.
.4 If City service is requested, prior to commencement of a waste collection service on a private street or lane, the developer shall sign a waiver agreement relieving the City of Regina from any and all damages and claims that might result from the impact of City waste collection vehicles operating on the private property. This waiver agreement shall extend to any future condominium association or other parties associated with the property as a condition of service.

3.3 Type of Service

.1 The City, at its option, will decide if the proposed non-residential development is eligible for waste collection service, and if so, whether it would be serviced by

(a) manual collection,
(b) automated right side-loading service,
(c) front street automated carts, or
(d) other system.

.2 The City will not provide a mixed waste collection service within the same development. (e.g., partially manual and partially automated front or rear alley service)

.3 In general, infill development areas qualifying for waste collection service will be serviced by the same type of waste collection service provided within the encompassing neighbourhood.

4.0 SITE AND BUILDING DESIGN REQUIREMENTS

4.1 Site Design

.1 The developer shall design and designate specific waste collection sites, and where applicable, define appropriate waste containers suitable for the size and nature of the proposed development.

.2 Utilization of a combined access road or lane-way in conjunction with abutting on-site parking stalls, for operational and safety reasons of waste collection staff and equipment, should be avoided.

.3 Waste collection staff, for occupational and safety reasons, should not be required to walk between parked vehicles to access waste collection sites or waste collection containers.

.4 Site designs, for safety reasons, shall avoid the requirement for waste collection trucks to backup to access the site or to collect waste.
.5 Site designs shall avoid the use of “T” and “L” internal road configurations that would require a waste collection truck to backup to access waste collection sites.

.6 The developer should consider snow removal and snow storage areas on-site to enable waste collection vehicles to access the site and collect the waste under winter conditions.

.7 The developer shall provide a minimum overhead clearance of 4.4 metres for the movement of City of Regina waste collection trucks and a 5.0 metre clearance to accommodate an automated container tipping height.

.8 The developer shall provide a landscape plan that ensures waste collection vehicles will have full site access without equipment damage over the life-span of the development.

.9 Automated back alley type waste collection containers, requiring City of Regina waste collection, will be sited and collected from the right-hand side of the collection City trucks. [Note: City does not operate front-loading, overhead cradle equipment and associated front-loading dumpsters. Developments using this design cannot be serviced by City equipment]

.10 Structures over which loaded waste collection trucks are expected to pass shall be designed in accordance to City of Regina Standard Construction Specifications Manual pavement designs or an approved alternate. Refer to R-1 Standard Drawings of the Standard Construction Specifications Manual.

.11 The developer, if requiring a private contracted collection service, should consult with a waste collection business during the project design stage to ensure a safe and efficient waste collection service involving the packaging, storage and removal of waste.

4.2 Building Design

.1 The general building design of higher density residential and non-residential developments should consider options to provide for the temporary collection, storage and efficient handling of waste material and recyclable material that will be generated from the building(s).

5.0 WASTE MINIMIZATION OPTIONS

5.1 Diversion

.1 The developer is encouraged to consider design provisions to reduce the amount of organic yard waste generated through the incorporation of site design, xeriscaping
and the encouragement of occupants to grass-cycle yard material and/or in situ composting.

.2 The developer is encouraged to consider design provisions for non-residential developments to accommodate the temporary storage, handling and diversion of paper and cardboard product material generated.

.3 The developer is encouraged to provide the opportunity for local residential paper product recycling with centralized community focal points incorporating both mailbox kiosks and paper recycling collection facilities.

.4 The developer is encouraged to design higher density residential developments incorporating internal facilities to collect and temporarily store recoverable materials for recycling and thereby reduce the amount of waste going for disposal.
Development Standards

Section 12

Open Space Development
Open Space Development

1.0 General

1.1 Regulatory Requirements ................................................................. 203
1.2 Development and Conservation Standards ........................................ 204
1.3 Physical and Psychological Needs .................................................... 205
1.4 Furnishings and Equipment ............................................................. 205
1.5 Security and Safety ........................................................................... 206
1.6 Public Participation ........................................................................... 207
1.7 Winter Use ....................................................................................... 208
1.8 Spatial Organization ......................................................................... 208
1.9 Access and Circulation ..................................................................... 209
1.10 Pathways ......................................................................................... 210
1.11 Adjacent Land Uses ........................................................................ 210
1.12 Neighbourhood Context ............................................................... 210

2.0 Development Requirements

2.1 General .............................................................................................. 211
2.2 Construction Approvals ................................................................. 211
2.3 Construction Documents ............................................................... 211
2.4 Utility and Pipeline Locations ......................................................... 213
2.5 Temporary Water Use ...................................................................... 213
2.6 Erosion and Sediment Control ....................................................... 214
2.7 Inspections ....................................................................................... 214
2.8 As-Built Submissions ...................................................................... 214
2.9 Maintenance/Warranty ................................................................... 215
2.10 Maintenance Period ....................................................................... 215
2.11 Warranty Period ............................................................................. 215
2.12 Manufacturers’ Warranties ............................................................ 216
2.13 Construction Certificates (CCC#2 - Landscape) ............................. 216
2.14 Final Acceptance Period (FAC#2 - Landscape) ............................... 218

3.0 Design Criteria

3.1 General ............................................................................................. 220
3.2 Buffer Strips ................................................................................... 220
3.3 Greenways ..................................................................................... 221
3.4 Public Walkways ............................................................................ 221
3.5 Traffic Islands ................................................................................ 222
3.6 Boulevards and Medians ............................................................... 222
3.7 Pipe Line Right-of-Way ................................................................. 223
3.8 Utility Parcels ............................................................................... 224
3.9 Flood Plains .................................................................................. 224
4.38 Signage ........................................................................................................................................... 244
4.39 Structures ......................................................................................................................................... 245
4.40 Lighting ............................................................................................................................................... 245
4.41 Special Features .................................................................................................................................. 248

Tables

Table 4.23.4 Grading & Drainage ........................................................................................................... 235
Table 4.25.12 Shrub Plant Materials ..................................................................................................... 237
Table 4.26.8 Irrigation .......................................................................................................................... 238
Table 4.26.12 Irrigation Valve & Sprinkler Information ........................................................................ 239
Table 4.40.12 Lighting Standards ......................................................................................................... 246

Charts

N/A

Figures

Figure 2.14 CCC #2 And FAC #2 Process ............................................................................................ 219
Figure 3.9 Flood Plain ............................................................................................................................ 225
1.0 GENERAL

1.1 Regulatory Requirements

.1 The City is not obligated to allow any construction of the improvement prior to the formal approval of the plans and specifications. Construction documents shall carry the appropriate approval stamps or seals.

.2 All open space developments must conform to the requirements of the following. Where no version is specified, the current version at the date of the Servicing Agreement shall govern.

(a) City of Regina Standard Construction Specifications Manual
(b) Developer’s/Consultant’s Field Services Guidelines
(c) Open Space Management Strategy
(d) City of Regina Zoning Bylaw No. 9250
(e) City of Regina Forestry Bylaw
(f) City of Regina Development Standards Manual.
(g) Regina Urban Forest Management Strategy.
(h) Children's Playspaces and Equipment, The Canadian Standards Association (CSA), CAN/CSA-Z614-03
(i) Saskatchewan Human Rights Accessibility Standards
(j) National Building Code of Canada
(k) Canadian Standards for Nursery Stock - Canadian Nursery Trades Association
(l) City of Regina Open Space Lighting Policy and Procedures
(m) The Park Naming Policy
(n) Saskatchewan Planning and Development Act, 2007
(o) TransCanada Pipelines - Standard Conditions
(p) City of Regina Athletic Field System
(q) Plan for the City of Regina’s Bikeway Network

All correspondence related to open space developments shall be directed to the General Manager of Planning and Development. The Development Standards Manual and the Standard Construction Specifications Manual are to be considered the normal practice for the construction of landscape elements. Unique site conditions may result in the development of open space to occur in contravention of some of the standards outlined herein. The Development Engineering Department will co-ordinate with the
Planning and Sustainability Department in its consideration of alternates to, or relaxation of a requirement within the Development Standards Manual and the Standard Construction Specifications Manual when the Developer or their agent, or the Contractor or their agent, provides a written submission, in accordance with this document, identifying the reasons for special consideration. Additional written or graphic submissions may be required to properly evaluate the request. Such additional information shall be at the discretion of the General Manager of Planning and Development.

1.2 Development and Conservation Standards

.1 Design of public recreation open space shall address program needs, site characteristics, capital costs, sustainability and ongoing operating requirements. The resulting design solution shall describe its effectiveness for the intended purpose. The design of public recreational open space shall address the following functional considerations:

(a) The resolution of land use relationships in order to enable maximum social benefit and protection of environmental integrity.
(b) The resolution of essential ecological components, which are protected, introduced, expanded and/or managed.
(c) The resolution of behavioural and experiential needs including recreational, social, perceptual and educational.

.2 The following general development objectives shall be considered:

(a) Creativity during the design process.
(b) Accessibility.
(c) Design and development of recreational open space opportunities for all demographic groups.
(d) Public safety – Crime Prevention Through Environmental Design (CPTED).
(e) Involvement of all affected parties in the design of public open space.
(f) Environmentally responsible design, development and maintenance of open space.
(g) Design solutions should not result in excessive ongoing maintenance obligations.
(h) Design and development of open space demonstrating the conservation of water, the reduction of carbon dioxide (CO\textsuperscript{2}) emissions, and the reduction and responsible use of chemical pesticide and fertilizers thus preventing over-accumulation in the natural water system.
(i) The principles of conservation shall be applied to the design, development and maintenance of all public open space.

(j) Natural landscapes shall be established in areas which do not require formal or controlled landscape elements and ongoing maintenance.

1.3 Physical and Psychological Needs

.1 Open space sites shall include some distinctive focal element. In large or linear sites a series of focal elements can create a meaningful sequential experience.

.2 Consideration in design shall be given to the provision of a broad variety of recreational opportunities for all age, economic, cultural and ability groups.

.3 Recreational open space shall be in the right location and of the right type to satisfy varying needs for personal, social and environmental benefits.

.4 Open space design shall encourage both active and passive leisure opportunities.

.5 Public open space shall be designed to foster and support accessibility by all citizens. The range of abilities of persons with mental, physical and sensory disabilities shall be considered in the design of open space. This shall be achieved by, but not limited to, means such as minimal grade changes, curb cuts, ramps, railings and contrasting materials for orientation as identified in the National Building Code.

.6 Special Use Areas include buffer strips, public walkways, traffic islands, boulevards and medians, utility parcels, flood plains, storm water channels and storm water lakes and dry ponds. These areas shall be designed and developed to provide recreational experiences in an aesthetic and functional manner and ensure minimal maintenance requirements.

1.4 Furnishings and Equipment

.1 Furnishings and equipment shall be logically integrated into the overall composition of the park. The design and choice of materials for furnishings shall be co-ordinated and compatible with the setting.

.2 Play apparatus shall provide play opportunities for children of all ages and abilities and in some instances play apparatus shall target specific age and needs groups. All play equipment must have structural steel supports and must meet or exceed CSA Standards. Play areas shall be designed to accommodate children with disabilities.
.3 All furnishings and equipment intended for use in open spaces shall be vandal resistant and approved by the City prior to installation.

1.5 Security and Safety

.1 The safety and security of the public shall be an integral aspect of the design and landscaping of open space. All design and development of open space shall be reviewed with reference to the principles of Crime Prevention through Environmental Design (CPTED). Proper CPTED design and the effective use of the physical environment can reduce the incidents and fear of crime. In order to reduce fear and crime, CPTED practitioners consider designation, definition and design as follows:

(a) Designation criteria include:
   (i) The intended purpose of this space;
   (ii) The original use of the space in the neighbourhood;
   (iii) Number of activities being planned for the site;
   (iv) Potential conflicts with surrounding uses or within the activity area;
   (v) Planning of safe activities in an unsafe area; and
   (vi) The ability of the surrounding environment to support the intended use of the space.

(b) Definition criteria include:
   (i) Distinction of the space;
   (ii) Identification of borders;
   (iii) Signs indicating purpose and ownership; and
   (iv) Any social or cultural definitions influencing use of the space.

(c) Design criteria include:
   (i) The ability to support the intended function;
   (ii) Reflection of the designated purpose and use of the space; and
   (iii) Identification of users of the space through design.

.2 In addition to designation, definition and design a number of principles are used to implement CPTED. These include:

(a) Natural Surveillance or “eyes on the street” is applied to areas where people and their activities can be readily observed.

(b) Territoriality or “defensible space” refers to people’s sense of ownership in an area.
(c) Access Control means controlling access to a site.

(d) Image is based on the premise, often called the “broken window theory” that people will feel unsafe in a location that appears neglected and uncared for. Other considering factors involve:
   (i) Activity Generators,
   (ii) Hot Spots,
   (iii) Edge Effects,
   (iv) Displacement,
   (v) Conflicting User Groups and
   (vi) Movement Predictors.

Refer to the City of Regina’s *Crime Prevention through Environmental Design – Handbook* (2004).

.3 Parks shall have sufficient street frontage (30.0 m min.) for clear visual surveillance and good site access and egress.

.4 Lighting shall be provided to overcome hazardous and insecure conditions as identified in the *City of Regina Open Space Lighting Policy and Procedures*. All lighting systems shall be switched by a photo-electric cell and will include a time clock for manual control. (Holophane Park Pac.)

.5 Sign lighting must be designed in a manner to require minimal maintenance and also be vandal resistant. It shall also contribute to the aesthetic character of the park. The determination for site lighting is within the *Open Space Lighting Policy and Procedures*.

.6 Trees and shrubs shall be located in a manner that contributes to the users’ sense of safety and well being.

.7 The play apparatus and the protective surface under the play apparatus shall comply with the standard *CAN/CSA-Z614-07: Children’s Playspaces and Equipment*.

.8 All athletic surfaces must be designed to meet all current safety standards appropriate for the particular sport and level of play.

1.6 Public Participation

.1 Local residents and stakeholders shall be consulted during the planning and design of public parks. This consultation shall occur following the subdivision concept plan approval and prior to final approval of the construction drawings. The need for and level of public consultation is
based on the accessibility of stakeholder groups and the classification of
the proposed open space. The specific steps for consulting the community
shall be determined by the Planning and Sustainability Department.

(a) Stakeholders may include:
   (i) key stakeholders such as community associations, zone
       boards, school boards, or sports associations;
   (ii) Residents of the neighbourhood or adjacent neighbourhood;
   (iii) The general public;
   (iv) User groups; and
   (v) Special interest groups.

(b) Techniques for community involvement may include:
   (i) Consultation with stakeholders,
   (ii) Public meetings,
   (iii) Focus groups,
   (iv) Workshops,
   (v) Surveys or questionnaires, or
   (vi) Advisory group meetings.

1.7 Winter Use

   .1 Site design shall address grading, plant massing and species selection to
       provide landforms, snow accumulation and wind protection which will
       enhance opportunities for outdoor winter recreation activities such as:
       cross country skiing, skating, hockey and tobogganing.

1.8 Spatial Organization

   .1 The size, shape and location of a site, the nature of its interface with the
       adjacent land uses, and the variety of elements and spaces within it,
       together determine the site's recreational and aesthetic significance to the
       surrounding community and the city's open space system. Every site has
       some unique aspects and practical constraints, and its locality must be
       fully understood to ensure appropriate development.

   .2 Parks shall be configured to provide a mix of active and passive uses and
       shall be appropriately configured to maximize the sports and recreation
       opportunities. Park sites should strive to be rectangular or nearly
       rectangular in shape (a rectangle being twice as long as it is wide). Parks
       shall be designed with extensive street frontage for parking, visibility and
       safety. Parks shall be designed in accordance with TAC Guidelines for
School and Playground Areas and Zones. Active parks should not be located on arterial roadways.

.3 Parks should include relatively flat informal green spaces to accommodate a variety of games and activities.

.4 While parks are primarily used for leisure and exist as amenities in their respective communities their secondary use may be for temporary storage of runoff during storm events to attenuate peak discharge and mitigate high flows and velocities in the stormwater system and prevent basement flooding.

.5 Incompatible uses shall be protected from each other (e.g. baseball/picnic), and those that are complementary shall flow together (e.g., open green/picnic). Spaces having sufficient size and shape shall be provided for those activities, which have particular requirements, such as structured play areas and sports fields. There shall be sufficient setback to avoid conflict with other land uses.

.6 Outdoor spaces shall be defined by vertical features, which provide a partial barrier between the viewer and the space beyond. For example, a row of trees along the perimeter of a site suggests an "interior" and identifies the apparent site limits.

.7 The use of fencing shall be discouraged unless there is an absolute requirement for safety, security, screening or delineation of property, or where the decorative aspect contributes to the specific design solution.

.8 A standard park name sign, per the Park Naming Policy shall be provided at the major entrance points to each park. The developer may choose to retain the City of Regina, Landscape Trades for the supply and installation of the sign.

.9 The display of art and sculpture shall be encouraged in parks and may form the focus of a site.

1.9 Access and Circulation

.1 Parks shall have sufficient street frontage (30.0 m min.) for clear identification and access, as well as visual surveillance. Internal circulation routes shall be clearly defined and logically connect the site's different components. They shall be adequately sized, and not interrupt the use of the spaces they connect. Through-routes shall be direct, leading to and from points of entry connected to external circulation systems.
Pedestrians shall be protected from vehicular movement within the site. Access points shall be clearly visible, vehicles shall be restricted to designated routes and parking shall be located in reasonable proximity to the destination. Random motorized vehicle access shall be prevented. Circulation routes that connect to streets shall provide a proper link to the pedestrian ramp(s) provided at the intersection of the street. Care must be taken to encourage proper use of the crosswalks by park users.

Open space design shall at a minimum adhere to Saskatchewan Human Rights Accessibility Standards and when possible shall go beyond the standards to provide enhanced experiences.

1.10 Pathways

Multi-use pathways shall include informational signage and shall meet roadways at controlled intersections. The specific design will be evaluated based upon the intended use of the open space and requires approval of the General Manager of Planning and Development. See subsection 4.2 for further information.

1.11 Adjacent Land Uses

School sites shall be designed to integrate compatibly with adjacent park sites. The design of open space shall minimize land use conflict through the use of buffering and the appropriate arrangement of elements and choice of activities.

Athletic surfaces shall have sufficient setbacks so as not to impose on adjacent residential yards. On-site parking shall be provided in parks intended to accommodate zone or city wide sports programs. This parking is to be provided in a location and manner that encourages use and minimizes the impact on adjacent residential yards.

1.12 Neighbourhood Context

Neighbourhood parks shall be centrally located within the area to be served and shall be within City of Regina Open Space Management Strategy walking distance guidelines. New parks shall be located to form part of an identifiable pedestrian linkage system and to make a functional contribution to the city's open space system.

The size of neighbourhood and zone level parks shall fall within the range identified in the City of Regina Open Space Management Strategy.
2.0 DEVELOPMENT REQUIREMENTS

2.1 General

.1 The standards described below are based on the conditions contained within the standard City of Regina Servicing Agreements administered on behalf of the City by the Development Engineering Department. Certification of the work by the City is for the landscape requirements of the standard servicing agreements. This is defined as Construction Completion Certificates No. 2 (CCC#2) and Final Acceptance Certificate No. 2 (FAC#2). CCC#1 and FAC#1 refer specifically to the engineering requirements of the standard servicing agreements. The Developer shall arrange for reviews, approvals and inspections for certification for all open space areas to be developed. The City will reject the division of reviews, approvals and inspections within specific servicing agreements. All correspondence to the City shall refer to its own Servicing Agreement Bylaw number as assigned by the City.

2.2 Construction Approvals

.1 Submit conceptual plans and specifications to the Director of Planning and Sustainability for review and approval. Formal plans for approval are to be submitted to the Director of Development Engineering.

.2 Review construction working drawings and specifications at 80 per cent completion with the Director of Planning and Sustainability. Formal submission of final construction drawings and specifications are forwarded to the Director of Development Engineering for approval. Formal approval must be given to the Developer prior to the commencement of construction.

2.3 Construction Documents

.1 Conceptual plans and specifications shall be submitted to the Director of Planning and Sustainability for preliminary evaluation and approvals. Plans shall be at a scale that shows the entire site. The submission shall contain the following information:

(a) preliminary layout;
(b) preliminary grading;
(c) preliminary planting;
(d) preliminary irrigation with the following information:
   (i) head lay-out and zoning,
   (ii) slope analysis,
(iii) plant materials, amenities and obstructions,
(iv) a fully descriptive equipment schedule, and
(v) an operation and performance schedule;
(e) preliminary details;
(f) preliminary layout, grading, irrigation and planting plans are to be shown in relationship to existing site features and the surrounding environment; and
(g) written Specifications.

.2 The submission of complete and detailed plans will ensure proper and speedy review. The formal plans and specifications shall be submitted to the Director of Development Engineering for approval and shall be at a scale that will facilitate the evaluation and shall contain the following information:
(a) Layout;
(b) Grading;
(c) planting (incl. plant list);
(d) Irrigation containing all information listed required for the preliminary plan and the following additional information:
   (i) controller location and details,
   (ii) water source location and details,
   (iii) winterized water source when deemed necessary for outdoor skating,
   (iv) total area of landscape improvement,
   (v) total irrigated area,
   (vi) run times and sequencing, and
   (vii) total area and total irrigated area;
(e) Details of landscape features including furniture, planting, or walks;
(f) Site details - layout, grading (including erosion and sediment control), irrigation and planting plans are to be shown in relation to existing site features and the surrounding environment;
(g) Summary table of all landscape areas including:
   (i) Irrigated/unirrigated turf,
   (ii) shrub bed area,
   (iii) quantity of coniferous trees,
(iv) quantity of deciduous trees, or
(v) length of each type of pathway;
(h) Maintenance manual for non-standard areas such as:
(i) Wetland,
(ii) marsh, or
(iii) native prairie;
(i) Written Specifications.

2.4 Utility and Pipeline Locations

.1 Prior to the commencement of any work the Developer is responsible to locate all underground utilities and pipelines in or adjacent to the work site. The Developer shall be responsible for obtaining all necessary landscape approvals from the affected pipeline/utility companies and the City.

2.5 Temporary Water Use

.1 In open space developments under construction, the Developer may require a temporary water source. A designated hydrant may be assigned by the Director of Development Engineering for these purposes. The following requirements as detailed in the City of Regina Standard Construction Specifications Manual shall apply:

(a) The designated hydrant shall not be connected to a close looped system where a reservoir is on the system.

(b) The hydrant shall be operated in a fully opened or closed position only. A secondary valve or valves may be installed on the hydrant outlet for flow purposes. Secondary valve shall conform to City of Regina Standard Drawing W6 - Hydrant Connection.

(c) All water hauling vehicles shall be equipped with a permanent approved air gap. Water loading shall include the water passing through the air gap to prevent back flow.

(d) An approved back flow device shall be an integral part of the water delivery equipment where no air gap procedures are being used.

(e) No hydrant shall be used to fill vessels which contain chemicals or to which chemicals will be added.

(f) Developers shall secure City permits for this activity prior to connecting to any municipal water source. Permits may be obtained from the Department of Water and Sewer Services. Fees for water usage will be assessed to the Developer.
2.6 Erosion and Sediment Control

.1 The developer shall provide appropriate stabilization for on-site and off-site drainage ways, outlets and exposed soil to minimize erosion and sedimentation within and adjacent to open space development.

(a) The developer shall provide an erosion and sediment control plan indicating the provisions.

(b) Careful planning and sequencing of grading, stabilization, and construction should be planned to minimize soil exposure.

(c) Erosion and sediment control measures must be located so that they are in place and functional when grading operations begin, and that any area not being actively graded must be temporarily or permanently stabilized no more than fourteen days after grading operations cease.

(d) Erosion and sediment control devices must be maintained until contributing areas are permanently stabilized and a vegetative cover is established.

2.7 Inspections

.1 The Developer will decide how much inspection is required during the construction, according to the Developer’s/Consultant’s Field Services Guidelines. The Developer shall allow the City access to the site for unscheduled interim inspections.

2.8 Record Drawing Submissions

.1 The Developer shall deliver to the City copies of Record Drawings, operations, and maintenance documents including manufacturers warranties and any special tools prior to the issuance of the Final Acceptance Certificates in accordance with the Developer’s/Consultant’s Field Services Guidelines, with the exception of the irrigation record drawings, which must be submitted prior to the CCC inspection. The Planning and Sustainability Department requires that all record drawing submissions be submitted in a digital format with one signed hard copy. In such cases all drawings shall be submitted in AutoCAD release 2007 or later and written specifications, operations and maintenance information submitted in Word 97 or later. Digital submissions shall be Windows compatible. Digital submissions shall include at least one hard copy.
2.9 Maintenance/Warranty

.1 Maintenance means the periodic mowing, weeding and husbandry of plant materials required for the proper growth and sustenance of those materials as well as the proper maintenance of all Landscape Services.

.2 Warranty means the correction of defects or deficiencies in Landscaping Services arising during the Warranty Period.

2.10 Maintenance Period

.1 October 1 of each year shall be recognized as the final date for the developer to request Construction Completion Certificates #2, although, the City may process the requests received after that date, if time and weather conditions allow. The City will provide Construction Completion Certificates or deficiency lists within three weeks of the request.

.2 Upon issuance of Construction Completion Certificate No. 2, the Developer shall be required to perform maintenance for a period of 30 days. In the case of fall projects, the Maintenance Period shall be terminated at October 15 and shall commence again on May 15 of the following year. If no maintenance is carried out during any particular week of the 30-day Maintenance Period, the Maintenance Period shall be extended accordingly. Notwithstanding any of the above, the Developer shall be responsible for maintenance from October 15 to May 15. Thereafter the City during and subsequent to the Warranty Period shall assume maintenance. Notwithstanding maintenance by the City, the Developer's obligations to correct or remedy defects or deficiencies shall continue unabated for the Warranty Period. The City will ensure that standard maintenance practices are followed as detailed in the Parks and Open Space Department Maintenance Guidelines. In the event the Developer asserts that warranty work is attributable to a failure on the part of the City to properly perform maintenance, the Developer shall perform the warranty work and the costs thereof may be referred to arbitration pursuant to the provisions of The Arbitration Act of Saskatchewan. It is a condition of this Act that where the Developer asserts that the City is improperly performing maintenance, the Developer shall notify the City forthwith and specify full particulars of the matter of complaint.

2.11 Warranty Period

.1 Upon issuance of the Construction Completion Certificate No. 2 the Warranty Period for landscaping services shall commence. Unless
expressly stated to the contrary in the contract documents, the period of warranty shall be one year. The Developer shall promptly correct, at their own expense, any defects or deficiencies in the landscape work during the Warranty Period. The Director of Planning and Sustainability shall extend the one-year warranty period one additional year on items that require replacement or repair from the date of acceptance of such items. The Developer shall continue with replacements and warranty until plant material is acceptable. Any landscape work that requires excessive servicing during the Warranty Period shall be considered defective and shall be corrected.

.2 The Developer shall incur all costs for damages as a result of repairing/replacing items during the Warranty Period.

.3 The Developer will be held responsible as specified in the Servicing Agreement for repair or replacement of items that, in the opinion of the City, have been damaged as a result of evident vandalism up to the issuance of the Construction Completion Certificate #2 (C.C.C. #2).

2.12 Manufacturers' Warranties

.1 The Developer shall, where manufacturers' warranties are provided for goods, furnish the City with original copies of the warranties, issued or executed in favour of the City. Where original warranties in the City's name cannot be provided then it will be agreed that the City may enforce the warranty in the name of the Developer.

2.13 Construction Certificates (CCC#2 - Landscape)

.1 The Developer shall make a written request for the Construction Completion Certificate, upon completion of the work, to the General Manager of Planning and Development. The issuance of the Construction Completion Certificate will occur upon completion of a detailed site inspection with representatives from the City if all conditions of acceptance have been met. The process is described below:

(a) A written request by the Developer for a Construction Completion Certificate No. 2 inspection is sent to Director of Development Engineering.

(b) The Director of Development Engineering requests the Director of Planning and Sustainability to conduct the inspection on their behalf.

(c) The Planning and Sustainability Department conducts the inspection with the Developer and their agents.

(d) The Planning and Sustainability Department provides a written report to the Director of Development Engineering as to
acceptability of the work. Rejection of the work will result in a written report, supported with a specific list of deficiencies, to the Developer from the Director of Development Engineering, based on the inspection report from the Planning and Sustainability Department. The Developer shall correct the deficiencies and repeat the process.

(e) If the work is acceptable and all conditions of the Servicing Agreement have been met the General Manager of Planning and Development issues the Construction Completion Certificate. The Developer shall provide maintenance for one year commencing from the date of issuance of the Construction Completion Certificate No. 2. Maintenance by the City shall begin after the one year period. The City is responsible for the maintenance of the work thereafter providing that any discovered condition demonstrating improper workmanship or products are in contravention of the work described in the approved construction documents and servicing agreement.

(f) The Landscape Construction Completion Certificate (CCC#2) may be issued when all terms covered under the Servicing Agreement relevant to landscape completion have been satisfied. This shall include but not be limited to establishment of turf and/or coarse grass areas to the satisfaction of the Director of Planning and Sustainability to the following standards:

(i) Seeded - Until after the second cutting following adequate establishment of turf, as determined by the Director of Planning and Sustainability; or

(ii) Turf Sodded - Until after the first cutting following adequate rooting to the subsoil and establishment of turf in a manner acceptable to the Director of Planning and Sustainability.

.2 A construction completion inspection report shall be completed by the developer/consultant based on the site inspection. If defects or deficiencies are detected, a copy will be issued to the Developer or their agent.

.3 The issuance of certificates shall not represent that the City has made exhaustive or continuous on-site inspections to check the quality or quantity of the work or that the City guarantees that the work has been performed in accordance with these standards or the approved plans and specifications. The issuance of certificates or approvals shall not relieve the Developer of their obligation to execute the work according to these standards and the approved plans, specifications and servicing agreements. Upon completion of construction the Developers deem that, to the best of their knowledge, opinion and belief, the work has been performed in its
entirety and in accordance with these standards and to the approved plans and specifications.

2.14 Final Acceptance Period (FAC#2 - Landscape)

1. The Developer shall make a written request to the General Manager of Planning and Development for Final Acceptance Certification, upon completion of the one-year warranty period. The issuance of the Final Acceptance Certificate will occur upon completion of a detailed site inspection with representatives from the City if all conditions of acceptance have been met. The process is described below:

(a) The Developer shall ensure that all known deficiencies have been corrected prior to submitting a request for an inspection.

(b) A written request by the Developer for a Final Acceptance Certificate No. 2 inspection is sent to General Manager of Planning and Development, one month prior to the end of the Warranty Period.

(c) The Director of Development Engineering requests the Director of Planning and Sustainability to conduct the inspection on their behalf.

(d) The Planning and Sustainability Department conducts the inspection with the Developer and their agents.

(e) The Planning and Sustainability Department provides a written report to the Director of Development Engineering as to acceptability of the work. Rejection of the work will result in a written report to the Developer from the Director of Development Engineering, based on the inspection report from the Planning and Sustainability Department, supported with a specific list of deficiencies. The Developer shall correct the deficiencies and repeat the process.

(f) If the work is acceptable and all other conditions of the servicing agreement have been met the General Manager of Planning and Development issues the Final Acceptance Certificate. The City is responsible for the work hereafter unless any condition demonstrating improper workmanship or products that are in contravention of the work described in the approved construction documents and Servicing Agreement are discovered.

2. The issuance of certificates shall not represent that the City has made exhaustive or continuous on-site inspections to check the quality or quantity of the work or that the City guarantees that the work has been performed in accordance with these standards or the approved plans and specifications. The issuance of certificates or approvals shall not relieve the Developer of their obligation to execute the work according to these standards and the approved plans, specifications, servicing agreements and
the Developer’s/Consultant’s Field Services Guidelines. Upon completion of construction the Developers deem that, to the best of their knowledge, opinion and belief, the work has been performed in its entirety and in accordance with these standards and to the approved plans and specifications. The flow chart below describes the Construction Completion Certification and the Final Acceptance Certification process.

Figure 2.14  CCC #2 and FAC #2 Process

Developer requests CCC/FAC Certification from Development Engineering (for FAC#2 Developer is to ensure all known deficiencies are corrected prior to request)

Development Engineering requests inspections and reports from Planning and Sustainability

Planning and Sustainability conducts inspections and reports to Development Engineering

DEFICIENCIES

Developer rectifies deficiencies

NO DEFICIENCIES

Re-inspection and reports

NO DEFICIENCIES

Developer submits as-built/operations and maintenance documents

DEFICIENCIES

CCC/FAC Rejected

Development Engineering issues CCC/FAC
3.0 DESIGN CRITERIA

3.1 General

.1 The Development Standards Manual and City of Regina Standard Construction Specifications Manual are to be considered the normal practice for the construction of landscape elements. The Planning and Sustainability Department may consider alternates to, or relaxation of a requirement within the Development Standards Manual when the Developer or their agent, or the Contractor or their agent, provides a written submission, in accordance with this document, identifying the reasons for special consideration. Additional written or graphic submissions may be required to properly evaluate the request. Such additional information shall be at the discretion of the Director of Planning and Sustainability.

.2 The Developer or their agents shall, prior to developing any Open Space Concept Plans meet with representatives of the City assigned by General Manager of Planning and Development in order to develop preliminary design criteria for any open space developments.

.3 The design of open space is site specific and must reflect site conditions and limitations.

3.2 Buffer Strips

.1 Buffer strips provide protection of one land use from another, or mitigate or lessen the incompatibility between different land uses through the use of landscaping, open space or other features. Buffer strips shall be of sufficient width, and developed to reduce conflicts such as noise, odour, dust, and visual pollution, which arise from incompatible land uses. Buffer strips shall be designed and developed to provide for pathways and limited recreational amenities where these can occur safely and without conflict with adjacent land uses. To determine the requirements for a buffer strip see Section 4 Land Requirements.

.2 Buffer strips are to be landscaped to a low maintenance standard unless the buffer strip forms part of a park that has irrigated fine turf. It is the Developer's responsibility to establish plant material and the coarse grass.

.3 Any land contouring done on buffer strips must allow for proper drainage and shall be done designed for ease of maintenance. Shrub and tree planting shall be done in a manner that appears informal and natural and
adds interest to the buffer. Shrubs and trees may also be used as screening.

.4 Subdivision Name Signs may be considered on buffer strips. For details outlining all restrictions and requirements for new subdivision signs, contact the Development Engineering Department to obtain a copy of the regulations. The City shall assume maintenance of these signs at the time the Final Acceptance Certificate for landscaping is issued. Sign lighting is to be done in a manner that will require minimal maintenance, be vandal resistant and not detract from the aesthetics of the sign.

.5 Approval for utility easements within buffer strips must be obtained from the General Manager of Planning and Development.

3.3 Greenways

.1 Greenways are corridors that serve as connectors between open space and other open space, recreation and/or community facilities. They tie open space components together to form a continuous system. They allow for extended, safe and uninterrupted walking and cycling (i.e., minimal stoppages for roads and vehicles). There are three types of greenways.

(a) Neighbourhood, off-street greenways are smaller scale connectors that respond to neighbourhood needs. They are included in the Municipal Reserve area dedicated for public recreational use.

(b) Municipal, off-street greenways are larger scale connectors that are used city-wide and provide an alternate mode of transportation for pedestrians and cyclists. In Regina municipal greenways are associated with the floodplain system and include The Devonian and Multi-Use Pathways.

(c) On-street greenways create pedestrian friendly streets with visually appealing streetscapes that connect to destination points. Typically they include wider road rights-of-way with wider sidewalks (refer to Section 7: Transportation Design), set back from the curb and lined with rows of trees. Since on-street greenways are considered part of the urban design they are not included in the municipal reserve dedication. A secondary benefit of on-street greenways is that they can be used to transport stormwater runoff to detention ponds. (Refer to the Open Space Management Strategy, 2007)

3.4 Public Walkways

.1 Ideally, subdivisions should be designed in a manner that walkways are not necessary as outlined in Section 7 Pedestrian Route Guidelines. If a
walkway is approved the following landscaping standards shall apply. Walkways must be provided to meet the City requirement that no residence be more than 365 m from a public transit stop. Where walkways are included in a subdivision plan the standard width shall be a minimum of 4.0 metres and be predominantly surfaced with interlocking pavers, concrete or asphalt. The width shall be a minimum of 5.0 m where the walkway connects to a park or school. Walkways designed to be part of a greenway shall be wide enough to accommodate a consistent greenway landscaping in a safe and visible manner. Any walkway landscaping shall be designed to be low maintenance.

.2 The Developer shall be required to install a barrier fence the entire length of the abutting lot, on the private property adjacent to the walkway, to the satisfaction of the Director of Planning and Sustainability. All fencing in such cases shall be constructed on private property. The ownership and maintenance responsibilities of the fence shall not be the City's.

.3 Suitable vehicular traffic control devices (pavement markings, signage, fencing, bollards and the like) are to be provided by the Developer to the satisfaction of the Director of Planning and Sustainability. These traffic control devices shall not detract from the aesthetic character of the walkway nor restrict access regarding the City's Accessibility Standards. The standard width for walkways in subdivisions, in which the walkways connect with either municipal reserve or school board land, shall be 5.0 metres in width and the landscape treatment for this type of walkway must be flexible and could include asphalt pavement across the full 5.0 metre width with some planting wells for trees and/or shrubs or any combination acceptable to the Director of Planning and Sustainability. Fencing may not be required if the landscaping is effective and acceptable to the Director of Planning and Sustainability.

3.5 Traffic Islands

.1 The Planning and Sustainability Department discourages the use of traffic islands in subdivision design. When required as a traffic control device by Development Engineering Department, traffic islands shall be landscaped with elements requiring minimal maintenance. In new subdivisions, traffic islands less than 75 m$^2$ in area shall be surfaced with decorative paving and those with an area greater than 75 m$^2$ shall be landscaped with elements requiring minimal maintenance. The small Centre Island in a cul-de-sac shall be landscaped with a decorative hard surface. Traffic islands shall not be irrigated.

3.6 Boulevards and Medians
.1 Boulevards are the areas within road rights-of-way between the curb and the property line. They typically accommodate utilities above and below ground, and are landscaped to blend with adjacent property.

.2 Boulevards are to be landscaped to the same standard as the adjacent property or open space. Landscaping of boulevards adjacent to parks with irrigated fine turf will include the installation of irrigation, soil conditioning, and land contouring (on wider boulevards), turf establishment and shrub and tree planting. Landscaping of boulevards adjacent to natural areas and areas that are not maintained on a regular basis, will include all of the above except the irrigation system. Any shrubs and trees shall be planted in mulched beds. The developer is responsible for watering of plant material and coarse grass until it is established.

.3 On boulevards, tree planting is encouraged between the back of the walk or curb and the property line on each Side Street and cul-de-sac. Landscaping on boulevards shall not interfere with intersection sight distance standards discussed in Section 7.

.4 Medians are defined areas within the road right-of-way and are used to separate traffic lanes. They are usually linear in configuration. Medians shall be landscaped in a manner that will require minimal maintenance and reflect the adverse conditions such as salt spray, car exhaust fumes, reflected sun and increased heat. Medians less than 4 m wide shall be surfaced with paving materials which are resistant to salt corrosion and severe climatic conditions. Medians wider that 4 m shall have a hard surface border of at least 1 m. This border must be constructed of material, which is resistant to salt corrosion, severe climatic conditions and which allows for easy removal of sand or other debris. The remainder of the median will be developed to a low maintenance standard.

.5 Both boulevards and medians shall be designed and developed in a manner that does not contribute to snow accumulation on the street but facilitates snow removal in the normal manner.

3.7 Pipe Line Right-of-Way

.1 Developers shall be responsible for landscaping pipeline right-of-way to the Standard Conditions required by TransCanada Pipelines.

.2 The Developer shall be responsible for obtaining all necessary landscape design approvals from the affected pipeline companies and the City. In the event that a pipeline right-of-way serves as the boundary between two or more properties, the Developers on either side shall equally share the cost of the landscape treatment of the pipeline right-of-way.
3.8 Utility Parcels

.1 Utility parcels are areas of land containing private or City-owned utility services and are subject to easements that assure access by utility companies. Opportunities for recreation activities within utility parcels shall be investigated as part of the design. Utility parcels are to be landscaped to a low maintenance standard unless the utility parcel is adjacent to a park that has irrigated fine turf. It is the responsibility of the Developer to establish the coarse grass turf. Shrub and tree planting must be kept to a minimum unless the parcel forms part of a major linkage system or is highly visible. In this case shrub and tree planting may be used to add to the interest and aesthetic character of the linkage system.

3.9 Flood Plains

.1 Flood plain refers to any land area, usually low lying, adjoining the channel of a stream or body of standing water, that has been or may be covered by floodwater (see Figure 3.9) Landscaping of the flood plain shall be the Developer's responsibility. This landscaping shall include soil conditioning and seeding to coarse grass or naturalized turf. The Developer will be required to establish the turf. Flood plains will not be considered as part of the municipal dedication, however, the City may, at its discretion, be prepared to negotiate acceptance of a percentage of flood plain land as municipal reserve if it has been landscaped in an appropriate manner and it forms an integral part of the City's open space system.

.2 Floodway refers to the channel of river or other watercourse and the adjacent land areas where the majority of floodwater of a 1:500 year flood will flow, and where flow velocities and depths are prohibitive to structural development. Flood/Floodway Fringe refers to all that land in the floodplain not lying in a delineated floodway and where the depth of water is less than one meter and the velocity of the water is less than one meter per second. For development to be approved within a flood fringe the development shall meet the requirements of the Zoning Bylaw and Building Bylaw.
3.10 Storm Water Channels/Watercourses

.1 Storm water channels/watercourses refers to the City's natural and man made floodway system reserved primarily for the purpose of collecting and carrying run-off waters. There are six storm water channels/watercourses in Regina:

(a) North West Storm Channel
(b) North East Branch Storm Channel
(c) Northwest Branch of the North Storm Channel
(d) Wascana Creek
(e) Pilot Butte Creek
(f) South Storm Channel

.2 The Developer shall be responsible for establishing coarse grass or naturalized turf on the side slopes of the storm channel. The area from the top of the slope of the storm channel shall be landscaped to the same standard as the adjacent property. Trees shall not be planted in storm channel floodways and stormwater swales/ditches and on top of flood protection dikes.

3.11 Storm Water Retention Areas

.1 Storm Water Retention Areas include a lake that serves to retain storm water. These areas shall have the capacity, above the normal operating water level, for the storage and gradual release of excess storm water run-off into the storm sewer system. Storm water retention lakes shall be
located within recreational open space and shall be designed and
developed to provide unique aesthetic and recreational opportunities. The
design of storm water lakes shall be environmentally sensitive and shall
provide a safe area for the public.

.2 The retention lake shall be fully integrated into the public open space
system and shall be designed and constructed to become a key part of the
aesthetics of a development. Preservation and highlighting of natural
features is essential. Particular attention must be paid to bottom and side
slopes to allow for access and maintenance.

.3 Plans and specifications must form part of the drawings submitted to the
City for approval and must meet the requirements of the Development
Engineering Department. Drainage studies shall address the capability of
individual parks to accommodate storm water lakes.

3.12 Storm Water Detention Areas

.1 Storm Water Detention Areas are depressed areas, which store excess
storm water run-off on a short-term basis, for gradual release into the
storm sewer system. Storm Water Detention Areas shall be fully
integrated into the public open space system. They shall be landscaped to
the same standard as the surrounding open space and they shall be graded
so they drain quickly and completely after each storm event. Plans and
specifications must form part of the drawings submitted to the City for
approval and must meet the requirements of the Planning and
Sustainability Department. Drainage studies shall address the capability of
individual parks to accommodate storm water lakes.

.2 When athletic fields are contained at the bottom of a water detention area
(bowl) access for a tractor, top dressing machine and versa-vac must be
ensured.

3.13 Municipal Reserves

.1 Landscaping shall include, but shall not be limited to, topsoil, land
contouring, turf establishment, shrub and tree planting, the installation of
irrigation where required, lighting where required, play equipment
installation, active components (athletic fields), walkways, pathways,
fencing, site furnishings, structures, special features (fountains, waterfalls,
bridges, etc.) and signage. All costs for these items shall be borne by the
Developer.

.2 The provision and allocation of Municipal Reserve Lands shall be in
accordance with the *City of Regina Open Space Management Strategy*. 
.3 Subdivision Name Signs shall not be allowed on municipal reserves.

.4 Lots abutting Municipal Reserves require a 4.5 m easement to accommodate all required underground services. In such areas the Developer shall endeavour to provide longer lots to compensate for restricted use.

.5 Neighbourhood parks shall be within a walking distance radius of 0.4 to 0.8 km (1/4-1/2 mile) of any residential lot.

.6 Irrigation Systems shall conform to the standards outlined in Section 12.4.26.

.7 Lighting shall conform to the City of Regina Open Space Lighting Policy and Procedures.

3.14 Athletic Surfaces

.1 All athletic surface development shall conform to the requirements of the Regina Athletic Field System and the Standard Construction Specifications Manual.

.2 Lighting for athletic surfaces shall be determined by the Director of Planning and Sustainability in accordance with the Open Space Lighting Policy and Procedures.

.3 Play surfaces and perimeter buffer areas must be graded to positively drain.

.4 Buffer areas immediately surrounding the active play area are to be devoid of trees, shrubs, catch basins or other potential hazards. The buffer area will be sized according to type and level of play in the active play area.

.5 Special consideration must be given for hard surface athletic areas including: base preparation, subsurface and surface drainage. Site locations shall be supported by a geotechnical analysis, recommending base preparation and asphalt surfaces.

.6 Ball diamonds shall only be included in zone level parks, outdoor sports complexes or adjacent to schools and shall have sufficient setbacks as not to impose on adjacent residential yards.
4.0 DEVELOPMENT STANDARDS

4.1 General

.1 The *Standard Construction Specifications Manual* is to be considered the normal practice for the construction of landscape elements. The Planning and Sustainability Department may consider alternates to, or a relaxation of a requirement in the *Standard Construction Specifications Manual* when the Developer or their agent, or the Contractor or their agent, provides a written submission, in accordance with this document, identifying the reasons for special consideration. Additional written or graphic submissions may be required to properly evaluate the request. Such additional information shall be at the discretion of the Director of Planning and Sustainability.

4.2 Pathways and Exterior Paths of Travel

.1 The design of pathways shall comply with the City's Accessibility Standards. Pathway widths shall reflect their intended use and shall also conform to the width of existing walks with similar uses. Pathways shall have surfaces that reflect their intended use and shall be constructed in a manner that insures longevity and requires minimal maintenance. The following standards are intended to assist in the development of a high-quality and fully integrated pathway system. The objective of the planning guidelines is to lay out a pathway network which links together residential area parks, natural areas, riverbanks and public recreational facilities. The objective of the design guidelines is to produce a safe and enjoyable pathway incorporating the needs of both pedestrian and bicycle users. The focus is on recreational rather than transportation use, with straight alignments and utilitarian structures to be avoided. The nature of multiple uses requires stringent attention to design details.

4.3 Pathway Classification

.1 Zone/Municipal pathways in communities:
   (a) link together the main parks, recreational facilities, and schools within a community.
   (b) link together communities and link communities to watercourse pathways.
   (c) typical amenity in new communities.
   (d) shown schematically in Neighbourhood Concept Plan.
   (e) may include multi-use pathways which allow for bicycle travel in addition to other recreational uses.
.2 Zone/Municipal watercourse pathways:
(a) link together open spaces alongside all of Regina's watercourses.
(b) shall include multi-use pathways which allow for bicycle travel in addition to other recreational uses.

.3 Neighbourhood pathways:
(a) link neighbourhood parks and local streets to regional pathways.
(b) to be kept to a minimum.

4.4 Alignments

.1 Ensure zone/municipal pathway alignments correspond to approved policy documents.

.2 Ensure neighbourhood pathways link directly or indirectly to zone/municipal pathways.

.3 Avoid isolated and disjointed pathways.

4.5 Linear Open Space

.1 Approval for the inclusion and dedication of linear open space and any pathway network must be approved by the Director of Planning and Sustainability.

.2 Linear open space, unto itself, is generally not a compact, safe or efficient use of land in an urban environment and may be prone to safety issues. On-street pedestrian routes provide a safer, more efficient means of pedestrian circulation. Where linear open space is being provided, it should be considered for use as a pathway route. As a pedestrian space, it should be a high volume space with good visibility. The design should follow CPTED principles.

.3 Design network of linear open space at the Conceptual Plan stage.

.4 Since linear open space provides a very limited park function, all other neighbourhood park functions must be met within the park system before linear open space is accepted as municipal reserve dedication.

4.6 Boulevards

.1 Avoid routing pathways along boulevards in front of residential lots except where back alley access is provided.
.2 Avoid routing pathways along boulevards where spacing of driveways and cross-streets is less than 200 m.

.3 Provide either an asphalt multi-use pathway or parallel asphalt bicycle pathway and concrete sidewalk.

### 4.7 Street Crossings

.1 Route pathways to street intersections where possible.

.2 Mid-block crossings are discouraged and permitted on local streets only. If mid-block crossings occur appropriate signage is to be installed by the Developer. Avoid necessity for building mid-block pedestrian overpasses on major streets.

.3 Adjust subdivision layout to minimize quantity of crossings. Line up pathway entrances to ensure visual continuity.

### 4.8 Play Equipment Sites

.1 Zone/municipal pathways shall not be within a minimum of 5 metres from play area surfaces.

.2 Provide a link to the pathway from play equipment sites.

### 4.9 Parking Lots

.1 Route pathways around; avoid through.

.2 Provide links from parking lots to pathways.

.3 Locate pathway entrance at street.

### 4.10 Natural Areas

.1 Minimize damage to environmental reserve parcels by careful pathway route selection.

### 4.11 Surface Materials

.1 Generally all zone/municipal pathways are to be constructed of asphalt pavement at a minimum to accommodate both pedestrians and cyclists.

.2 Neighbourhood pathways and pathways oriented to pedestrian traffic can be made up of a variety of materials including asphalt.
4.12 Width

.1 2.4 m minimum for neighbourhood pathways; 1.8 m width is acceptable for crusher dust pathways.

.2 3.66 m minimum for zone/municipal pathways.

.3 3.66 m minimum for watercourse pathways.

.4 Pathway widths will be a function of expected volumes and types of use.

4.13 Safety Clearance/Setback Requirements

.1 Provide 1 m clear of all obstacles on all sides.

.2 Provide 3 m clear of all obstacles overhead.

.3 Avoid locating pathways over manholes.

.4 Ensure a 2.5 m minimum clearance from park water services.

.5 Setback pathways a minimum of 1 m from face of curb.

.6 Where possible, ensure no obstructions to visibility within 10 m of junction with other pathways and streets (trees, shrubs, utility boxes, fences, etc.). Conform to the requirements of the City of Regina Zoning Bylaw No. 9250 and the City of Regina Traffic Bylaw #9900.

4.14 Safety Railings

.1 Safety railings shall be installed when a pathway is within two metres of the top of a 2:1 slope or steeper, and the slope is greater than or equal to 1 m in depth.

.2 Minimum railing height and design to meet current building code standards.

.3 Chain-link fence is only acceptable when the fabric is attached to, but not protruding above, the top rails. NOTE: attachment will be with a knuckle finish.

.4 Wooden fences and railings are not desired.

4.15 Pathway Junctions

.1 Where possible, ensure pathways join at right angles.
.2 Provide widening of pathways with radius of 4 m where pathways join other pathways.

### 4.16 Pathway Entrances

.1 Extend pathway to street curb in all cases.

.2 Ensure pathway joins street at right angles and widens on both sides with radius of 4m.

.3 Provide a pedestrian ramp and a standard removable bollard conforming to the *Standard Construction Specifications Manual* where the entrance to a pathway is on a street. Provide swing gates in place of removable bollards where there is an increased safety concern as determined in consultation with the City.

.4 Mid-block crossings are discouraged and permitted on local streets only. If mid-block crossings occur appropriate signage is to be installed by the Developer.

.5 Line up entrances for visual continuity where pathway route crosses street.

.6 Ensure no catch basins located at entrance.

### 4.17 Criteria for Bicycles

.1 These criteria are required for bicycle travel on zone/municipal pathways:

Maximum grades:

(a) over eight percent (8%): re-route or provide stairs.

(b) five percent (5%) to eight percent (8%): not longer than 50 m (keep bicycles and pedestrians separate and avoid curves and constrictions).

(c) three percent (3%) to five percent (5%): not longer than 200 m.

(d) under three percent (3%): acceptable.

.2 Design Speed - flat terrain: to not exceed 35 km/hr; downgrades: to not exceed 50 km/hr.

.3 Superelevation - on curves: two percent (2%); maximum five percent (5%).

.4 Stopping Sight Distances - stopping sight distance is described below:
Minimum SSD = \[
\frac{v^2}{255 (f + g)} = 0.695v
\]

Where:
- SSD = stopping sight distance
- v = bicycle design speed (typically 30 km/hr)
- f = coefficient of friction = 0.25
- g = grade m/m (rise or descent/run)

Minimum Design Curve Radii - the minimum design curve radii is as follows:

Minimum \( r = \frac{v^2}{127 (e + f)} \)

Where:
- r = minimum radius
- f = coefficient of friction = 0.25
- e = superelevation
- v = bicycle design speed (typically 30 km/hr)

### 4.18 Stairs

.1 Where possible, avoid use within a pathway network.

.2 Install bicycle ramp along one side where stairs are unavoidable.

### 4.19 Pedestrian Bridges and Overpasses

.1 Bridges shall be designed to accommodate the type of use for the pathway, site, maintenance and snow removal.

.2 Railing height as per the *National Building Code of Canada*.

.3 Minimum deck width 4.0 m (between railings).

.4 Submit concept drawings to the Director of Planning and Sustainability. Ensure all drawings are stamped by a professional engineer.
4.20 Vehicular Bridges and Overpasses

.1 Ensure sidewalks for pedestrians and widened shoulder lanes for cyclists are provided along both sides of structure.

.2 Where bridge is part of pathway system, ensure combined pathway and sidewalk is provided along both sides of structure.

.3 Railing height as per the *National Building Code of Canada*.

.4 Minimum pathway width to be 4.0 m.

.5 Submit concept drawings to the Director of Planning and Sustainability. Ensure all drawings are stamped by a professional engineer.

4.21 Pedestrian Underpasses

.1 Minimum height 3.0 m and minimum width 4.0 m.

.2 Ensure drainage is kept in concrete swale along one side.

.3 Ensure well lighted.

.4 Maximum length 50.0 m; provide break in underpass within median of divided roadways.

4.22 Signage

.1 Provide standard identification signs with pathway name at pathway entrances.

.2 Provide standard hazard warning signs where appropriate.

.3 Provide centre line pavement marking on regional pathways and on separated bicycle pathways (75 mm wide, yellow paint).

4.23 Grading and Drainage

.1 Except in highly structured landscapes, grades shall be designed to resemble natural landforms.

.2 Slopes requiring mowing shall be graded to allow for safe operation of all mowing equipment.

.3 All parks shall be graded to facilitate proper drainage and to prevent water ponding in drainage swales.
.4 All contouring must be done in accordance with the approved grading plan. Rear lot line grades shall meet the grades established by the Building Branch. On landscaped areas, slopes shall comply with the following:

Table 4.23.4   Grading & Drainage

<table>
<thead>
<tr>
<th>Slope Description</th>
<th>Percent Slope</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max.</td>
</tr>
<tr>
<td>Slopes requiring mowing (less than 25 m. long)</td>
<td>20.0</td>
</tr>
<tr>
<td>Slopes requiring mowing (greater than 25 m. long)</td>
<td>20.0</td>
</tr>
<tr>
<td>Paved activity areas</td>
<td>4.0</td>
</tr>
<tr>
<td>Paved pedestrian pathways*</td>
<td>8.3</td>
</tr>
<tr>
<td>Granular pedestrian pathways*</td>
<td>8.3</td>
</tr>
<tr>
<td>Cultivated planting beds</td>
<td>15.0</td>
</tr>
<tr>
<td>Local drainage swales/channels</td>
<td>20.0</td>
</tr>
<tr>
<td>Turfed areas</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*Conform to Saskatchewan Human Rights Accessibility Standards.

.5 The grades in specialized turf areas such as athletic fields will vary depending on the nature of the program activity.

.6 If there are unique situations where these standards cannot be achieved, deviation will only be allowed with a written approval from the General Manager of Planning and Development.

4.24 Turf

.1 There are three basic categories of turf: irrigated fine turf, un-irrigated coarse grass turf and naturalized turf.

.2 In highly visible public recreational open space, irrigated fine turf shall be used at the interface of the site with adjacent streets and in open areas intended for intensive use. Un-irrigated turf shall be used for passive areas. Naturalized turf shall be used in environmental reserves or other areas as determined in conjunction with the General Manager of Planning and Development.
.3 Fine turf shall not be used in natural landscapes.

4.25 Plant Materials

.1 The primary determinant for the amount of woody plant material necessary on a recreational site is the intended use. Trees and shrubs are necessary for spatial delineation, edge definition, buffering and screening, reduction of wind velocity, decoration and overall aesthetic enrichment, and are essential to provide shade for relief from the hot summer sun in picnic and seating areas.

.2 In public recreational open space the use of annuals is generally restricted because of the intensive spring planting, maintenance and fall clean-up requirements. Some perennials however, are well-suited for these locations since, following the first year of establishment, only routine care is required.

.3 The crown cover (diameter of tree canopy at maturity) for recreational open space shall consist of a balanced mix of shade trees, evergreen trees, ornamental trees and shrubs. A minimum of fifty percent (50%) crown cover shall be provided for open space.

.4 Planting ratios, species selection, spacing setbacks, inspection and approval procedures shall be in accordance with the Regina Urban Forest Management Strategy.

.5 Plant materials shall be suited to the intended use of the site. Plant material shall be located so as not to contribute to the excessive accumulation of snow on streets and major pathways.

.6 Planting must conform to the requirements contained in the Canadian Standards for Nursery Stock - Canadian Nursery Trades Association and adhere to the standards set forth in the City of Regina Forestry Bylaw.

.7 The Developer is responsible to contact the City of Regina, Supervisor of Forestry for a plant material inspection. This inspection is intended to determine the health of all plant material at the time of delivery prior to planting.

.8 Tree and shrub pits or beds shall be mulched in non-irrigated areas and areas with dry conditions or good drainage (e.g. top of slopes). Plants shall be grouped and located according to water needs. All mulch materials shall be wood chip mulch.

.9 All trees shall be staked in a manner that effectively prevents movement of the tree and does not pose a hazard to park users.
.10 If plantings are less than 3.0 m from vertical elements, hard surfaces or property lines a planting bed shall contain the plantings and extend to required adjacent element. The table below describes the required shrub planting in open spaces:

Table 4.25.12 Shrub Plant Materials

<table>
<thead>
<tr>
<th>Open Space Type</th>
<th>Shrub Planting Requirement (approved on a site by site basis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parks</td>
<td>A minimum of 1.0 percent of total park area calculated by canopy area at maturity</td>
</tr>
<tr>
<td>Boulevards</td>
<td>Limited planting except at interchanges where grades are ≥ 30.0 percent</td>
</tr>
<tr>
<td>Medians</td>
<td>No plantings</td>
</tr>
<tr>
<td>Utility Easements &amp; R.O.W.s</td>
<td>No plantings unless directed</td>
</tr>
</tbody>
</table>

.11 Shrub beds in parks shall be a minimum of 2.5 m from adjacent private property and 1.0 m from pathways/sidewalks to permit drainage and maintenance.

4.26 Irrigation

.1 In general, irrigation will be required to establish and maintain fine turf and most woody and herbaceous plant material. Following establishment, most coarse grasses, naturalized turf and some woody plants and perennials can exist without irrigation. The irrigation system shall be an integral part of the proposed landscape improvement.

.2 Water application requirements vary considerably among turf and plant communities, and irrigation systems must be designed accordingly. Some areas will only require temporary irrigation to establish the turf or plant material.

.3 Temporary watering may be achieved through use of watering vehicles or temporarily installed irrigation systems. When temporary irrigation systems are used, the Developer will be required to install the temporary water service, and at recognized establishment of plantings, the temporary irrigation system including the water service shall be removed.

.4 New irrigation system design shall consider the most effective and efficient technologies available for the intended application.
.5 The Developer shall be responsible to deliver to the City an irrigation system which maximizes efficiencies and delivers a uniform application of water to 100 percent of areas intended to be irrigated.

.6 The selection of products and equipment for use on the irrigation system shall be commercial quality and vandal resistant. Sprinklers shall be gear driven rotary type, capable of covering a 12 to 18 metre radius at 50 psi, at the head, with a discharge rate of 7 to 10 gpm. Sprinklers shall have radius adjustment capabilities. All adjustments must be from the top of the sprinkler.

.7 The water source shall be adequate to deliver the required volumes of water and shall conform to the following:

(a) Where a natural body of water exists adjacent to the site it shall be considered as the water source. Storm retention water shall also be considered for irrigation use.

(b) Potable water sources shall be metered and equipped with adequate back-flow devices conforming to Development Engineering Department requirements.

.8 Irrigation systems shall be designed to meet the desired performance, water distribution and precipitation requirements of the landscaped area. The irrigation system shall be designed to deliver water at a rate compatible with infiltration rates of the soil. Operation schedules and irrigation zoning shall be based on this principle. For design purposes the soil infiltration rates are as follows:

<table>
<thead>
<tr>
<th>Grade Slope (%)</th>
<th>Water Infiltration Rate (mm/hr.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>3.5</td>
</tr>
<tr>
<td>5-12</td>
<td>2.5</td>
</tr>
<tr>
<td>12-25</td>
<td>1.5</td>
</tr>
</tbody>
</table>

.9 Watering cycles shall begin at 10:00 p.m. and be complete by 7:00 a.m. Operate zones at pathways and amenities in the middle of the allowable watering times.
.10 The system shall deliver 25 mm of precipitation per week with a maximum run time of 45 hours per week over 5 days. Schedule to accommodate maintenance staff.

.11 Interpretive questions regarding these standards shall be directed to the Supervisor of Irrigation Services.

.12 Irrigation drawings shall indicate E.T rates, irrigation valve and sprinkler information, irrigation controller schedule design information, and irrigation central control software information, per the following tables.

Table 4.26.12

<table>
<thead>
<tr>
<th>Irrigation Valve &amp; Sprinkler Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Station Valve Number</td>
</tr>
<tr>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>XXX – xx - xxx</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Irrigation Controller Schedule Designed Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller Physical output Number</td>
</tr>
<tr>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Irrigation Central Control Software Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Program line</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>A-Z</td>
</tr>
<tr>
<td>x</td>
</tr>
<tr>
<td>x</td>
</tr>
<tr>
<td>x</td>
</tr>
<tr>
<td>x</td>
</tr>
<tr>
<td>x</td>
</tr>
</tbody>
</table>

“Items in Italics are given as examples “
4.27 Head Spacing

.1 Space irrigation heads horizontally at fifty percent (50%) of the diameter of spray for triangular spacing and 45 percent of the diameter of spray for square spacing. Layout heads in triangular patterns where possible.

.2 The location of limited spray pattern heads (bubblers, etc.) shall be appropriate for the landscape and irrigation design.

.3 Locate heads on slopes to accommodate type of plant material and spray trajectory. Head locations are to be coordinated with the over-all landscape design to avoid ghosting and unbalanced applications of water.

4.28 Topography

.1 The irrigation system shall account for performance variances due to elevation change. Zone heads along similar contours to allow for watering sensitive to soil infiltration rate as described previously.

4.29 Automated Systems

.1 All irrigation systems shall be fully automated electric systems unless specific written approval is given by the Director of Planning and Sustainability.

.2 Controllers shall be compatible with the City's master controller conversion.

4.30 Hydraulic Design

.1 Irrigation designers shall adhere to the principles of hydraulics when developing design including the following:

.2 Precipitation rates:
   (a) Pressure demands,
   (b) Volume demands.

.3 Friction loss in delivery pipe shall be calculated at the worst case situation to assure proper working pressures. These calculations shall form part of the conceptual review submission.

.4 Rules of thumb and guess work shall not be used in the design of the system.

.5 Acceptable maximum flows through solenoid valves:
(a) 321 litres per min. for 50 mm dia.
(b) 190 litres per min. for 38 mm dia.
(c) 57 litres per min. for 25 mm dia.

.6 Acceptable maximum flow velocities through the system shall be 1.5 metres per second.

.7 Acceptable pipe sizes are 25 mm, 38 mm, 50 mm, 100 mm, 150 mm in diameter.

.8 Working pressure at lateral pipe shall not be less than 80 percent of the originating operating pressure at a point after the irrigation chamber.

.9 Maximum pressure at the nozzle:
(a) 552 kPa (80 psi) for athletic fields,
(b) 552 kPa (80 psi) for all other areas.

4.31 Electrical Design

.1 The design shall provide for the proper operation of all electrical components.

.2 The location, size and type of wire, connections and equipment shall be described in the submission.

4.32 Zoning

.1 Zone irrigation heads separately in accordance with the following:
(a) All part circle.
(b) Perimeter circuits.
(c) At all paths of travel and amenities.
(d) At individual planting beds.
(e) Soil infiltration rates.

4.33 Play Equipment

.1 To comply with the CAN/CSA-Z614-07: Children’s Playspaces and Equipment.
.2 The play equipment is to consider the demographics and special needs of the residents it is intended to serve and shall provide a positive play experience.

.3 All play areas shall offer some form of accessible play value.

.4 All play equipment and playspaces are to be constructed of vandal resistant materials that require minimal maintenance. Wooden structures are not permitted. CCA treated wood is not to be used in play areas.

.5 The manufacturer is to provide certification that the play equipment is CSA compliant. The developer shall provide an inspection certificate to verify the play equipment has been installed to comply with CAN/CSA-Z614-07: Children’s Playspaces and Equipment.

.6 Where possible play areas shall include unique play elements.

4.34 Site Furnishings

.1 To be designed, constructed, installed and located in a manner that meets the needs of the users being served. Refer to Section 12.1.5.

.2 Site furnishings shall be durable, vandal resistant and easy to maintain. CCA treated wood is not permitted for use as site furniture.

.3 The location of site furnishings shall be such that they will make a positive contribution to the park users’ sense of well being.

.4 Benches shall be provided in areas taking advantage of vistas or where rest areas and supervision is required. The minimum number of benches are as follows:
   (a) minimum two benches per kilometre of lineal pathway
   (b) minimum two benches per play structure

.5 Trash containers shall be included adjacent to activity areas. The minimum number of trash containers are as follows:
   (a) two per ball diamond or soccer pitch
   (b) one per play structure
   (c) one per kilometre of lineal pathway
   (d) at major park/pathway entrances
This section specifies the supply and installation of site furnishings. The Contractor must have experience in performing this type and scale of work and must be willing to provide proof of this experience.

Give timely notice to the Planning and Sustainability Department when Construction Completion Certificate for work is required.

All site furnishings design and specifications must be reviewed and approved by the Planning and Sustainability Department prior to installation.

Site furnishings design and finishes shall be consistent with site furnishings in adjacent parkland, if applicable.

All site furnishings shall be of a consistent style and type within the community and/or development phase.

### 4.35 Trash Receptacles

1. Must be metal cladding or pre-cast concrete.

2. Must be of vandal resistant construction.

3. The container shall accommodate a standard 75 litre receptacle with an acceptable pull out liner that will hold a 66 x 91 cm (26" x 36") garbage bag. The lid shall be lockable.

4. Metal Component
   - (a) welded joints ground smooth.
   - (b) metal finish to be electrostatically applied or polyester powder coating.
   - (c) vandal resistant zinc coated metal fasteners.
   - (d) galvanized or vinyl/plastic coated steel is an acceptable option.

5. Pre-Cast Concrete Component
   - (a) vandal resistant coating

6. Installation
   - (a) Provide concrete, asphalt or compacted granular base.
   - (b) Ground model types must be bolted to a concrete pad using vandal resistant fasteners as per the manufacturer's requirements.
(c) Pedestal type must be set in concrete to a minimum depth of 300 mm below finish grade with the receptacle flush against the ground.

4.36 Benches

.1 Pedestals must be of a schedule 40 metal.

.2 Benches may be vinyl/plastic coated metal mesh or wooden seat/back.

.3 Timber Component materials shall not be CCA treated.

.4 Installation shall be to the following standards:
   (a) concrete, asphalt pad or compacted granular base.
   (b) seating surface to be 410-440 mm above finished grade.
   (c) pedestals must be set in concrete to a minimum depth of 600 mm below finished grade.
   (d) ground model types must be bolted to a concrete pad using vandal resistant fasteners as per the manufacturer's requirements.
   (e) site furnishings shall be maintained by the Developer according to the Planning and Sustainability Department Landscape Maintenance Standards from the time of installation until the Final Acceptance Certificate is issued.

4.37 Fencing

.1 All privacy and subdivision fences shall be built on private property to the satisfaction of the Director of Planning and Sustainability.

.2 Fence construction drawings must display the appropriate engineering stamps and seals and be approved by the Director of Development Engineering.

4.38 Signage

.1 Park signs shall be standard Blue Tower Signs per City of Regina standard details. Signage must complement and form an integral component of the aesthetic character of the development. Signage text shall be submitted to Planning and Sustainability for approval.

.2 All park name signage must be approved by the Director of Planning and Sustainability. Refer to the Park Naming Policy for name selection procedures.
.3 See Sub-Section 12.4.22 for information regarding subdivision name signs.

4.39 Structures

.1 To be designed, constructed and located in a manner that meets the needs of the users throughout the various seasons. Structures must form an integral part of the aesthetic character of the open space and must be constructed of materials that require minimal maintenance and provide longevity.

.2 Construction drawings for structures must have the appropriate stamps and seals affixed.

.3 Structures will only be accepted in areas approved by the Director of Planning and Sustainability.

.4 Wood components shall not be CCA treated.

.5 The Developer is responsible to secure all permits related to any site structures.

4.40 Lighting

.1 Lighting within open space developments shall be determined through the requirements of the City of Regina Open Space Lighting Policy and Procedures and through discussions with the Director of Planning and Sustainability. It shall consider the following criteria:

(a) The intended use of the open space – Lighting should be provided in those areas where night time recreational use is encouraged.

(b) Frequency of use – Lighting is required because the open space is frequently used by a significant number of people at night.

(c) Safety and Security – Lighting is required to minimize the opportunity for vandalism, assault or other crimes and contribute to a greater degree of safety for park users.

.2 All lighting in open space shall be located, oriented and shielded so as to not adversely affect adjacent residential properties.

.3 Light levels will be measured horizontally.

.4 The light source for athletic surfaces shall be metal halide. All other activity areas shall be high-pressure sodium unless otherwise approved.

.5 The distribution type will be suited for its specific application.
.6 Heads, lenses and ballasts shall be heavy duty for exterior applications.

.7 Light poles shall be a minimum of 3.6 m in height and shall be constructed from steel. Mounting plates and bolts shall be rustproof steel. Poles shall be bronze in color and numbered consecutively through the open space as directed by the City.

.8 The lighting system shall be capable of connecting to the City-wide computerized central control system.

.9 The lighting system shall be switched by photocell and will include a time clock for manual control.

.10 A separate electrical plan and specification section shall be submitted to the Director of Planning and Sustainability for approval. The plans carry the appropriate seals and shall be an integral part of the landscape and open space development submission.

.11 The electrical requirements of the intended open space development may not be limited to site lighting. Preliminary design criteria will be established through discussions with the Planning and Sustainability Department.

.12 In open space developments where it is determined that lighting is required light levels in activity areas shall meet industry standards as follows:

Table 4.40.12 Light Standards

<table>
<thead>
<tr>
<th>Activity Area</th>
<th>Minimum Illumination (Lux)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility Areas</td>
<td>10.0</td>
</tr>
<tr>
<td>Pedestrian Ways</td>
<td>10.0</td>
</tr>
<tr>
<td>Seating Areas</td>
<td>5.0</td>
</tr>
<tr>
<td>Play Structure Areas</td>
<td>50.0</td>
</tr>
<tr>
<td>Gardens</td>
<td>50.0</td>
</tr>
<tr>
<td>Parking Lots</td>
<td>10.0</td>
</tr>
<tr>
<td>Basketball Recreational</td>
<td>100.0</td>
</tr>
<tr>
<td>Ice Hockey (Boarded Site)</td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Infield</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Recreational</td>
<td>100.0</td>
</tr>
<tr>
<td>Flooded Skating Sites</td>
<td>10.0</td>
</tr>
<tr>
<td>Tennis</td>
<td></td>
</tr>
<tr>
<td>Tournament</td>
<td>300.0</td>
</tr>
<tr>
<td>Club</td>
<td>200.0</td>
</tr>
<tr>
<td>Recreational</td>
<td>100.0</td>
</tr>
<tr>
<td>Baseball</td>
<td></td>
</tr>
<tr>
<td>Major League</td>
<td></td>
</tr>
<tr>
<td>Infield</td>
<td>1500.0</td>
</tr>
<tr>
<td>Outfield</td>
<td>1000.0</td>
</tr>
<tr>
<td>AA and AAA League</td>
<td></td>
</tr>
<tr>
<td>Infield</td>
<td>700.0</td>
</tr>
<tr>
<td>Outfield</td>
<td>500.0</td>
</tr>
<tr>
<td>A and B League</td>
<td></td>
</tr>
<tr>
<td>Infield</td>
<td>500.0</td>
</tr>
<tr>
<td>Outfield</td>
<td>300.0</td>
</tr>
<tr>
<td>C and D League</td>
<td></td>
</tr>
<tr>
<td>Infield</td>
<td>300.0</td>
</tr>
<tr>
<td>Outfield</td>
<td>200.0</td>
</tr>
<tr>
<td>Semi-Pro and Municipal Level</td>
<td></td>
</tr>
<tr>
<td>Infield</td>
<td>200.0</td>
</tr>
<tr>
<td>Outfield</td>
<td>150.0</td>
</tr>
<tr>
<td>Recreational</td>
<td></td>
</tr>
<tr>
<td>Infield</td>
<td>150.0</td>
</tr>
<tr>
<td>Outfield</td>
<td>100.0</td>
</tr>
<tr>
<td>Softball</td>
<td></td>
</tr>
<tr>
<td>Professional and championship</td>
<td></td>
</tr>
<tr>
<td>Infield</td>
<td>500.0</td>
</tr>
<tr>
<td>Outfield</td>
<td>300.0</td>
</tr>
<tr>
<td>Semi-professional</td>
<td></td>
</tr>
<tr>
<td>Infield</td>
<td>300.0</td>
</tr>
<tr>
<td>Outfield</td>
<td>200.0</td>
</tr>
<tr>
<td>Industrial League/Slow pitch, tournament</td>
<td></td>
</tr>
<tr>
<td>Infield</td>
<td>200.0</td>
</tr>
<tr>
<td>Outfield</td>
<td>150.0</td>
</tr>
</tbody>
</table>

Table.4.41.12 Light Standards (Continued)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Infield</th>
<th>Outfield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreational/Slow pitch, recreational</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Infield</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outfield</td>
<td>70.0</td>
<td></td>
</tr>
</tbody>
</table>

Football

Distance from nearest side-line to the farthest row of spectators:

- **Class I** Over 30 Metres: 1000.0
- **Class II** 15 to 30 Metres: 500.0
- **Class III** 9 to 15 Metres: 300.0
- **Class IV** Under 9 Metres: 200.0
It is generally conceded that the distance between the spectators and the play is the first consideration in determining the class and lighting requirements. However, the potential seating capacity of the stands shall also be considered and the following ratio is suggested:

Class I for over 30,000 spectators; Class II for 10,000 to 30,000; Class III for 5,000 to 10,000; and Class IV for under 5,000 spectators.

Source: Illuminating Engineers Society of North America (IESNA) *Lighting Ready Reference*

### 4.41 Special Features

.1 To be designed, constructed and located in a manner that is appropriate for the intended feature. Special features must complement and form an integral part of the aesthetic character of the open space and must be constructed of materials that provide longevity and require minimal maintenance.

.2 Construction drawings for special features must have the appropriate stamps and seals affixed.

.3 Special features will only be accepted in areas approved by the Director of Planning and Sustainability.