

# Appendix A



## Zone Standards For Single Detached Dwellings

July 2019

**Table 1 - Zone Standards for One-Family Dwellings (City of Kingston By-law Number 8499)**

<b>Zone Standard</b>	<b>A (S. 6)</b>	<b>A1 (S. 7)</b>	<b>A2 (S. 8)</b>	<b>A3 (S. 9)</b>	<b>A4 (S. 10)</b>	<b>A5 (S. 11)</b>	<b>A7 (S. 12A)</b>
<b>Descriptive Name of Zone</b>	One-Family and Two Family	One-Family	One-Family	One-Family and Two-Family	One-Family and Two-Family	One-Family and Two Family	One-Family, Semi-Detached and Linked
<b>Maximum height</b>	10.7m at the ridge line (1); 7.0m for exterior wall exclusive of end gable; and 7.0 for a flat roof	10.7m (2)	10.7m (2)	10.7m (2)		10.7m (2)	10.7m (2)
<b>Minimum front yard</b>	(3)(4), otherwise 4.5m	7.5m	7.5m	6.0m	4.5m	7.5m	6.0m
<b>Minimum side yard</b>	0.6m. The width of any lot adjoining a lane or a right-of-way over which the owners of the said lot has had access shall, for the purpose of this subsection of this by-law only, be	-	-	-	-	-	1.2m provided that on a lot where there is no attached private garage or attached carport, the minimum interior side yard width shall be 2.4m on one side

Zone Standard	A (S. 6)	A1 (S. 7)	A2 (S. 8)	A3 (S. 9)	A4 (S. 10)	A5 (S. 11)	A7 (S. 12A)
	assumed to include one half of the width of the said lane or right-of-way.						and 1.2m on the other side.
<b>Minimum aggregate side yard</b>	3.6m or 3/10 of the width of the lot, whichever is the lesser width.	3.6m	3.6m	3.0m	3.6m	3.0m	-
<b>Each side yard shall not, at any point in its length be a lesser width than</b>	-	1.2m	1.2m	1.2m, except for semi-detached dwellings which shall not be a lesser width than 2.4m on each side.	1.2m	1.2m	-
<b>Main buildings other than dwellings or accessory buildings if 4.6m or less high (each side)</b>	-	3.0m, and for each additional 0.6m in height in excess of 4.6m (each side) 0.3m.	3.0m, and for each additional 0.6m in height in excess of 4.6m (each side) 0.3m.	-	-	3.0m., and for each additional 0.6m in height in excess of 4.6m (each side) 0.3m.	-

Zone Standard	A (S. 6)	A1 (S. 7)	A2 (S. 8)	A3 (S. 9)	A4 (S. 10)	A5 (S. 11)	A7 (S. 12A)
<b>minimum side yard abutting a street (corner lot)</b>	Buildings on corner lots shall be subject to the Front Yard regulations on the two streets on which such lots abut.	7.5m	7.5m	6.0m	4.5	7.5m	6.0m
<b>Minimum rear yard</b>	Shall not be less than the greater of either: <ol style="list-style-type: none"> <li>1. the height of the rear wall of the main building, or</li> <li>2. 25 per cent of the lot depth; provided however, the depth of the rear yard need not exceed 7.5m.</li> </ol>	6.0m, however, on a corner lot a side yard requirement may be substituted for the rear yard requirement.	6.0m, however, on a corner lot a side yard requirement may be substituted for the rear yard requirement.	6.0m	5.0m	6.0m	6.0m, however, on a corner lot a side yard requirement may be substituted for a rear yard requirement.
<b>Maximum Permitted</b>	the average distance	-	-	-	-	-	-

Zone Standard	A (S. 6)	A1 (S. 7)	A2 (S. 8)	A3 (S. 9)	A4 (S. 10)	A5 (S. 11)	A7 (S. 12A)
<b>Residential Building Depth</b>	between the established front building lines and the established rear building lines of the two nearest permitted residential buildings on the nearest lots on the same block on opposite sides of the subject building ( <i>Note: may restrict building depth, depending on abutting properties</i> ).						
<b>Maximum FSI</b>	1.0 (5)(6)	-	-	-	-	-	-
<b>Minimum lot area</b>	370.0 m2	665.0m2	555.0m2	418.0m2	465m2	465m2	320.0m2
<b>Maximum Percentage of Lot coverage</b>	33 1/3% of the total lot area.	-	-	-	-	-	-

<b>Zone Standard</b>	<b>A (S. 6)</b>	<b>A1 (S. 7)</b>	<b>A2 (S. 8)</b>	<b>A3 (S. 9)</b>	<b>A4 (S. 10)</b>	<b>A5 (S. 11)</b>	<b>A7 (S. 12A)</b>
<b>Minimum Lot Width</b>	-	18.0m	15.0m	13.7m	12.0m (per dwelling unit)-	15.0m	10.6m
<b>Minimum width of corner lots</b>	-	-	16.5m	16.5m	16.5m	-	14.0m
<b>Minimum Percentage of Landscaped Open Space</b>	30% of the total lot area	30% of the total lot area	30% of the total lot area	30% of the total lot area	30% of the total lot area	30% of the total lot area	30% of the total lot area
<b>Undersized Old Lots</b>	-	-	-	-	Notwithstanding Sub-Section 10.3(a) where a lot that is described either by reference to a registered plan of subdivision or by metes and bounds in a deed or other instrument has an area of less than 465.0m <sup>2</sup> , if the plan or other instrument was registered before the passing of this by-law, the minimum area of	-	-

Zone Standard	A (S. 6)	A1 (S. 7)	A2 (S. 8)	A3 (S. 9)	A4 (S. 10)	A5 (S. 11)	A7 (S. 12A)
					<p>the lot and the minimum width of the lot for the purpose of erecting and using a one-family dwelling is the area of the lot and the width of the lot as described and the minimum width of a side yard other than the side yard abutting on the street on a corner lot is 1.2m.</p>		
<p><b>Established building lines</b></p>	-	-	-	-	<p>Where the building on the nearest built-up lot within 30.0m that fronts on the same street is closer to the front lot line than 4.5m, the depth of the front yard is the distance of the building from the front of the line; and,</p>	-	-

<b>Zone Standard</b>	<b>A (S. 6)</b>	<b>A1 (S. 7)</b>	<b>A2 (S. 8)</b>	<b>A3 (S. 9)</b>	<b>A4 (S. 10)</b>	<b>A5 (S. 11)</b>	<b>A7 (S. 12A)</b>
					Where there is a building on such nearest built-up lot on both sides of the lot, the depth of the front yard is the average of the distances of the buildings from the front lot lines.		
<b>Off-Street Vehicle Parking Facilities</b>	1 space per dwelling unit	1 space per dwelling unit	1 space per dwelling unit	1 space per dwelling unit	1 space per dwelling unit	1 space per dwelling unit	1 space per dwelling unit
<b>Parking Restrictions</b>	(7) Parking facilities for all permitted uses that are not located within an enclosed building shall not be located in any front yard space.	(7) Parking facilities for all permitted uses shall be provided on the same lot or premises as the referred structure or use and shall not be located in any front yard space.	(7) Parking facilities for all permitted uses shall be provided on the same lot or premises as the referred structure or use and shall not be located in any front yard space.	(7) Parking facilities for all permitted uses shall be provided on the same lot or premises as the referred structure or use and shall not be located in any front yard space.	(7) parking facilities for all permitted uses that are not located within an enclosed building shall not be located in any front yard space.	(7) Parking facilities for all permitted uses shall be provided on the same lot or premises as the referred structure or use and shall not be located in any front yard space.	(7)(8)
<b>Amenity Area Requirements</b>	(9)	(9)	9)	(9)	(9)	(9)	(9)



Zone Standard	A (S. 6)	A1 (S. 7)	A2 (S. 8)	A3 (S. 9)	A4 (S. 10)	A5 (S. 11)	A7 (S. 12A)
Accessory Building Provisions	(11)	(10)	(10)	(10)	(12)	(10)	(10)

**Notes for Table 1:**

- (1) Building Height for the purpose of S. 6.3, means the vertical distance measured from the average finished grade of the entire lot to the highest point of the roof surface.
- (2) Building Height as defined in S.4, means the vertical distance measured from the average finished grade of the entire lot to the highest point of the roof surface in the case of flat roofs or to a point halfway up the roof in the case of pitched roofs.
- (3) Minimum front yard - Where the nearest previously erected building fronting on the same street is located less than 30.0m from a building to be erected, structurally altered, enlarged or maintained and when there is no other building within 30.0m, located on the opposite side of the above-mentioned building which is to be erected, structurally altered, enlarged or maintained, the minimum required front yard shall be the average between the following two distances:
  - a. the front yard of the previously erected building excluding steps and eaves; and
  - b. 4.5m
- (4) Minimum front yard - Where the nearest previously erected building fronting on the same street is located less than 30.0m from a building which is to be erected, structurally altered, enlarged or maintained and there is another previously erected building within 30.0m located on the opposite side of the building to be erected, structurally altered, enlarged or maintained the minimum required front yard shall be the average depth of the front yards of the two above mentioned previously erected buildings.
- (5) Floor Space Index (FSI) for the purpose of S. 6.3, means the ratio of the gross floor area of the building to the area of the lot on which the building is constructed.
- (6) Gross Floor Area (GFA) for the purpose of S. 6.3, means the sum total of the gross horizontal areas of all floors of the main building on a lot, measured from the exterior faces of the exterior walls or from the centreline of the common wall separating two buildings, and the gross floor area of a building shall also include:
  - a. basement floor area where the basement ceiling height is 2.1 metres (7.0 feet) or more, unless otherwise specified;

- b. attic space having headroom of 2.1 metres (7.0 feet) or more for at least half the attic floor area;
- c. interior balconies and mezzanines;
- d. enclosed porches; and
- e. elevator shafts and stairwells at each floor, and floor area used for mechanical equipment.

(7) Per Section 5.3.D(cc), for Zones A, A1, A2, A3, A4, A5, A6 or A7: up to 40 square metres of the rear yard or interior side yard may be used as uncovered parking area for residential uses; except that this provision shall not apply to prevent the use of a garage or hard surfaced driveway leading to a complying parking space, provided the width of such driveway does not exceed the width of the garage walls.

(8) Per S. 12A.3, parking facilities within the A7 Zone not located in an enclosed building or covered structure such as a carport may be located in a front yard space, rear yard, interior side yard, or exterior side yard space. The following provisions shall apply to regulate such parking facilities:

- a. Any area used for a parking facility shall have a stable surface designed to support vehicle traffic.
- b. One-Family Dwellings, Semi-Detached Dwellings or Linked Dwellings:
  - i. The location of a parking facility may extend from the front of the house to the front lot line, the maximum width of which shall be the lesser of 50 per cent of the lot frontage or 5.6 metres.
  - ii. Notwithstanding the above provisions the following addresses shall be limited to the widths identified in By-law Number 8499; 2010-149 (Refer to Bylaw 8499).

(9) Per General Provisions S. 26A, one and two family dwelling units shall contain a private amenity area subject to the provisions of Section 4.2A which defines Amenity Area as an indoor area or room within an individual dwelling unit which has a minimum clear ceiling height of 2.15 metres (7 feet) and a minimum floor area of 10 m<sup>2</sup> (108 ft<sup>2</sup>), used by the residents of the unit for passive recreational purposes, and may include a living room, study, den, recreational room, and similar uses, but is not deemed to include a kitchen, lavatory, bedroom, foyer, lobby, hall, closet, garage, laundry room, furnace room, or stairwell.

(10) Per S. 5.17(a), the following provisions shall govern the erection, alteration, enlargement, maintenance and use of accessory buildings for Zones A1, A2, A3, A5, A7 and B1:

- a. Maximum Height: 4.6m
- b. Maximum Lot Coverage: 10 per cent of lot area
- c. Location of Lot:
  - i. Detached Accessory buildings shall be located:
    - not less than 1.8m from main building
    - not closer to the street than the front of the main building

- not closer to the street than the side of the main building on a corner lot.
- ii. For detached accessory buildings located in the side yard, in addition to the foregoing regulations, the minimum side yard requirements of Sections 7.3(c), 8.3(c), 9.3(c), 11.3(c), 12A.3(c), 12A.3(d) and 14.3(b) shall apply respectively.

(11) Per S. 5.17(b), the following provisions shall govern the erection, alteration, enlargement, maintenance and use of accessory buildings for Zone A:

- a. Maximum Building Height: 4.6m
- b. Maximum Lot Coverage: 10 per cent of lot area
- c. Location of Lot
  - i. Subject to Section 5.17 (c) (iii) (2) of this by-law, any accessory building shall be located in the rear yard of the main building it serves, and shall be no closer than 1.2 metres from any lot line.
  - ii. A private garage may be located on any side yard, subject to the same setback and minimum side yard regulations as the main building it serves.
  - iii. No accessory building shall be located within 1.2m of any window or door of the main building to which it is accessory, except on the case of interior lots 10.7m or less in width and which are on a registered plan registered prior to the passing of this by-law, in which case the accessory building may be located within 0.3m of any line of the lot on which it is erected or within 1.2m of any window or door of the main building to which it is accessory.

(12) Per S. 5.17(b), the following provisions shall govern the erection, alteration, enlargement, maintenance and use of accessory buildings for Zone A4:

- a. Maximum Height: 4.6m
- b. Distance of Accessory Building From Main Building: 1.8m
- c. Side yard: same as main building or 1.2m whichever is greater.
- d. Distance from Side Lot Line:
  - i. Attached Carport in Side Yard - Where a one storey carport not over 3.4m wide that is open on three sides except for necessary supporting columns is attached to the side of a dwelling, the carport may project into a side yard until it comes to within 0.3m of the side lot line.
  - ii. Attached Garage in Side Yard - Where a one storey garage is attached to the side of a dwelling the garage may project into the side yards until it comes to within 1.2m of the side lot line.

# Appendix B



## Zone Standards for 'A8' and 'B' Zones

July 2019

**Table 2 - Zone Standards for A8 and B Zones (City of Kingston By-law Number 8499)**

<b>Zone Standard</b>	<b>A8 (S. 12B)</b>	<b>B (S. 13)</b>	<b>B1 (S. 14)</b>	<b>B2 (S. 15)</b>	<b>B3 (S. 16)</b>
<b>Descriptive Name of Zone</b>	Row Dwelling Zone	Three To Six Family Dwelling Zone	Multiple Family Dwelling Zone	Multiple Family Dwelling (Unified Ownership) Zone	Multiple Family Dwelling Zone
<b>Maximum height</b>	10.7 m	12.0 m	-	9.0 m	-
<b>Maximum number of storeys</b>	-	-	-	3	-
<b>Minimum front yard</b>	4.5 m (5)	6.0 m	7.5 m	7.5 m	7.5 m
<b>Minimum side yard</b>	Minimum Exterior Side Yard: 3.0m (5) Minimum Interior Side Yard: 0.6m	For buildings other than public or semi-public buildings: $\frac{2}{5}$ the height of the main building	One storey dwelling (each side): 1.8 m All other dwellings (each side): 3.0 m First 2 storeys: 3.0 m Each additional storey: 1.2 m	3.6 m	$\frac{1}{2}$ the height of the main building: i. Notwithstanding the provisions of 16.3(b) herein any side yard abutting any part of a lot occupied by a one-family dwelling or a two-family dwelling shall be of a width equal to the height of the building. ii. Such side yards shall be fenced with a masonry wall not less than 1.4m in height, such fence is to be erected 0.2m

Zone Standard	A8 (S. 12B)	B (S. 13)	B1 (S. 14)	B2 (S. 15)	B3 (S. 16)
					from the lot line and extending from the line of setback to the rear lot line.
<b>Minimum aggregate side yard</b>	-	The minimum aggregate side yard width shall be a measurement equal to the height of the main building. The width of any lot adjoining a lane or a right-of-way over which the owner of the said lot has legal access shall, for the purpose of this subsection of this by-law only, be assumed to include one-half of the width of the said lane or right-of-way.	-	-	-
<b>minimum side yard abutting a street (corner lot)</b>	-	-	7.5 m	-	7.5 m
<b>minimum side yard for non-residential</b>	-	-	not less than one-half of the height of the building.	-	-

Zone Standard	A8 (S. 12B)	B (S. 13)	B1 (S. 14)	B2 (S. 15)	B3 (S. 16)
<b>buildings (each side)</b>					
<b>minimum side yard for a public or semi-public building</b>	-	Where a public or semi-public building is permitted in Zone B, side yards shall be provided on each side, other than on a side facing a street, and each side yard shall have a width that is not less than one-half of the height of the building.	-	-	-
<b>Minimum rear yard</b>	6.0 m	Shall not be less than the greater of either: 1. The height of the rear wall of the main building, or 2. 25% of the lot depth: provided however, that the depth of the rear yard need not exceed 7.5m	7.5m for any building up to 5 storeys or 15.0m in height, and for each additional storey, 1.2m additional rear yard (2)	12.0 m. Minimum rear yards may be reduced to 7.5m if parking is provided elsewhere in the project.	No rear yard shall at any point throughout its length be of a lesser measurement than the height of the building.
<b>Distance between buildings</b>				No building containing dwelling units will be nearer to any other such building than 4.5m but a minimum	

<b>Zone Standard</b>	<b>A8 (S. 12B)</b>	<b>B (S. 13)</b>	<b>B1 (S. 14)</b>	<b>B2 (S. 15)</b>	<b>B3 (S. 16)</b>
				distance of 15.0m shall be maintained between rear faces of opposite housing blocks and / or apartment buildings.	
<b>Court requirements</b>	-	The least horizontal dimension of any court shall not be less than the height of such court.	-	-	-
<b>Minimum lot area</b>	158 m <sup>2</sup>	-	-	-	-
<b>Minimum lot width</b>	6.0 m	-	18.0 m	-	-
<b>Minimum width of corner lots</b>	9.0 m	Corner lots shall be subject to front yard regulations on the two streets on which they abut.	-	-	-
<b>Maximum Percentage of Lot coverage</b>	-	33 1/3 % of the total lot area (1)	-	-	-
<b>Maximum Percentage of Lot Occupancy</b>	-	-	-	35% (3)	100%



<b>Zone Standard</b>	<b>A8 (S. 12B)</b>	<b>B (S. 13)</b>	<b>B1 (S. 14)</b>	<b>B2 (S. 15)</b>	<b>B3 (S. 16)</b>
<b>Maximum density</b>	-	69 dwelling units per net ha.	Two Family Dwelling: 30 du/ha Three Family Dwelling: 35 du/ha Four Family Dwelling: 43 du/ha Five Family Dwelling: 55 du/ha Six or More Family Dwelling: 69 du/ha	69 dwelling units per net ha	123 dwelling units per net ha
<b>Maximum Number of Dwelling Units per Building</b>	8	-	Within a multiple family dwelling, not more than one bachelor apartment shall be permitted for every four family dwelling units.	12	-
<b>Minimum Floor Area</b>	-	-	0 BR: 28.0m <sup>2</sup> 1 BR: 42.0m <sup>2</sup> 2 BR: 56.0m <sup>2</sup> 3 BR: 70.0m <sup>2</sup> 4 BR: 79.0m <sup>2</sup> For each additional bedroom: 9.0m <sup>2</sup> Senior Citizen apartments (one bedroom): 42.0m <sup>2</sup>	0 BR: 28.0m <sup>2</sup> 1 BR: 42.0m <sup>2</sup> 2 BR: 56.0m <sup>2</sup> 3 BR: 70.0m <sup>2</sup> 4 BR: 79.0m <sup>2</sup> For each additional bedroom: 9.0m <sup>2</sup>	-

<b>Zone Standard</b>	<b>A8 (S. 12B)</b>	<b>B (S. 13)</b>	<b>B1 (S. 14)</b>	<b>B2 (S. 15)</b>	<b>B3 (S. 16)</b>
<b>Minimum Percentage of Landscaped Open Space</b>	-	-	30% of the total lot area	30% of the total lot area	30% of the total lot area
<b>Parking Requirements</b>	<p>Minimum Off-Street Parking: 1 per dwelling unit. The required parking space shall not occupy any of the required front yard. The required parking space for any row dwelling shall be provided in an attached garage</p> <p>Minimum Number of Visitor Parking: 37</p> <p>Minimum Number of Barrier Free Parking: 9</p>	<p>(9)</p> <p>Minimum Off-Street Parking: 1 parking space per dwelling unit.</p>	<p>(10)</p> <p>Minimum Off-Street Parking: 1.4 parking space per dwelling unit.</p>	<p>(10)</p> <p>Minimum Off-Street Parking: 1 parking space per dwelling unit.</p>	<p>(9)</p> <p>Minimum Off-Street Parking: 1.4 parking space per dwelling unit.</p>
<b>Amenity Area Requirements</b>	Minimum Common Amenity Space: 1,500 m2	(11)	(11)	(11)	(11)
<b>Garage Requirements</b>	Garage Location: The front wall of a private garage, whether attached or detached	-	-	-	-

Zone Standard	A8 (S. 12B)	B (S. 13)	B1 (S. 14)	B2 (S. 15)	B3 (S. 16)
	from the main dwelling, containing the opening for vehicular access shall be setback a minimum of 6.0 metres from the front lot line.				
<b>Accessory Building Provisions</b>	(4) The total lot coverage of all accessory buildings on a lot shall not exceed 15 per cent of the lot area.  Accessory buildings shall be located a minimum of 0.6 m from the interior side lot line; 3.0 m from the exterior side lot line; and 0.6 m from the rear lot line.	(7)	(6)	(8)	(8)

**Notes for Table 2:**

- (1) In computing the percentage of lot coverage for any building on a lot which has a lane, or right-of-way over which the owner of the said lot has legal access extending along the side or along the rear thereof, one-half of the area of that portion of such lane or right-of-way which is adjacent to and bordering in such lot, not exceeding in any case ten per cent of the area of the lot proper, may be deemed to be a portion of that lot.

- (2) In computing the depth of a rear yard where such yard abuts a court, side yard, private park or playground or any similar open space forming an integral part of a group or row housing development, such open space may be considered as part of the required rear yard provided that the rear yard is not reduced to less than 6.0m.
- (3) Lot occupancy may be calculated on a gross basis, for example the required lot occupancy may be the total lot occupancy permitted for the total number of dwelling units within the area being developed as a multiple family, group, or any similar open space forming an integral part of the scheme but not including public streets.
- (4) A Guardhouse is permitted an accessory use in the A8 Zone. For purpose of S. 12B, a Guardhouse is defined as a building used to accommodate a person who controls entrance to the grounds, sleeping accommodation is prohibited. The following regulations apply to Guardhouses:
  - a. Any guardhouse shall be setback a minimum of 1.5 metres from an abutting residential zone.
  - b. Any guardhouse shall be setback a minimum of 28 metres from Conacher Drive.
  - c. Maximum Permitted Size of Guardhouse: 22 m<sup>2</sup>
- (5) Projections into yards – Per S. 12.3(p), within a required front or exterior side yard, an encroachment of 1.5 metres for a porch or steps is permitted.
- (6) Per S. 5.17(a), the following provisions shall govern the erection, alteration, enlargement, maintenance and use of accessory buildings for Zones A1, A2, A3, A5, A7 and B1:
  - a. Maximum Height: 4.6m
  - b. Maximum Lot Coverage: 10 per cent of lot area
  - c. Location of Lot:
    - i. Detached Accessory buildings shall be located:
      - not less than 1.8m from main building
      - not closer to the street than the front of the main building
      - not closer to the street than the side of the main building on a corner lot.
    - ii. For detached accessory buildings located in the side yard, in addition to the foregoing regulations, the minimum side yard requirements of Sections 7.3(c), 8.3(c), 9.3(c), 11.3(c), 12A.3(c), 12A.3(d) and 14.3(b) shall apply respectively.
- (7) Per S. 5.17(e), the following provisions shall govern the erection, alteration, enlargement, maintenance and use of accessory buildings for Zone B:
  - a. Maximum Height: 4.6m

- b. Maximum Lot Coverage: 15 per cent of lot area
- c. Location on Lot:
  - i. Subject to Section 5.17(e)(iii)(2) of this by-law, any accessory building shall be located in the rear yard of the main building it serves, and may be located on the lot line.
  - ii. A private garage may be located in any side yard, subject to the same setback regulations as the main building it serves.
  - iii. No accessory building shall be located within 1.2m of any window or door of the main building to which it is accessory, except in the case of interior lots 10.7m or less in width and which are on a registered plan, registered prior to the passing of this by-law, in which case the accessory building may be located within 0.3m of any line of the lot on which it is erected or within 1.2m of any window or door of the main building to which it is accessory.
  - iv. In the case of a corner lot at the rear of which (whether a lane intervenes or not) there is a lot restricted to residential purposes fronting on a street which flanks such corner lot, any accessory building erected upon such corner lot shall be located in such a manner that no part of it shall be nearer the street line of the flanking street than the distance described as a setback line for the said rear lot.

(8) Per S. 5.17(e), the following provisions shall govern the erection, alteration, enlargement, maintenance and use of accessory buildings for Zones B2 and B3:

- a. Maximum Height: 4.6m
- b. Maximum Lot Coverage: 10 per cent of lot area
- c. Location on Lot: same as main building it serves.

(9) Per S. 5.B (d), parking facilities for all permitted uses within Zones B and B3 shall be located either:

- a. within an enclosed building, or
- b. to the rear of a point midway between the front and rear wall of the main building when this main building is situated on a lot which abuts one street only, or
- c. no closer to the street line than the nearest wall of the main building to the street line when this main building is situated on a lot which abuts two or more streets, or
- d. on a lot not more than 60.0m from the lot upon which the main building is situated, but shall not occupy any front yard space.

(10) Per S. 5.B (e), parking facilities for all permitted uses within Zones B1 and B2 shall be located either:

- a. to the rear of a point midway between the front and rear walls of the main building when this main building is situated on a lot which abuts one street only, or to the rear of a point midway between the front and rear wall of the main building when this main building is situated on a lot which abuts one street only, or

- b. no closer to any street line than the nearest wall of the main building to the street line when this main building is situated on a lot which abuts two or more streets.

(11) Per section 5.27, amenity areas for Multiple family dwellings, defined in S. 4.2 shall be provided as follows:

- a. A minimum of 18.5 square metres of amenity area shall be provided for each dwelling unit on the lot.
- b. Amenity areas, or any part thereof, shall be designed and located so that the length does not exceed four times the width.
- c. Amenity areas, if provided as communal space, must be aggregated into one area or grouped into areas of not less than 54.0 square metres.
- d. Where an amenity area, provided as an outdoor area exterior to the residential building, is located at grade level, it may be included in the calculation of landscaped open space requirements.

Section 4.2 defines an amenity area as an exterior to the residential building, or an interior area common to all dwelling units within a residential building, which is designed and intended primarily for the leisure and recreation of the occupants of the building.

# APPENDIX C



## Zone Provisions for the Development of Residential Dwellings from the City's Draft Zoning By-law

June 2019

**Table 1 – Zone Provisions associated with Single Detached Dwelling Development**

Zone Provisions	R1	R2	R3	R4	R5
<b>Single Detached Dwellings</b>					
Minimum Lot Area (sq. m)	450.0	360.0	320.0	300.0	n/a
Minimum Lot Frontage (m)	15.0	12.0	10.6	10.0	n/a
Maximum Height (m)	10.7	10.7	10.7	10.7	n/a
Minimum Front Setback (m)	6.0 (1)	6.0 (1)	6.0 (1)	6.0 (1)	n/a
Minimum Rear Setback (m)	7.5 (2)	7.5 (2)	7.5 (2)	7.5 (2)	n/a
Minimum Exterior Side Setback	6.0	5.0	5.0	5.0	n/a
Minimum Interior Side Setback	3.6 (3)	3.6 (3)	3.6 (4)	3.6 (4)	n/a
Minimum Landscape	30% of lot area	30% of lot area	30 % of lot area	30% of lot area	n/a
Maximum Lot Coverage	35%	40%	45%	45%	n/a

**Table 2 – Zone Provisions associated with Semi-Detached Dwelling Development**

Zone Provisions	R1	R2	R3	R4	R5
<b>Semi-Detached Dwelling</b>					
Minimum Lot Area (sq. m)	n/a	300.0	225.0	180.0	n/a
Minimum Lot Frontage (m)	n/a	10.0	7.5	6.0	n/a
Maximum Height (m)	n/a	10.7	10.7	10.7	n/a
Minimum Front Setback (m)	n/a	6.0 (1)	6.0 (1)	6.0 (1)	n/a
Minimum Rear Setback (m)	n/a	7.5 (2)	7.5 (2)	7.5 (2)	n/a
Minimum Exterior Side Setback	n/a	5.0	5.0	5.0	n/a
Minimum Interior Side Setback	n/a	1.8 (3)	1.8 (4)	1.8 (4)	n/a
Minimum Landscape	n/a	30% of lot area	30 % of lot area	30% of lot area	n/a
Maximum Lot Coverage	n/a	40%	45%	45%	n/a



**Table 3 – Zone Provisions associated with Duplex Dwelling Development**

Zone Provisions	R1	R2	R3	R4	R5
<b>Duplex Dwelling</b>					
Minimum Lot Area (sq. m)	n/a	360.0	320.0	320.0	n/a
Minimum Lot Frontage (m)	n/a	12.0	10.6	10.0	n/a
Maximum Height (m)	n/a	10.7	10.7	10.7	n/a
Minimum Front Setback (m)	n/a	6.0 (1)	6.0 (1)	6.0 (1)	n/a
Minimum Rear Setback (m)	n/a	7.5 (2)	7.5 (2)	7.5 (2)	n/a
Minimum Exterior Side Setback	n/a	5.0	5.0	5.0	n/a
Minimum Interior Side Setback	n/a	3.6 (3)	3.6 (4)	3.6 (4)	n/a
Minimum Landscape	n/a	30% of lot area	30 % of lot area	30% of lot area	n/a
Maximum Lot Coverage	n/a	40%	45%	45%	n/a

**Table 4 – Zone Provisions associated with Triplex Dwelling Development**

Zone Provisions	R1	R2	R3	R4	R5
<b>Triplex Dwelling</b>					
Minimum Lot Area (sq. m)	n/a	n/a	360.0	360.0	n/a
Minimum Lot Frontage (m)	n/a	n/a	12.0	12.0	n/a
Maximum Height (m)	n/a	n/a	10.7	10.7	n/a
Minimum Front Setback (m)	n/a	n/a	6.0 (1)	6.0 (1)	n/a
Minimum Rear Setback (m)	n/a	n/a	7.5 (2)	7.5 (2)	n/a
Minimum Exterior Side Setback	n/a	n/a	5.0	5.0	n/a
Minimum Interior Side Setback	n/a	n/a	3.6 (4)	3.6 (4)	n/a
Minimum Landscape	n/a	n/a	30 % of lot area	30% of lot area	n/a
Maximum Lot Coverage	n/a	n/a	45%	45%	n/a

**Table 5 – Zone Provisions associated with Townhouse Dwelling Development**

Zone Provisions	R1	R2	R3	R4	R5
<b>Townhouse Dwelling</b>					
Minimum Lot Area (sq. m)	n/a	n/a	225.0	180.0	180.0
Minimum Lot Frontage (m)	n/a	n/a	7.5	6.0	6.0
Maximum Height (m)	n/a	n/a	10.7	10.7	11.0
Minimum Front Setback (m)	n/a	n/a	6.0 (1)	6.0 (1)	6.0 (1)
Minimum Rear Setback (m)	n/a	n/a	7.5 (2)	7.5 (2)	7.5 (2)
Minimum Exterior Side Setback	n/a	n/a	5.0	5.0	5.0
Minimum Interior Side Setback	n/a	n/a	1.8 (4)	1.8 (4)	1.8
Minimum Landscape	n/a	n/a	30 % of lot area	30% of lot area	30% of lot area
Maximum Lot Coverage	n/a	n/a	45%	45%	45%

**Table 6 – Zone Provisions associated with Stacked Townhouse Dwelling Development**

Zone Provisions	R1	R2	R3	R4	R5
<b>Stacked Townhouse Dwelling</b>					
Minimum Lot Area (sq. m)	n/a	n/a	n/a	540.0	540.0
Minimum Lot Frontage (m)	n/a	n/a	n/a	18.0	18.0
Maximum Height (m)	n/a	n/a	n/a	10.7	11.0
Minimum Front Setback (m)	n/a	n/a	n/a	6.0	6.0 (1)
Minimum Rear Setback (m)	n/a	n/a	n/a	7.5 (2)	7.5 (2)
Minimum Exterior Side Setback	n/a	n/a	n/a	5.0	5.0
Minimum Interior Side Setback	n/a	n/a	n/a	3.6 (4)	1.8
Minimum Landscape	n/a	n/a	n/a	30% of lot area	30% of lot area
Maximum Lot Coverage	n/a	n/a	n/a	45%	45%

**Table 7 – Zone Provisions associated with Apartment Building Development**

<b>Zone Provisions</b>	<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>	<b>R5</b>
<b>Apartment Building</b>					
<b>Minimum Lot Area (sq. m)</b>	n/a	n/a	n/a	540.0	540.0
<b>Minimum Lot Frontage (m)</b>	n/a	n/a	n/a	18.0	18.0
<b>Maximum Height (m)</b>	n/a	n/a	n/a	10.7	12.5
<b>Minimum Front Setback (m)</b>	n/a	n/a	n/a	6.0	6.0 (1)
<b>Minimum Rear Setback (m)</b>	n/a	n/a	n/a	7.5 (2)	7.5 (2)
<b>Minimum Exterior Side Setback</b>	n/a	n/a	n/a	5.0	5.0
<b>Minimum Interior Side Setback</b>	n/a	n/a	n/a	2.0	1.8
<b>Minimum Landscape</b>	n/a	n/a	n/a	30% of lot area	30% of lot area
<b>Maximum Lot Coverage</b>	n/a	n/a	n/a	45%	45%

Notes for table:

- (1) Minimum front setback may be reduced to the average of the existing front setbacks of the adjacent structures provided that the minimum front setback shall not be less than 3.0 metres;
- (2) Minimum rear setback: 25% of the lot depth, not to exceed 7.5 metres
- (3) Aggregate of interior side setbacks: 3.6 metres, of which one interior side setback shall be a minimum of 0.6 metres.
- (4) Aggregate of interior side setbacks: 5.0 metres, of which one interior side setback may be a minimum 0.6 metres.

# Appendix D



## Building Permit and Development Application Data

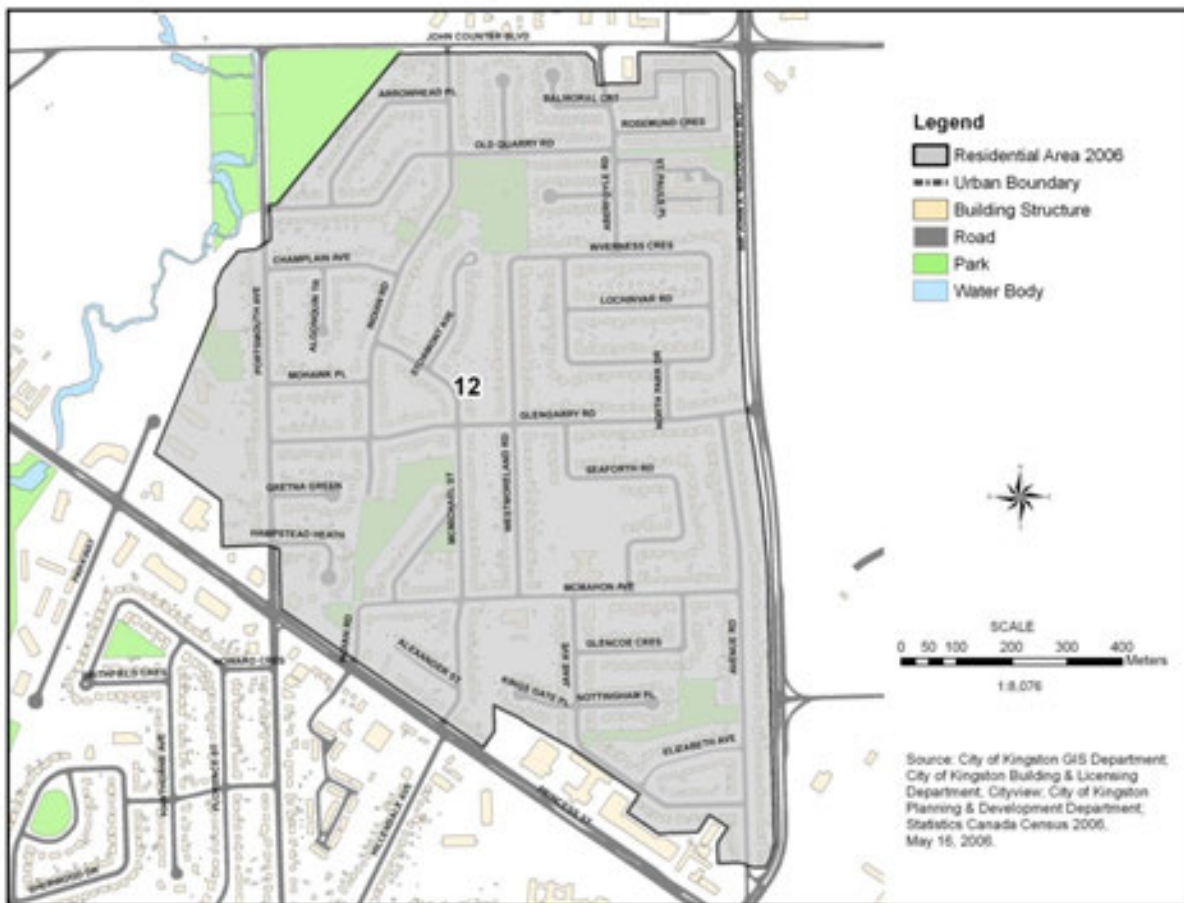
June 2019

## Area 12 – Strathcona Park

### a. Location

Located in Kingston Central, Area 12 covered an area of 111.37 gross hectares in 2006. It is bounded on the north by John Counter Boulevard, on the east by Sir John A. Macdonald Boulevard, on the south by Princess Street and on the west by Parkway Street and the Little Cataraqui Creek (see Map 12.1 below). In 2018, this area included the 1,360 residential units located in the Strathcona Park neighbourhood (see Table 12.4).

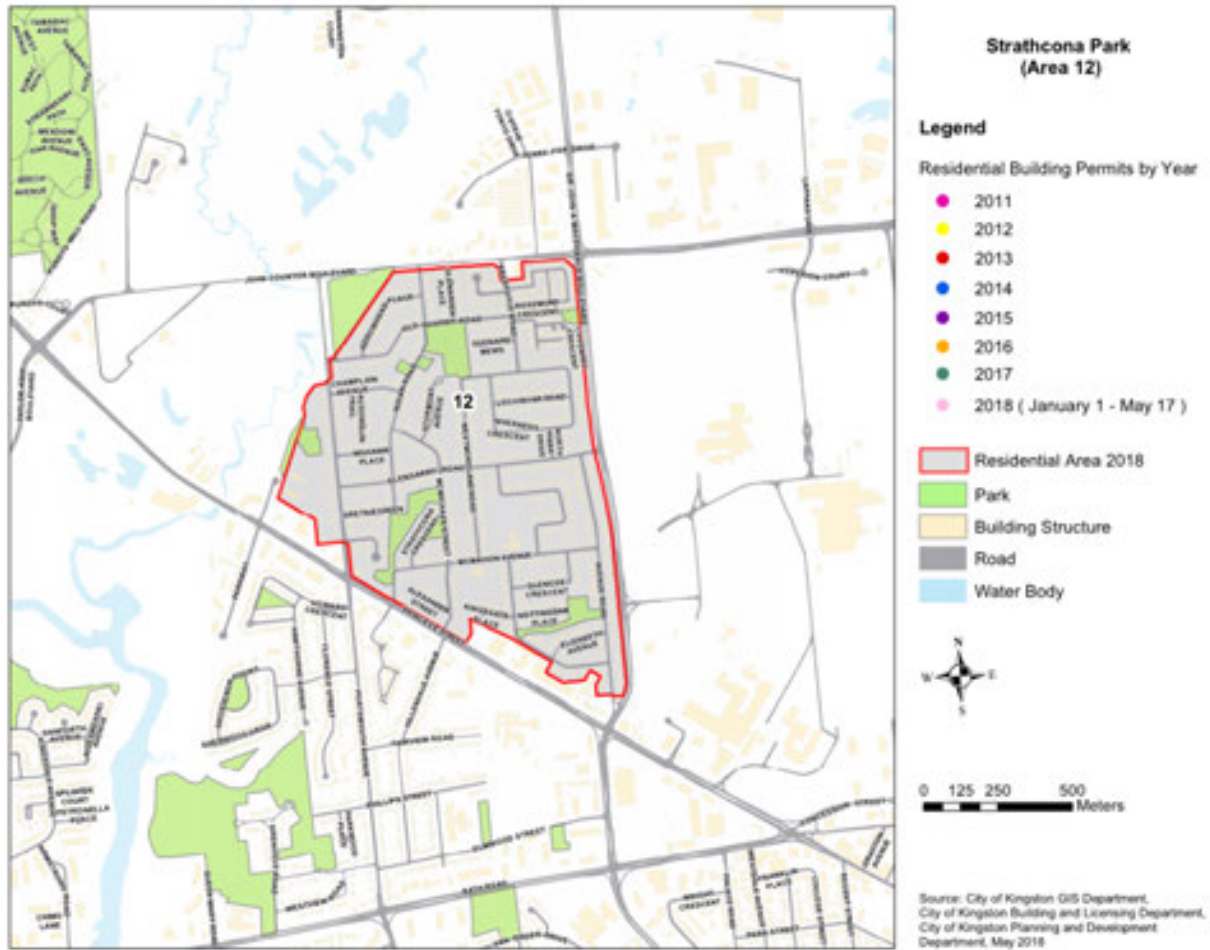
**Map 12.1: 2006 Residential Area**



### b. Residential Building Growth – 2011 to 2018

Between 2011 and 2018, no building permits were issued (see Tables 12.1, 12.3 and Map 12.2).

**Map 12.2: 2018 Residential Area and Building Permits Issued 2011 - 2018**



**Table 12.1: Residential Unit Construction 2011 – 2018**

**(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)**

2011	2012	2013	2014	2015	2016	2017	2018	Total
0	0	0	0	0	0	0	0	0

**c. Housing Mix**

In 2010, the majority of the dwelling units in Area 12 were single detached dwellings at 61.4%. The area also included units in multiples at 24.6% and apartment units

at 14.7% (see Table 12.2 and Chart 12.1 below).

The 2011 to 2018 building permit data indicated that the housing mix remained unchanged from the 2010 base data (see Tables 12.3, 12.4 and Chart 12.1 below).

**Table 12.2: 2010 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
1361	836	335	200	0	-10

**Table 12.3: 2011 – 2018 New Construction Housing Mix**

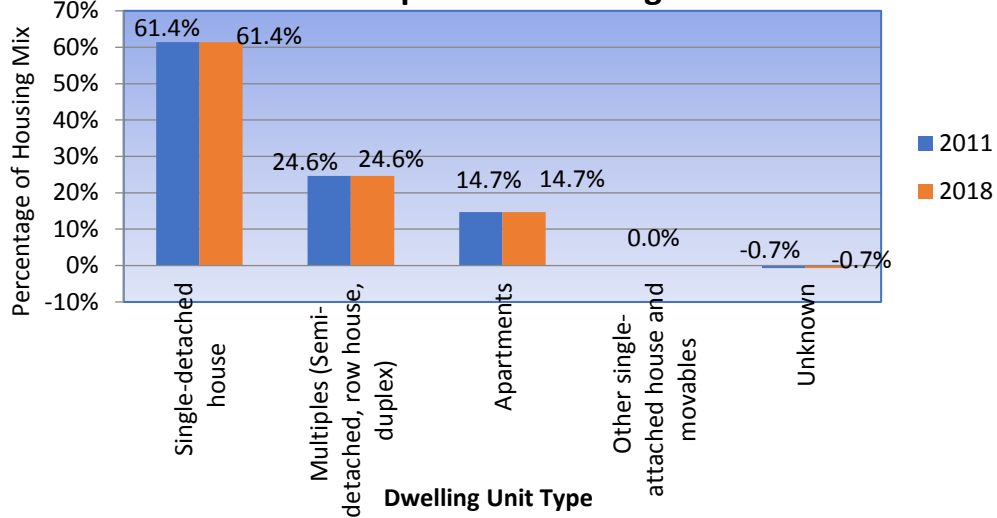
(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)

Total residential units	Single detached	Multiples	Apartments
0	0	0	0

**Table 12.4: 2018 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
1361	836	335	200	0	-10

**Chart 12.1: 2011-2018 Comparative Housing Mix**



**d. Change in Residential Density**

In 2010, Area 12 covered an area of 72.39 net hectares and contained 1,360 residential dwelling units. From these figures, the residential net density of the area was calculated to be 18.79 units per net hectare (see Table 12.5 below). The net residential density in 2018 remained unchanged (see Tables 12.6 and 12.7 below).

**Table 12.5: 2010 Residential Net Density**

2006 Total private dwelling units	New Units to Dec. 31 2010	2010 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
1,360	1	1,361	111.37	72.39	18.8

**Table 12.6: 2018 Residential Net Density**

2010 Total private dwelling units	New Units to May 17 2018	2018 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
1361	0	1361	111.37	72.39	18.8



**Table 12.7: 2011– 2018 Change in Residential Net Density**

2011 Net Density (Units/Ha)	2018 Net Density (Units/Ha)	Percentage Change
18.8	18.8	0%

**e. Development Applications – 2010 to 2018**

Between 2010 and 2018, 13 development applications were processed (see Tables 12.8, 12.9 and Map 12.3). Most of the development applications consisted of Minor Variance/Permission, Site Plan Control and Zoning By-law Amendment applications with one Official Plan Amendment application in 2010. A number of Zoning By-law Amendment applications were related to the permission of office uses along Portsmouth Avenue.

**Map 12.3: 2018 Development Application by Type 2010 - 2018**



**Table 12.8: Development Application by Year 2010 – 2018**

2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
4	1	4	1	0	0	0	2	1	13

**Table 12.9: Development Application by Type 2010 – 2018**

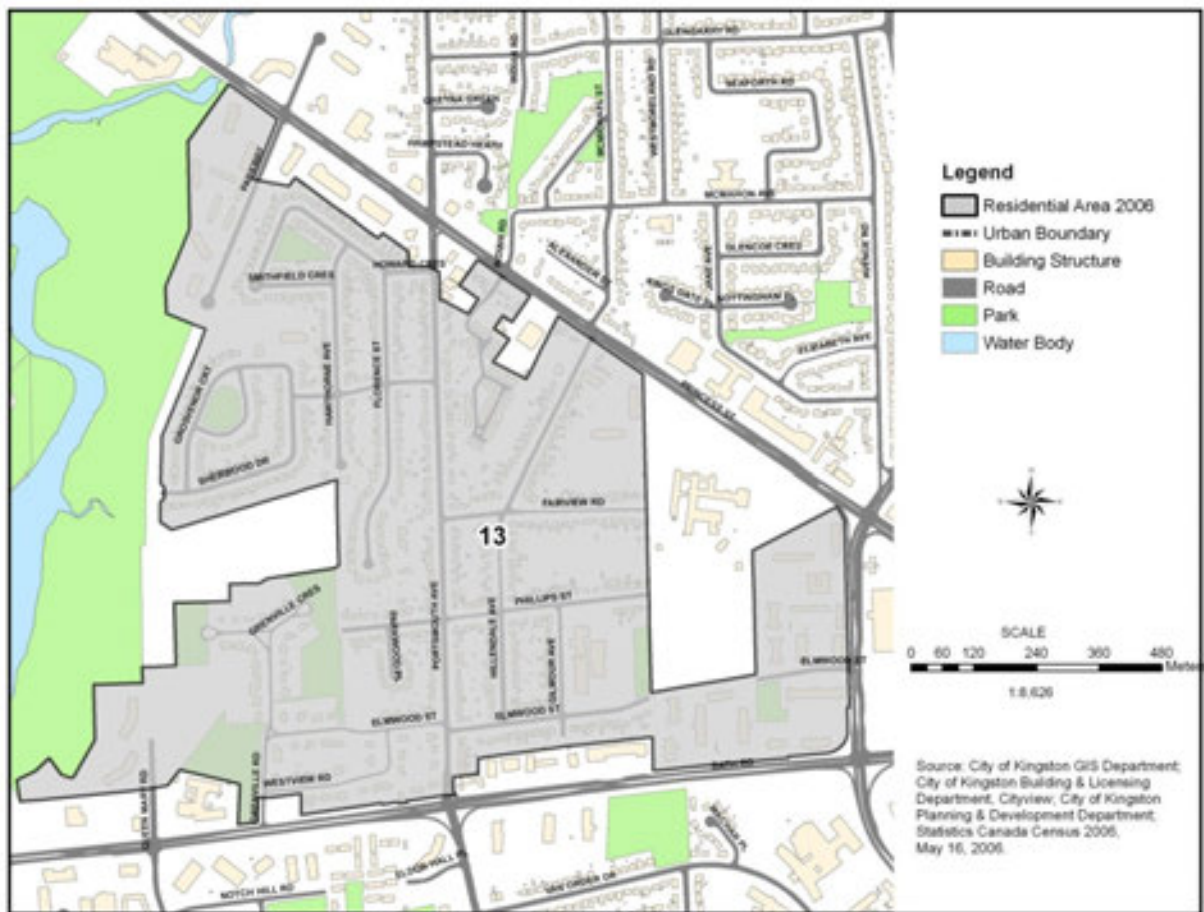
Application Type	Total
Consent	0
Draft Plan of Condominium	0
Draft Plan of Subdivision	0
Hold Removal	0
Minor Variance/Permission	4
OPA, ZBA, DPC, DPS	0
Official Plan Amendment	1
Part Lot Control	0
Site Plan	4
Zoning By-Law Amendment	4
<b>Total:</b>	<b>13</b>

## Area 13 – Grenville Park/Hillendale

### a. Location

Located in Kingston Central, Area 13 covered an area of 101.88 gross hectares in 2006. It is generally bounded on the north by Princess Street, on the east by Sir John A. Macdonald Boulevard, on the south by Bath Road and on the west by the Little Cataraqui Creek (see Map 13.1 below). In 2018, this area included the 2,253 residential units located in the Grenville Park, Hillendale, Elmwood, Parkway and Balsam Grove neighbourhoods (see Table 13.4).

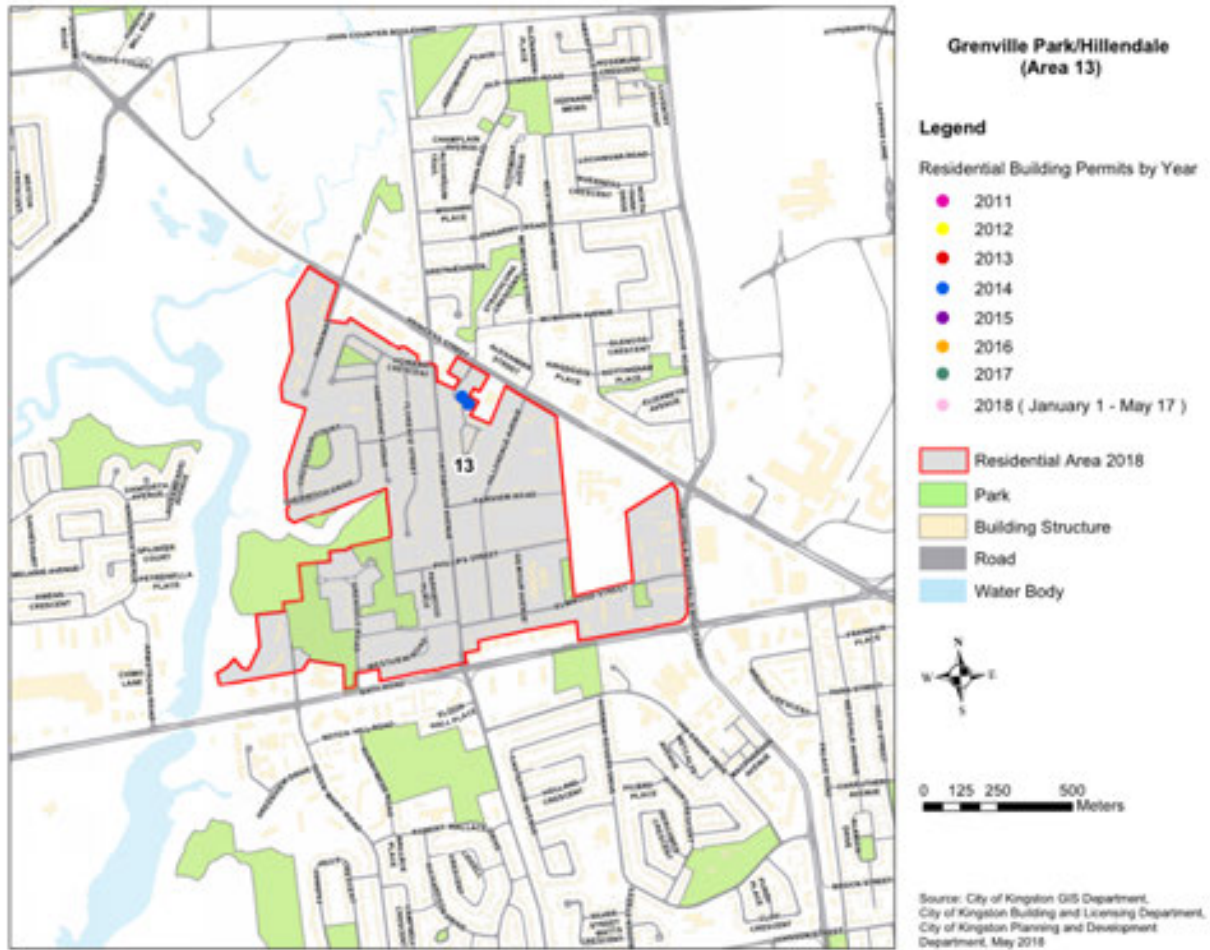
**Map 13.1: 2006 Residential Area**



### b. Residential Building Growth – 2011 to 2018

Between 2011 and 2018, 2 building permits were issued in 2014 for a total of 8 units (see Tables 13.1, 13.3 and Map 13.2).

**Map 13.2: 2018 Residential Area and Building Permits Issued 2011 – 2018**



**Table 13.1: Residential Unit Construction 2011 – 2018**

**(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)**

2011	2012	2013	2014	2015	2016	2017	2018	Total
0	0	0	8	0	0	0	0	0

**c. Housing Mix**

In 2010, the majority of the dwelling units in Area 13 were apartments at 66.8%. The area also included single detached units at 22.0% and multiple units at 24.6% (see Table 13.2 and Chart 13.1 below).

The 2011 to 2018 building permit data indicated that the proportion of multiples increased slightly to 11.2%, while the proportion of apartments decreased slightly to 66.6% (see Tables 13.3, 13.4 and Chart 13.1 below).

**Table 13.2: 2010 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
2,245	495	245	1500	0	5

**Table 13.3: 2011 – 2018 New Construction Housing Mix**

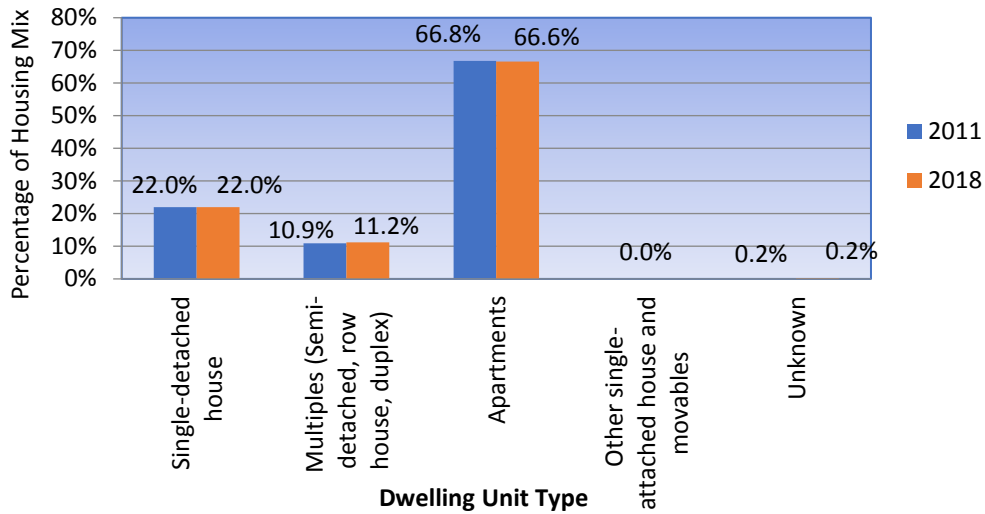
(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)

Total residential units	Single detached	Multiples	Apartments
0	0	8	0

**Table 13.4: 2018 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
2,253	495	245	1508	0	5

**Chart 13.1: 2011-2018 Comparative Housing Mix**



**d. Change in Residential Density**

In 2010, Area 13 covered an area of 66.22 net hectares and contained 2,245 residential dwelling units. From these figures, the residential net density of the area was calculated to be 33.9 units per net hectare (see Table 13.5 below).

The size of Area 13 was unchanged from 2011 to 2018 at 66.22 net hectares and the number of residential units increased by 8 units to 2,253. The net residential density in 2018 increased slightly to 34.0 units per net hectare which is an increase in density of 0.3% (see Tables 13.6 and 13.7 below).

**Table 13.5: 2010 Residential Net Density**

2006 Total private dwelling units	New Units to Dec. 31 2010	2010 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
2,245	0	2,245	101.88	66.22	33.9

**Table 13.6: 2018 Residential Net Density**

2010 Total private dwelling units	New Units to May 17 2018	2018 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
2,245	8	2,253	101.88	66.22	34.0

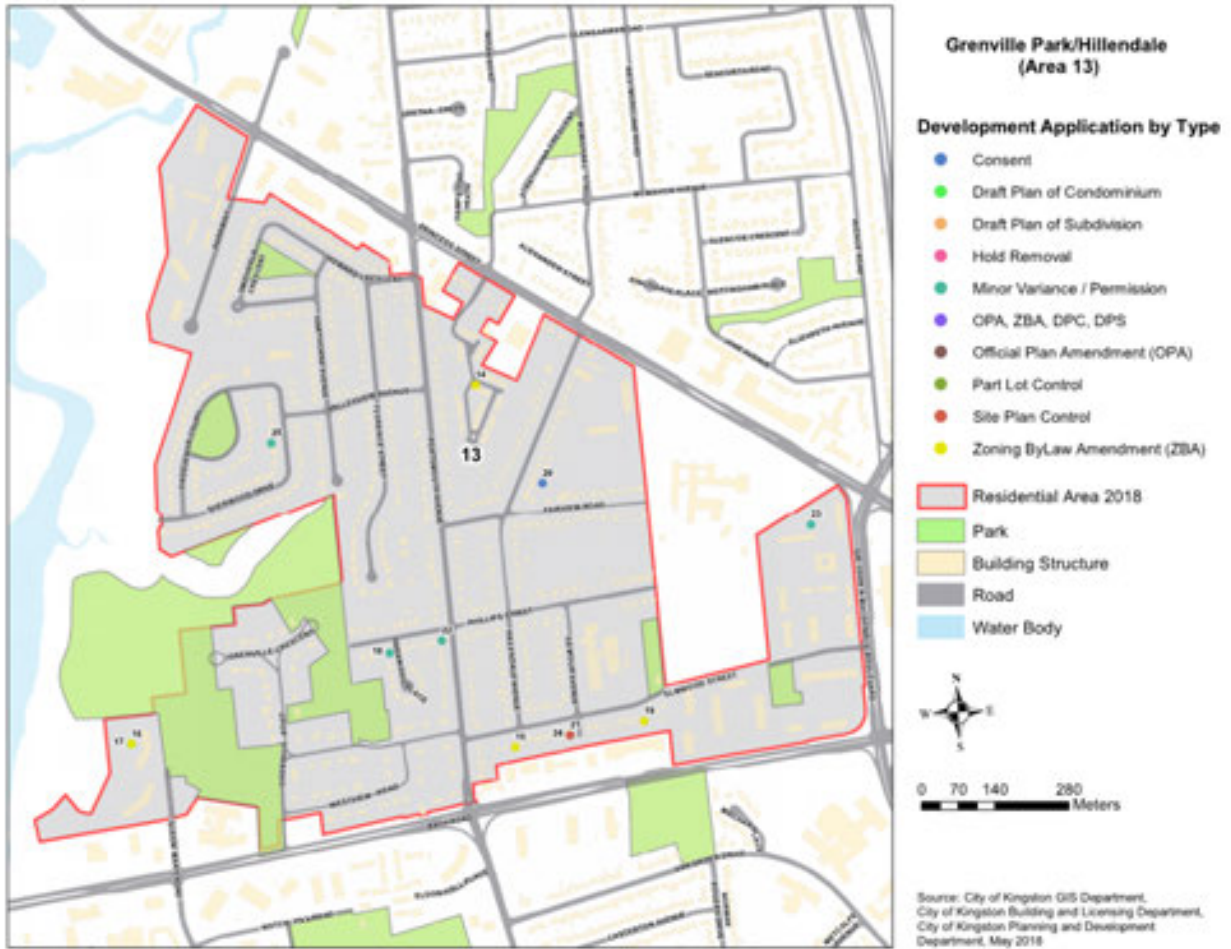
**Table 13.7: 2011– 2018 Change in Residential Net Density**

<b>2011 Net Density (Units/Ha)</b>	<b>2018 Net Density (Units/Ha)</b>	<b>Percentage Change</b>
33.9	34.0	0.3%

**e. Development Applications – 2010 to 2018**

Between 2010 and 2018, 12 development applications were processed (see Tables 13.8, 13.9 and Map 13.3). The majority of applications were either Minor Variance/Permission or Zoning By-law Amendments. A number of Minor Variance/Permission applications were related to reductions in front yard and side yard setbacks as well as reductions to the minimum separation distance between Community Homes.

**Map 13.3: 2018 Development Application by Type 2010 - 2018**



**Table 13.8: Development Application by Year 2010 – 2018**

2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
1	1	2	2	0	1	3	1	0	12

**Table 13.9: Development Application by Type 2010 – 2018**

Application Type	Total
Consent	1
Draft Plan of Condominium	1



Draft Plan of Subdivision	0
Hold Removal	0
Minor Variance/Permission	5
OPA, ZBA, DPC, DPS	0
Official Plan Amendment	0
Part Lot Control	0
Site Plan	1
Zoning By-Law Amendment	4
<b>Total:</b>	<b>12</b>

## Area 14 – Calvin Park/Polson Park

### a. Location

Located in Kingston Central, Area 14 covered an area of 167.17 gross hectares in 2006. It is bounded on the north by Bath Road, on the east by Sir John A. Macdonald Boulevard, on the south by Johnson Street and on the west by the Little Cataraqui Creek (see Map 14.1 below). In 2018, there were a total of 3,645 residential units in Area 14 and it included the Polson Park, Fairway Hills and Calvin Park neighbourhoods (see Table 14.4).

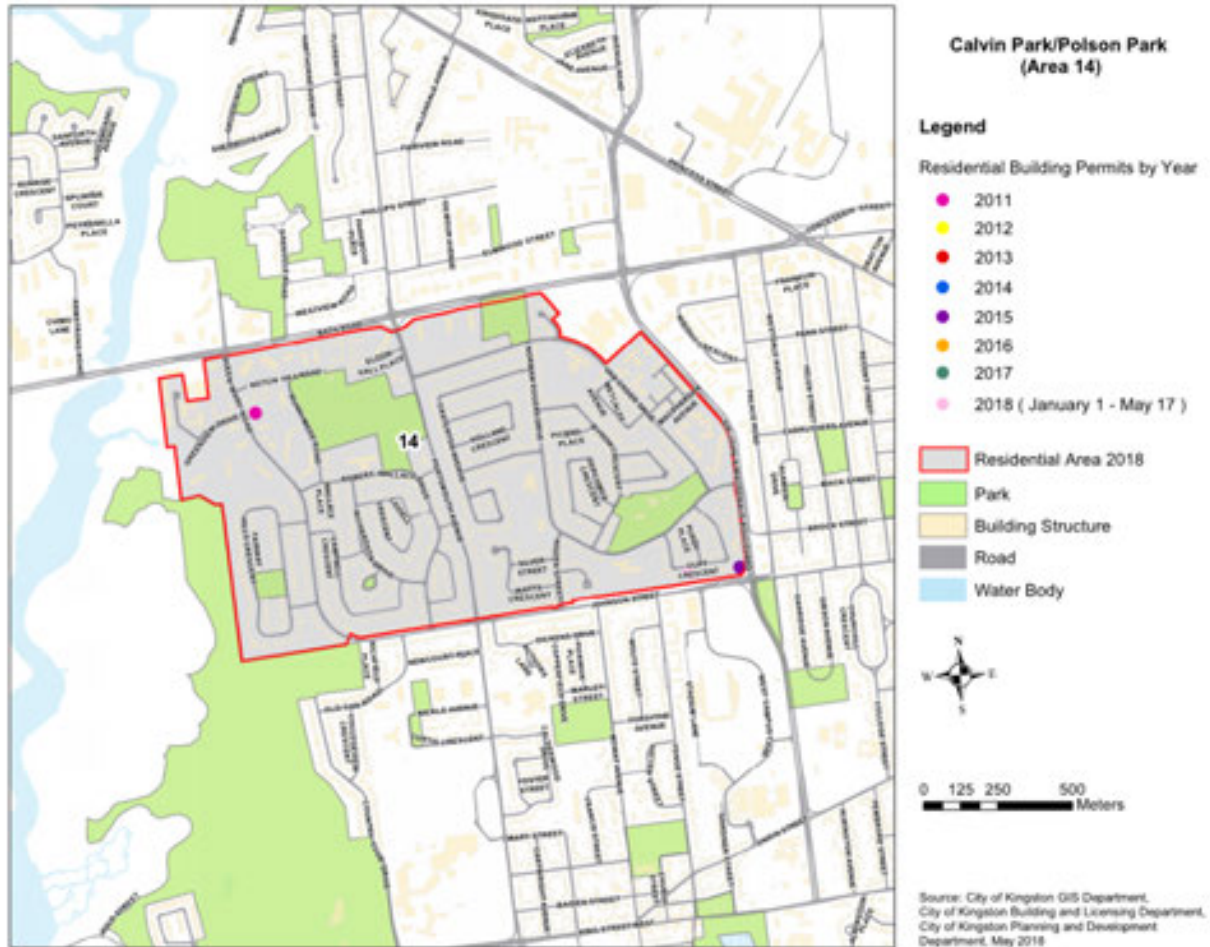
**Map 14.1: 2006 Residential Area**



### b. Residential Building Growth – 2011 to 2018

Between 2011 and 2018, 3 building permits were issued for a total of 59 units (see Tables 14.1, 14.3 and Map 14.2).

**Map 14.2: 2018 Residential Area and Building Permits Issued 2011 - 2018**



**Table 14.1: Residential Unit Construction 2011 – 2018**

**(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)**

2011	2012	2013	2014	2015	2016	2017	2018	Total
27	0	0	0	29	0	0	3	59

**c. Housing Mix**

In 2010, the majority of the dwelling units in Area 14 were apartment units at 63.6%. The area also included single detached units at 27.6% and multiple units at 8.5% (see Table 14.2 and Chart 14.1 below).

The 2011 to 2018 building permit data indicated that the proportion of apartments increased to 64.1%, while the proportion of single detached units decreased slightly to 27.2% (see Tables 14.3, 14.4 and Chart 14.1 below).

**Table 14.2: 2010 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
3,584	990	305	2,279	0	10

**Table 14.3: 2011 – 2018 New Construction Housing Mix**

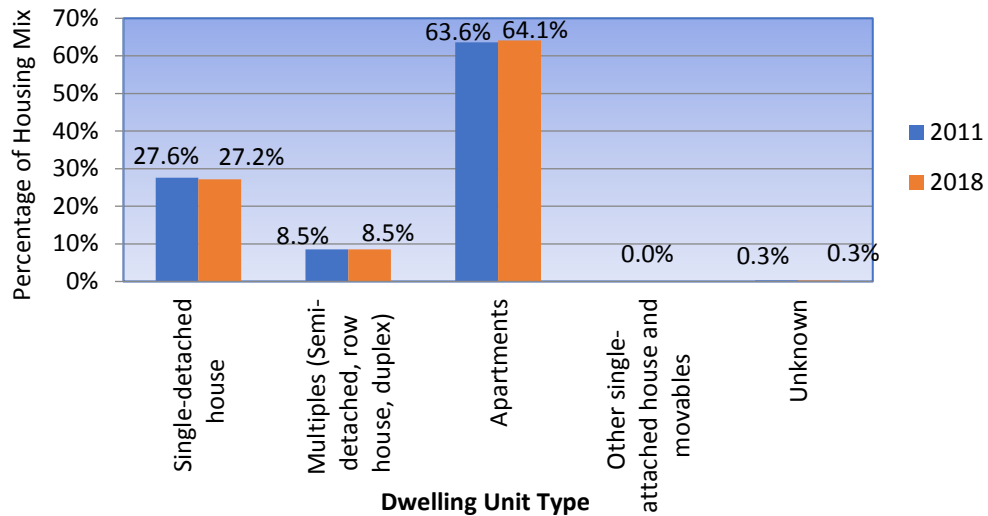
(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)

Total residential units	Single detached	Multiples	Apartments
59	0	3	56

**Table 14.4: 2018 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
3,643	990	308	2,335	0	10

**Chart 14.1: 2011-2018 Comparative Housing Mix**



**d. Change in Residential Density**

In 2010, Area 14 covered an area of 108.66 net hectares and contained 3,584 residential dwelling units. From these figures, the residential net density of the area was calculated to be 32.98 units per net hectare (see Table 14.5 below).

The size of Area 14 was unchanged from 2011 to 2018 at 108.66 net hectares and the number of residential units increased by 59 units to 3,643. The net residential density in 2018 increased to 33.53 units per net hectare which is an increase in density of 1.67% (see Tables 14.6 and 14.7 below).

**Table 14.5: 2010 Residential Net Density**

2006 Total private dwelling units	New Units to Dec. 31 2010	2010 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
3,535	49	3,584	167.17	108.66	32.98

**Table 14.6: 2018 Residential Net Density**

2010 Total private dwelling units	New Units to May 17 2018	2018 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
3,584	59	3,643	167.17	108.66	33.53

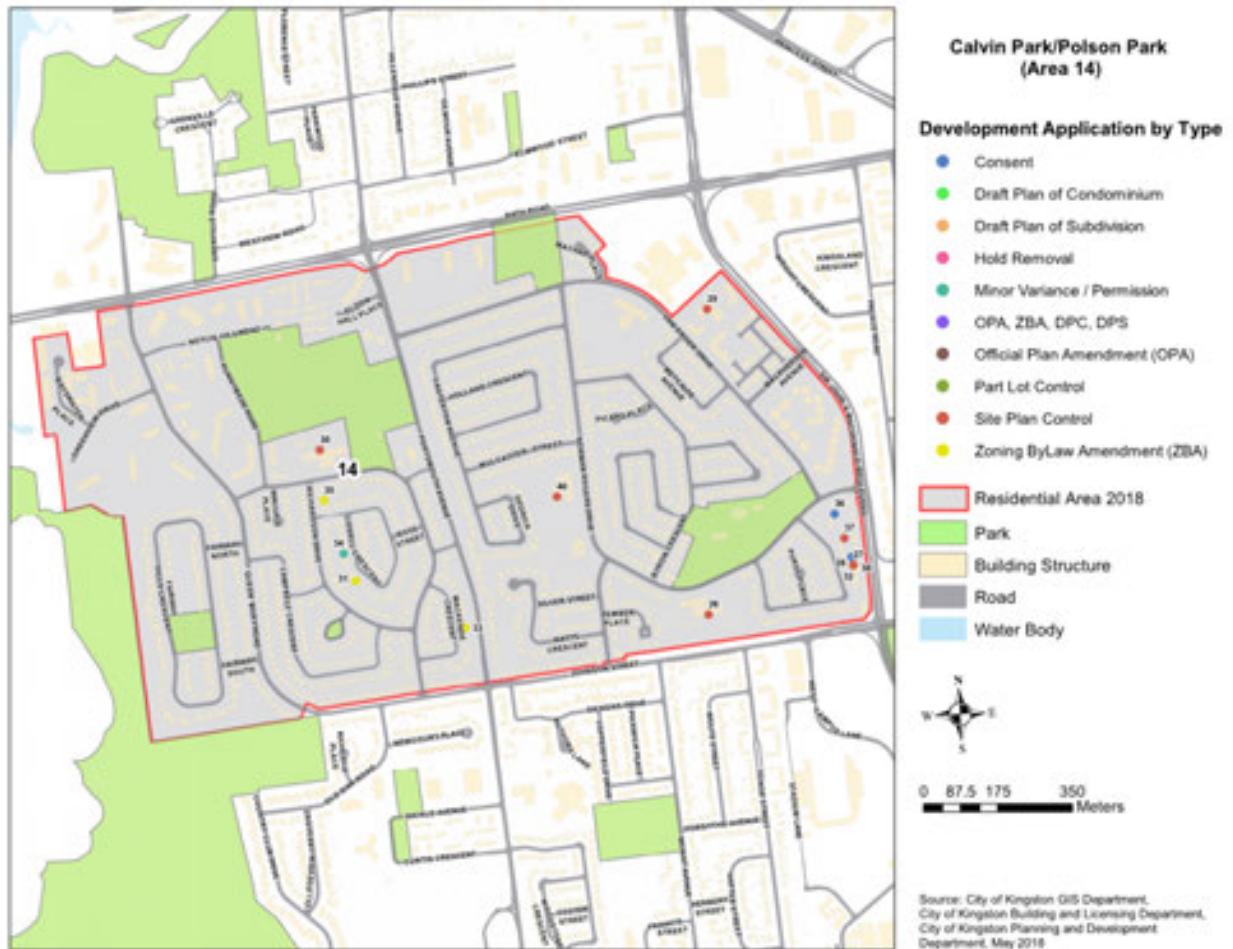
**Table 14.7: 2011– 2018 Change in Residential Net Density**

<b>2011 Net Density (Units/Ha)</b>	<b>2018 Net Density (Units/Ha)</b>	<b>Percentage Change</b>
32.98	33.53	1.67%

**e. Development Applications – 2010 to 2018**

Between 2010 and 2018, 15 development applications were processed (see Tables 14.8, 14.9 and Map 14.3). The majority of development applications in Area 14 were related to Site Plan Control and included proposed additions to parking areas as well school/classroom additions. Two Zoning By-law Amendment applications were related to the permission of second units.

**Map 14.3: 2018 Development Application by Type 2010 - 2018**



**Table 14.8: Development Application by Year 2010 – 2018**

2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
0	0	1	1	6	0	2	2	1	15

**Table 14.9: Development Application by Type 2010 – 2018**

Application Type	Total
Consent	3
Draft Plan of Condominium	0

Draft Plan of Subdivision	0
Hold Removal	0
Minor Variance/Permission	1
OPA, ZBA, DPC, DPS	0
Official Plan Amendment	0
Part Lot Control	0
Site Plan	7
Zoning By-Law Amendment	4
<b>Total:</b>	<b>15</b>

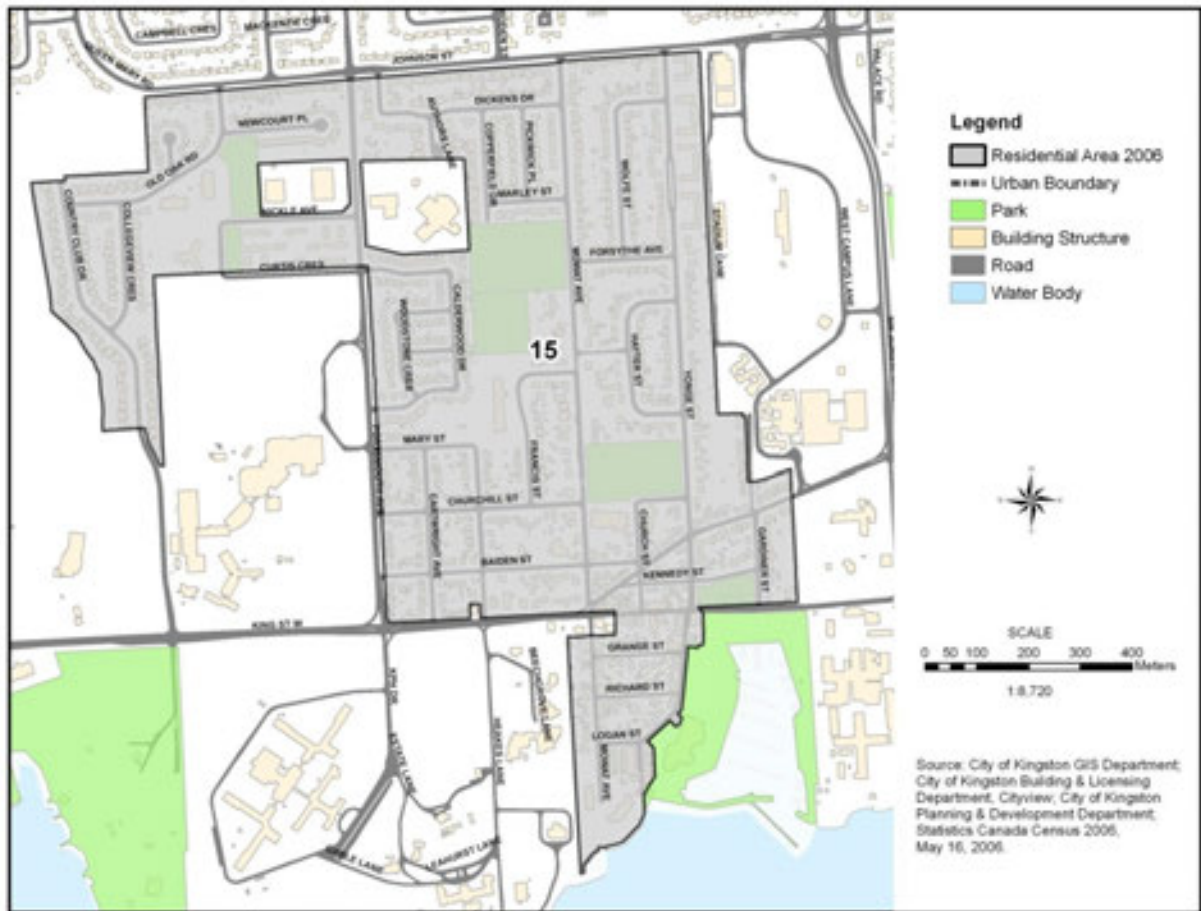


## Area 15 – Portsmouth St. Lawrence

### a. Location

Located in Kingston Central, Area 15 covered an area of 100.37 gross hectares in 2006. It is bounded on the north by Johnson Street and Queen Mary Road, on the east by Queen’s West Campus, Stadium Lane and Portsmouth Olympic Harbour, on the south by Lake Ontario and King Street and on the west by the Psychiatric Hospital property, St. Lawrence College and the Cataraqui Golf and Country Club (see Map 15.1 below). This area includes Portsmouth Village, the Portsmouth area and the Dickens Drive and Country Club Drive areas. In 2018, there were 1,992 residential units located in Area 15 (see Table 15.4).

**Map 15.1: 2006 Residential Area**

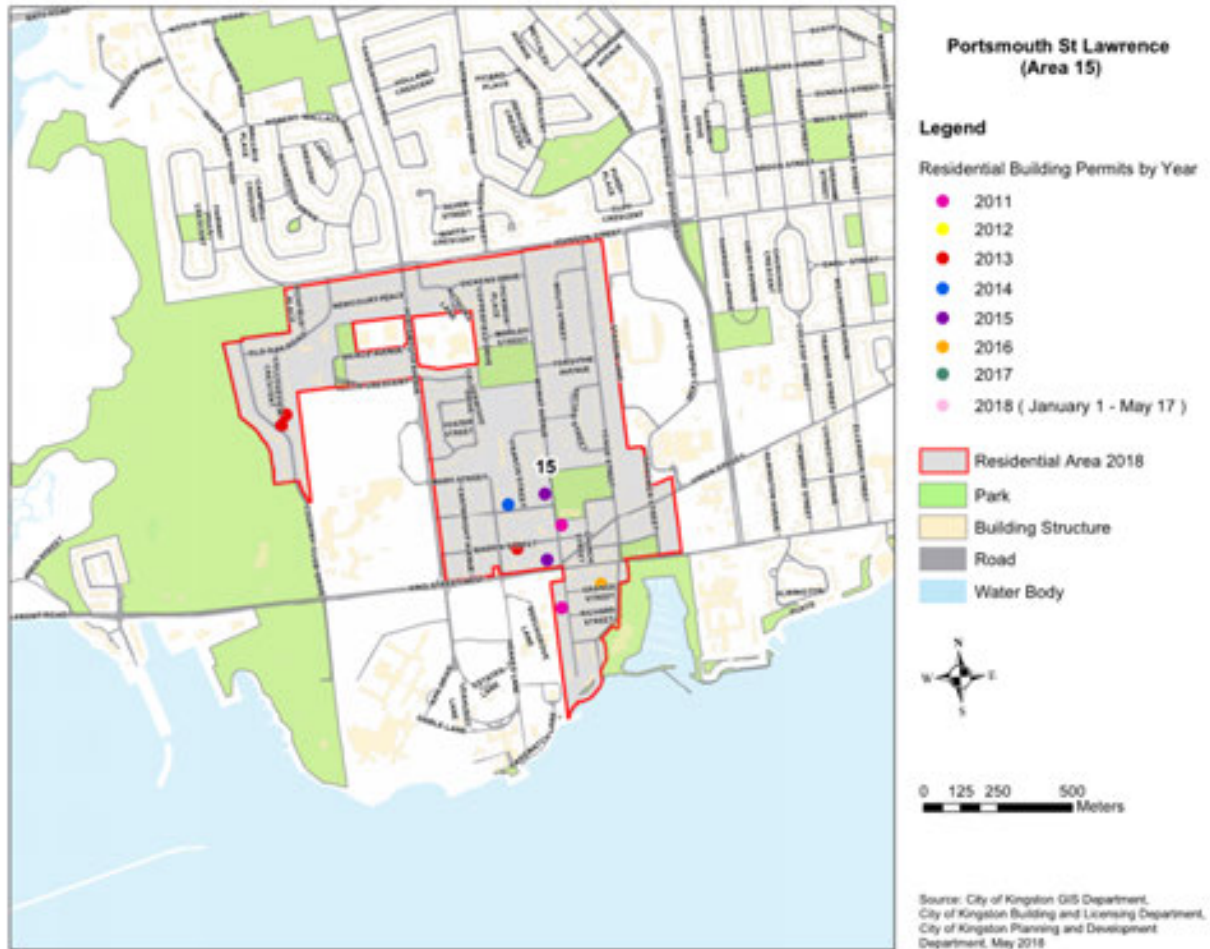


### b. Residential Building Growth – 2011 to 2018

Between 2011 and 2018, 9 building permits were issued for a total of 15 units (see Tables 15.1, 15.3 and Map 15.2). It should be noted that a building permit for a

semi-detached dwelling in 2011 had replaced a former single detached dwelling demolished in 2010.

**Map 15.2: 2018 Residential Area and Building Permits Issued 2011 - 2018**



**Table 15.1: Residential Unit Construction 2011 – 2018**

**(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)**

2011	2012	2013	2014	2015	2016	2017	2018	Total
2 <sup>(1)</sup>	0	3	2	4	3	0	0	14

Note:

(1) Building permit for a semi-detached dwelling in 2011 had replaced a former

single detached dwelling demolished by fire.

### c. Housing Mix

In 2010, the majority of the dwelling units in Area 15 were apartments at 42.7%. The area also included single detached units at 32.8% and multiple units at 23.8% (see Table 15.2 and Chart 15.1 below).

The 2011 to 2018 building permit data indicated that the proportion of multiple units increased to 24.1%, while the proportion of apartment units decreased slightly to 42.4% (see Tables 15.3, 15.4 and Chart 15.1 below).

**Table 15.2: 2010 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
1,978	648	470	845	10	5

**Table 15.3: 2011 – 2018 New Construction Housing Mix**

(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)

Total residential units	Single detached	Multiples	Apartments
14	5	9	0

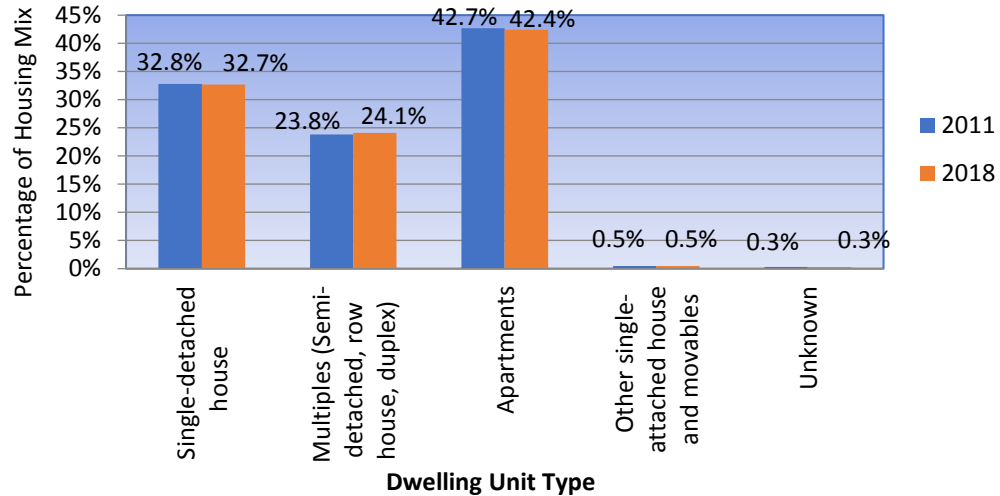
**Table 15.4: 2018 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
1,992 <sup>(1)</sup>	652 <sup>(1)</sup>	480 <sup>(1)</sup>	845	10	5

Note:

- (1) Building permit for a semi-detached dwelling in 2011 had replaced a former single detached dwelling demolished by fire.

**Chart 15.1: 2011-2018 Comparative Housing Mix**



**d. Change in Residential Density**

In 2006, Area 15 covered an area of 65.24 net hectares and contained 1,978 residential dwelling units. From these figures, the residential net density of the area was calculated to be 30.32 units per net hectare (see Table 15.5 below).

The size of Area 15 was unchanged from 2011 to 2018 at 65.24 net hectares and the number of residential units increased by 14 units to 1,992. The net residential density in 2018 increased slightly to 30.53 units per net hectare which is an increase in density of 0.69% (see Tables 15.6 and 15.7 below).

**Table 15.5: 2010 Residential Net Density**

2006 Total private dwelling units	New Units to Dec. 31 2010	2010 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
1,977	1	1,978	100.37	65.24	30.32

**Table 15.6: 2018 Residential Net Density**

<b>2010 Total private dwelling units</b>	<b>New Units to May 17 2018</b>	<b>2018 Total private dwelling units</b>	<b>Area (Gross Ha)</b>	<b>Area (Net Ha)</b>	<b>Net Density (Units/Ha)</b>
1,978	14	1,992	100.37	65.24	30.53

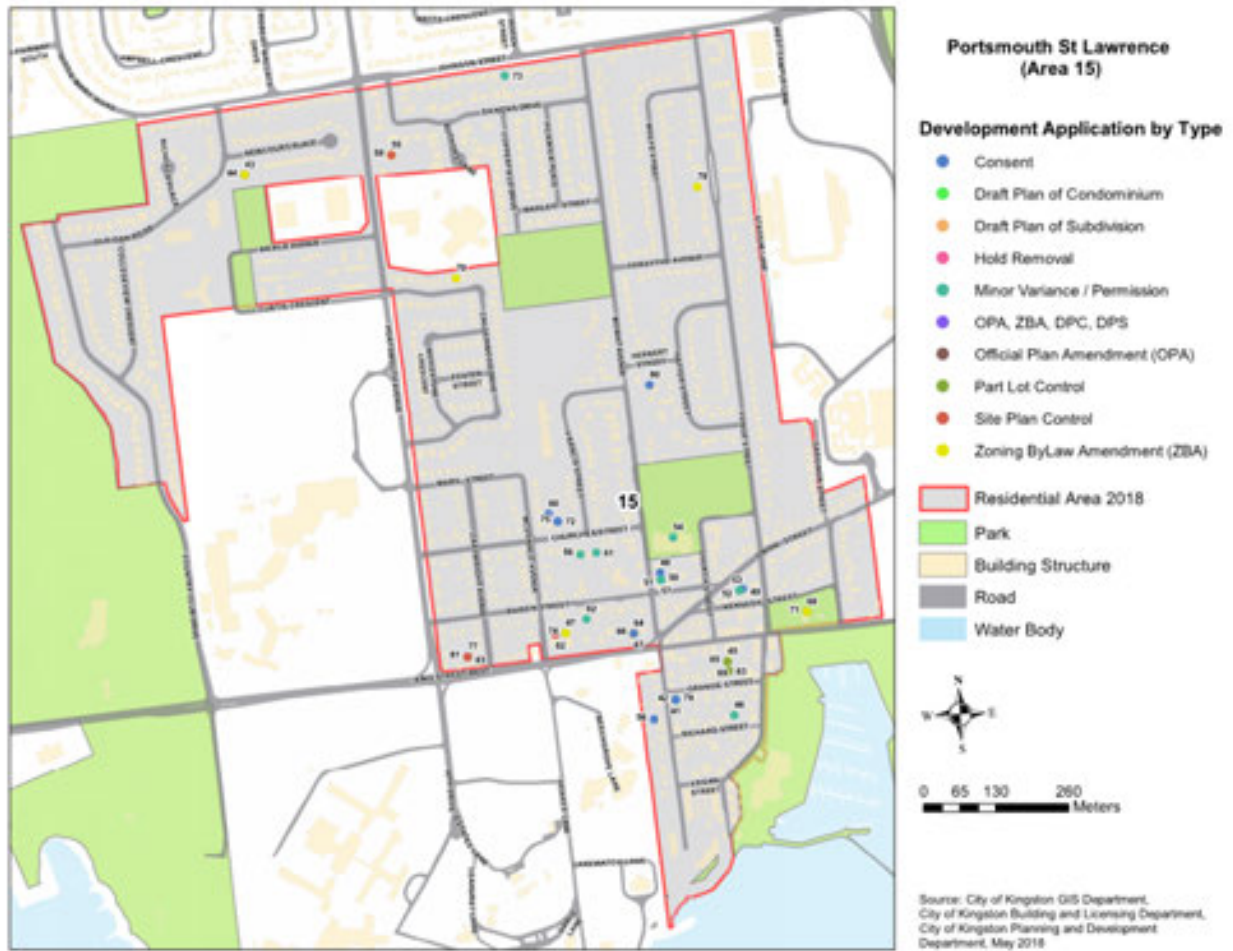
**Table 15.7: 2011– 2018 Change in Residential Net Density**

<b>2011 Net Density (Units/Ha)</b>	<b>2018 Net Density (Units/Ha)</b>	<b>Percentage Change</b>
30.32	30.53	0.69%

**e. Development Applications – 2010 to 2018**

Between 2010 and 2018, 43 development applications were processed (see Tables 15.8, 15.9 and Map 15.3). A total of 11 applications were processed in 2017. Minor Variance/Permission and Consent applications were most predominant. Of all Areas, Area 15 processed the largest amount of Official Plan Amendment applications with a total of 3.

**Map 15.3: 2018 Development Application by Type 2010 - 2018**



**Table 15.8: Development Application by Year 2010 – 2018**

2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
0	8	6	3	4	6	5	11	0	43

**Table 15.9: Development Application by Type 2010 – 2018**

Application Type	Total
Consent	10
Draft Plan of Condominium	0

Draft Plan of Subdivision	0
Hold Removal	0
Minor Variance/Permission	13
OPA, ZBA, DPC, DPS	0
Official Plan Amendment	3
Part Lot Control	3
Site Plan	5
Zoning By-Law Amendment	9
<b>Total:</b>	<b>43</b>

## Area 16 – Trailhead Place

### a. Location

Located in Kingston Central, Area 16 covered an area of 6.69 gross hectares in 2006. It is bounded on the north by King Street, on the east by Lake Ontario Park, on the south by the former elevator dock, and Lake Ontario and on the west by Elevator Bay (see Map 16.1 below). In 2018, this area included 370 residential units which were located on south side of King Street West in the Commodore Cove townhouse development, and in the 3 apartment buildings of the Richardson Dock development (see Table 16.4).

**Map 16.1: 2006 Residential Area**



### b. Residential Building Growth – 2011 to 2018

Between 2011 and 2018, 1 building permit was issued in 2011 for 1 single detached dwelling unit (see Tables 16.1, 16.3 and Map 16.2).





### c. Housing Mix

In 2010, the majority of the dwelling units in Area 16 were apartment dwellings at 85.4%. The area also included units in multiples at 10.8% and single detached units at 3.8% (see Table 16.2 and Chart 16.1 below).

The 2011 to 2018 building permit data indicated that the proportion of single detached units increased to 4.1%, while the proportion of apartment units decreased slightly to 85.1% (see Tables 16.3, 16.4 and Chart 16.1 below).

**Table 16.2: 2010 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
369	14	40	315	0	0

**Table 16.3: 2011 – 2018 New Construction Housing Mix**

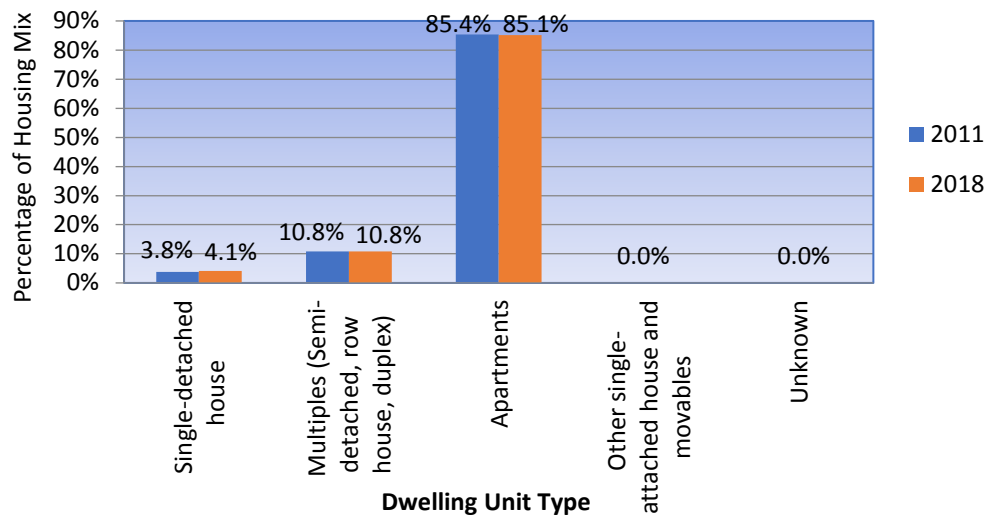
(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)

Total residential units	Single detached	Multiples	Apartments
1	1	0	0

**Table 16.4: 2018 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
370	15	40	315	0	0

**Chart 16.1: 2011-2018 Comparative Housing Mix**



**d. Change in Residential Density**

In 2010, Area 16 covered an area of 6.8 net hectares and contained 369 residential dwelling units. From these figures, the residential net density of the area was calculated to be 54.26 units per net hectare (see Table 16.5 below).

The size of Area 16 was unchanged from 2011 to 2018 at 54.26 net hectares and the number of residential units increased by only 1 unit to 370. The net residential density in 2018 increased slightly to 54.41 units per net hectare which is an increase in density of 0.28% (see Tables 16.6 and 16.7 below).

**Table 16.5: 2010 Residential Net Density**

2006 Total private dwelling units	New Units to Dec. 31 2010	2010 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
355	14	369	10.46	6.8	54.26

**Table 16.6: 2018 Residential Net Density**

2010 Total private dwelling units	New Units to May 17 2018	2018 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
369	1	370	10.46	6.8	54.41

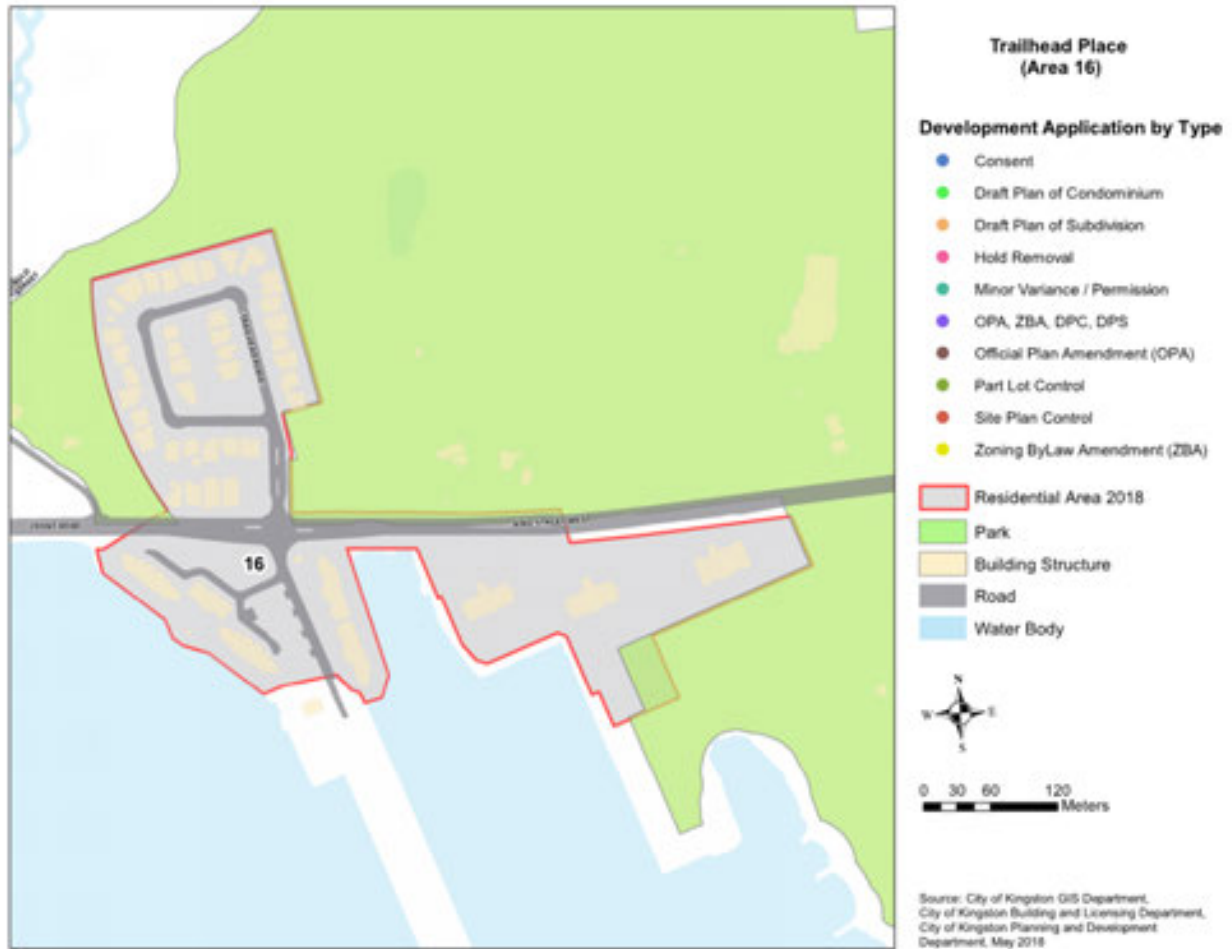
**Table 15.7: 2011– 2018 Change in Residential Net Density**

2011 Net Density (Units/Ha)	2018 Net Density (Units/Ha)	Percentage Change
54.26	54.41	0.28%

**e. Development Applications – 2010 to 2018**

Between 2010 and 2018, no development applications were processed (see Tables 16.8, 16.9 and Map 16.3).

**Map 16.3: 2018 Development Application by Type 2010 - 2018**



**Table 16.8: Development Application by Year 2010 – 2018**

2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
0	0	0	0	0	0	0	0	0	0

**Table 16.9: Development Application by Type 2010 – 2018**

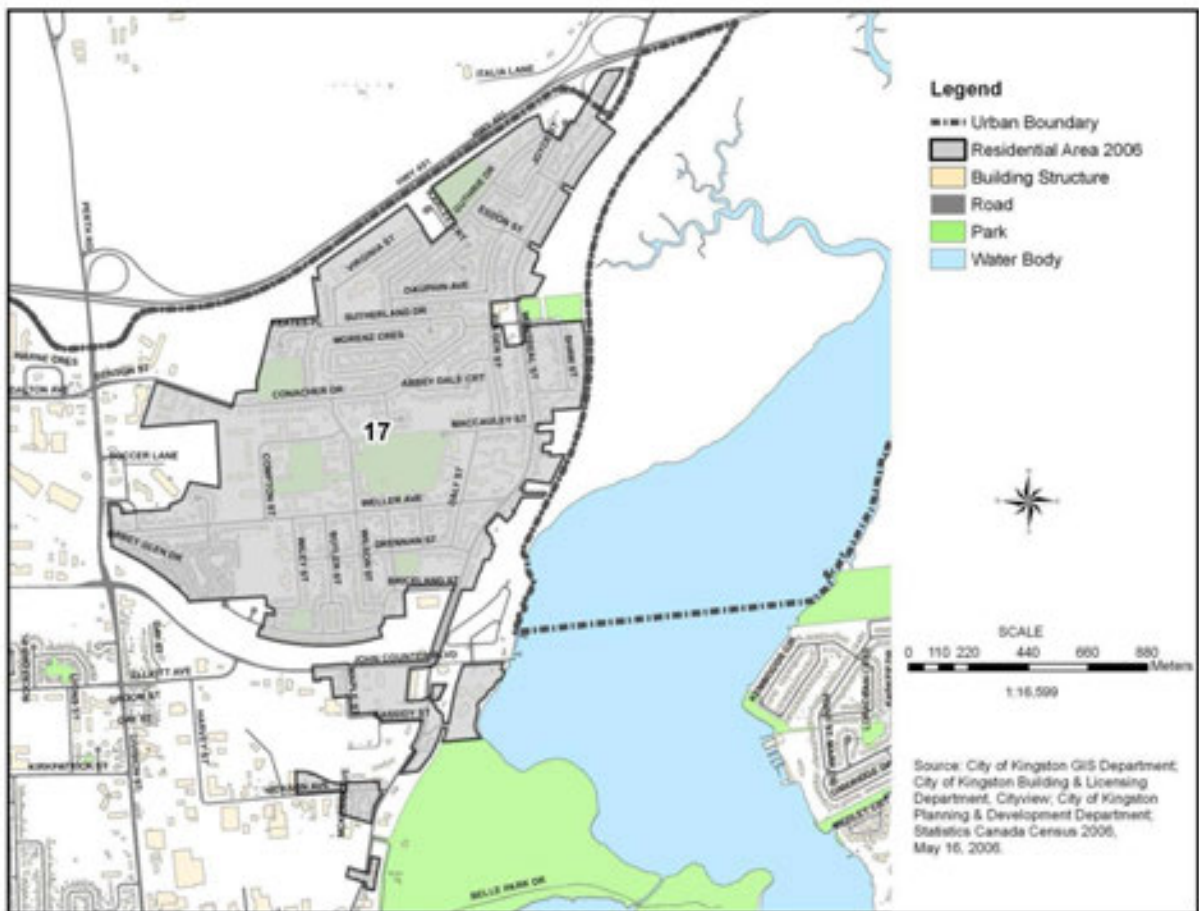
Application Type	Total
Consent	0
Draft Plan of Condominium	0
Draft Plan of Subdivision	0
Hold Removal	0
Minor Variance/Permission	0
OPA, ZBA, DPC, DPS	0
Official Plan Amendment	0
Part Lot Control	0
Site Plan	0
Zoning By-Law Amendment	0
<b>Total:</b>	<b>0</b>

## Area 17 – Rideau Heights/Marker’s Acres

### a. Location

Located in Kingston Central, Area 17 covered an area of 194.69 gross hectares in 2006. The area includes a large main section but also includes 3 smaller sections located to the south of the large one. The main section is generally bounded on the north by Highway 401, on the east and south by the Canadian National Railway (CNR) rail line, and on the west by the commercial area fronting on Division Street. The 3 smaller areas generally front along Montreal Street and extend from John Counter Boulevard in the north southerly to Belle Park Drive (see Map 17.1 below). In 2018, there were 3,890 residential units located within this area which includes the Rideau Heights, Briceland and Marker’s Acres areas (see Table 17.4).

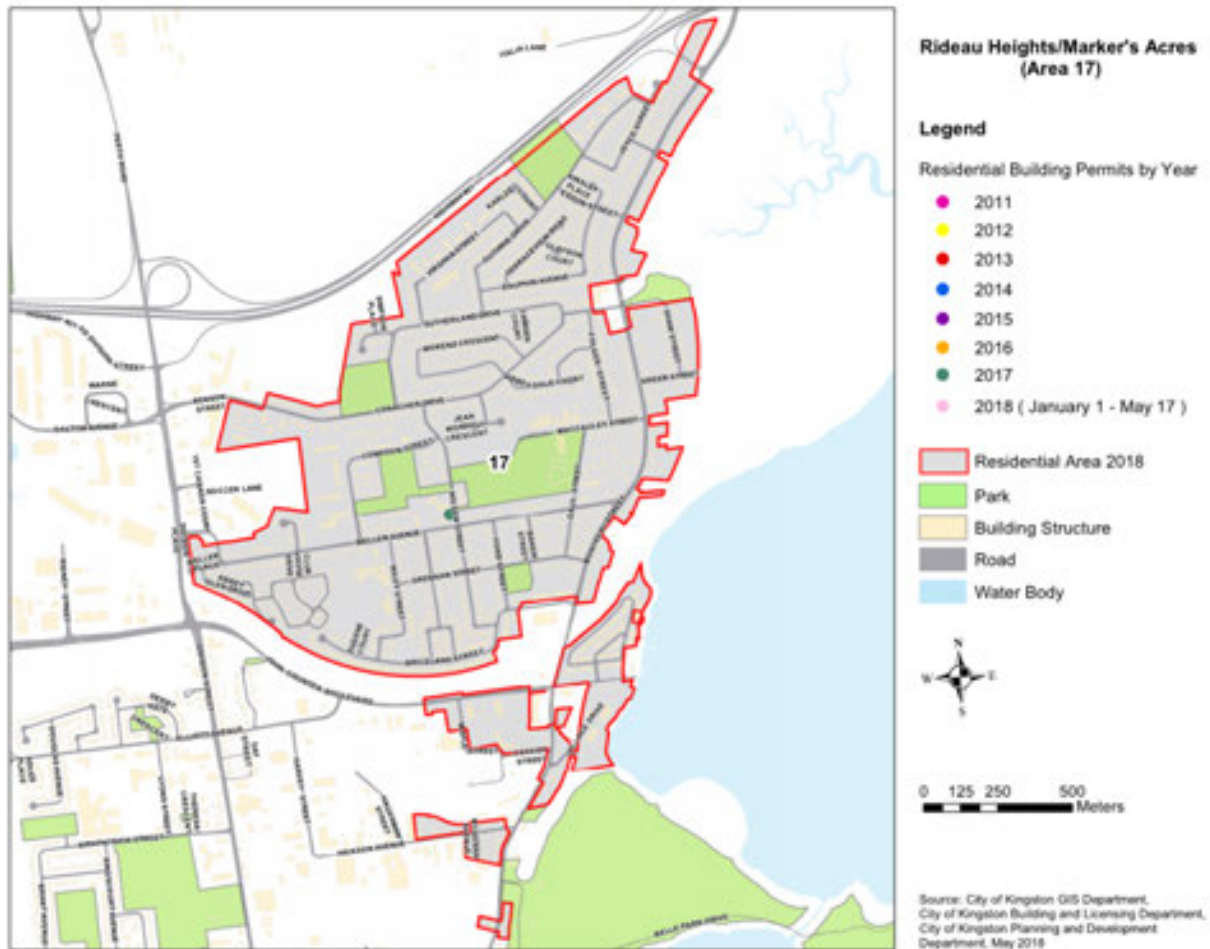
**Map 17.1: 2006 Residential Area**



### b. Residential Building Growth – 2011 to 2018

Between 2011 and 2018, 1 building permit was issued for a total of 2 multiple units (see Tables 17.1, 17.3 and Map 17.2).

**Map 17.2: 2018 Residential Area and Building Permits Issued 2011 - 2018**



**Table 17.1: Residential Unit Construction 2011 – 2018**

**(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)**

2011	2012	2013	2014	2015	2016	2017	2018	Total
0	0	0	0	0	0	2	0	2

**c. Housing Mix**

In 2006, the majority of the dwelling units in Area 17 were apartment dwellings at 40.2%. The area also included units in multiples at 32.5% and single detached units at 23.8% (see Table 17.2 and Chart 17.1 below).

The 2011 to 2018 building permit data indicated that the housing mix remained unchanged from the 2010 base data (see Tables 17.3, 17.4 and Chart 17.1 below).

**Table 17.2: 2010 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
3,888	927	1,262	1,564	160	-25

**Table 17.3: 2011 – 2018 New Construction Housing Mix**

(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)

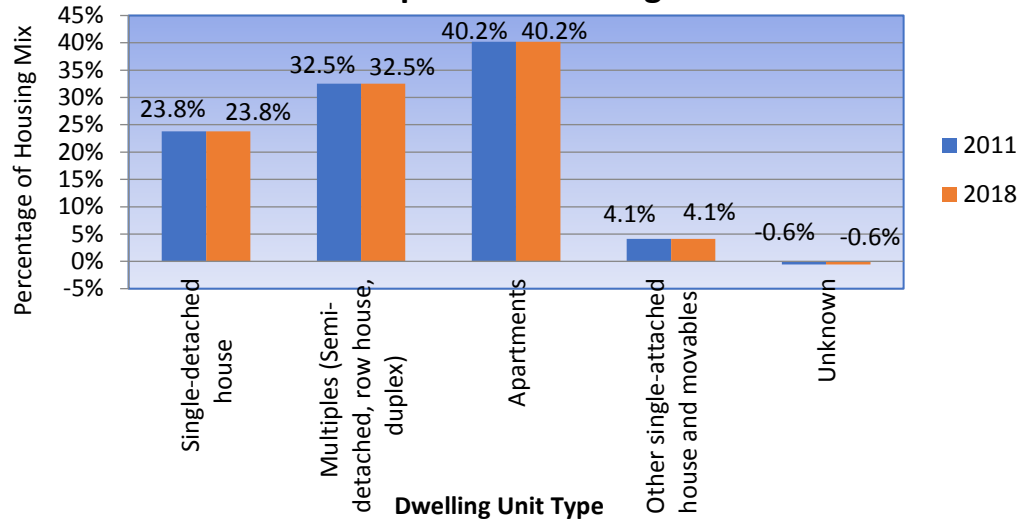
Total residential units	Single detached	Multiples	Apartments
2	0	2	0

**Table 17.4: 2018 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
3,890	927	1,264	1,564	160	-25



**Chart 17.1: 2011-2018 Comparative Housing Mix**



**d. Change in Residential Density**

In 2010, Area 17 covered an area of 133.59 net hectares and contained 3,888 residential dwelling units. From these figures, the residential net density of the area was calculated to be 29.1 units per net hectare (see Table 17.5 below).

The size of Area 17 was unchanged from 2011 to 2018 at 133.59 net hectares and the number of residential units increased by only 2 units to 3,890. The net residential density in 2018 increased slightly to 29.12 units per net hectare which is an increase in density of 0.07% (see Tables 17.6 and 17.7 below).

**Table 17.5: 2010 Residential Net Density**

2006 Total private dwelling units	New Units to Dec. 31 2010	2010 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
3,752	136	3,888	205.53	133.59	29.1

**Table 17.6: 2018 Residential Net Density**

2010 Total private dwelling units	New Units to May 17 2018	2018 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
3,888	2	3,890	205.53	133.59	29.12

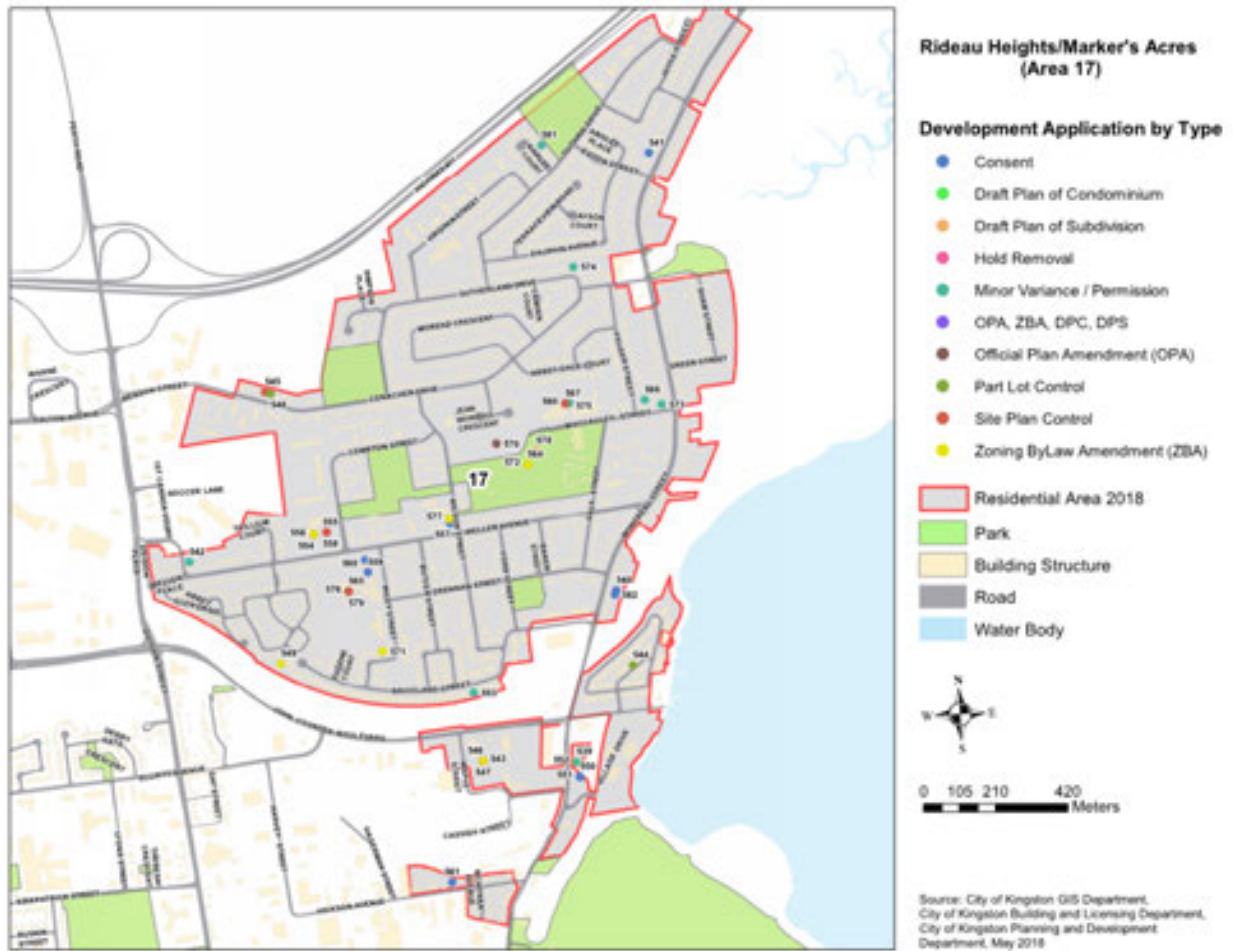
**Table 17.7: 2011– 2018 Change in Residential Net Density**

<b>2011 Net Density (Units/Ha)</b>	<b>2018 Net Density (Units/Ha)</b>	<b>Percentage Change</b>
29.1	29.12	0.07%

**e. Development Applications – 2010 to 2018**

Between 2010 and 2018, 44 development applications were processed (see Tables 17.8, 17.9 and Map 17.3). A large portion of the development applications were processed in 2015 with a total of 16. Minor Variance/Permission applications were most predominant with a total of 31 and included the increase of maximum residential building depth, increase of maximum lot coverage and reductions to minimum side yard requirements. A number of Zoning By-law Amendment applications were submitted to permit existing secondary suites.

**Map 17.3: 2018 Development Application by Type 2010 - 2018**



**Table 17.8: Development Application by Year 2010 – 2018**

2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
8	2	4	4	2	16	6	2	2	44

**Table 17.9: Development Application by Type 2010 – 2018**

Application Type	Total
Consent	11
Draft Plan of Condominium	0

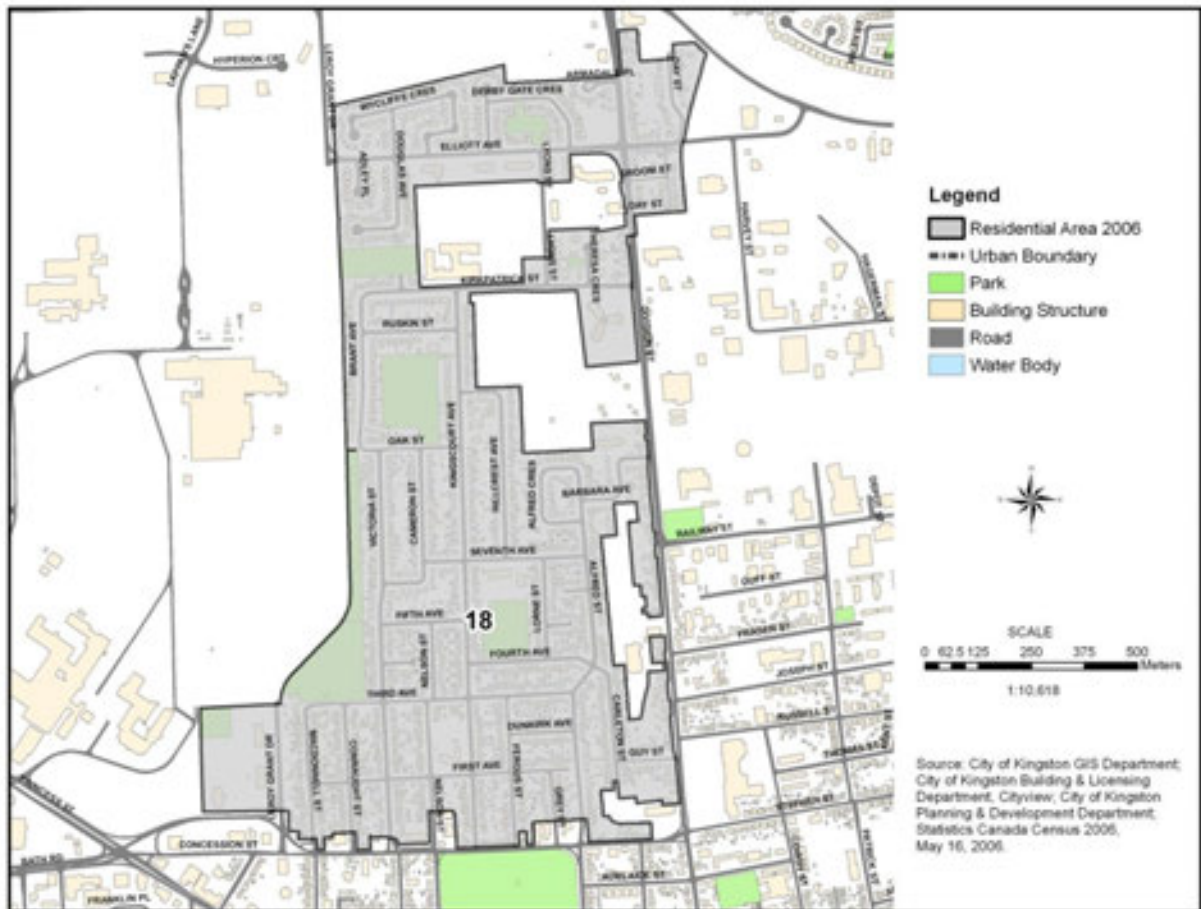
Draft Plan of Subdivision	2
Hold Removal	0
Minor Variance/Permission	12
OPA, ZBA, DPC, DPS	0
Official Plan Amendment	3
Part Lot Control	2
Site Plan	7
Zoning By-Law Amendment	7
<b>Total:</b>	<b>44</b>

# Area 18 - Kingscourt

## a. Location

Located in Kingston Central, Area 18 covered an area of 120.53 gross hectares in 2006. It is generally bounded on the north by the vacant lands fronting on John Counter Boulevard, on the north-east by the Day Street on the east by Division Street, on the south by Concession Street and on the west by Leroy Grant Drive, the Novelis facility and Queen’s University Innovation Park (see Map 18.1 below). In 2018, there were 2,728 residential units in the area and it included the Kingscourt, Wycliffe and the Day Street and Groom Street areas. (see Table 18.4).

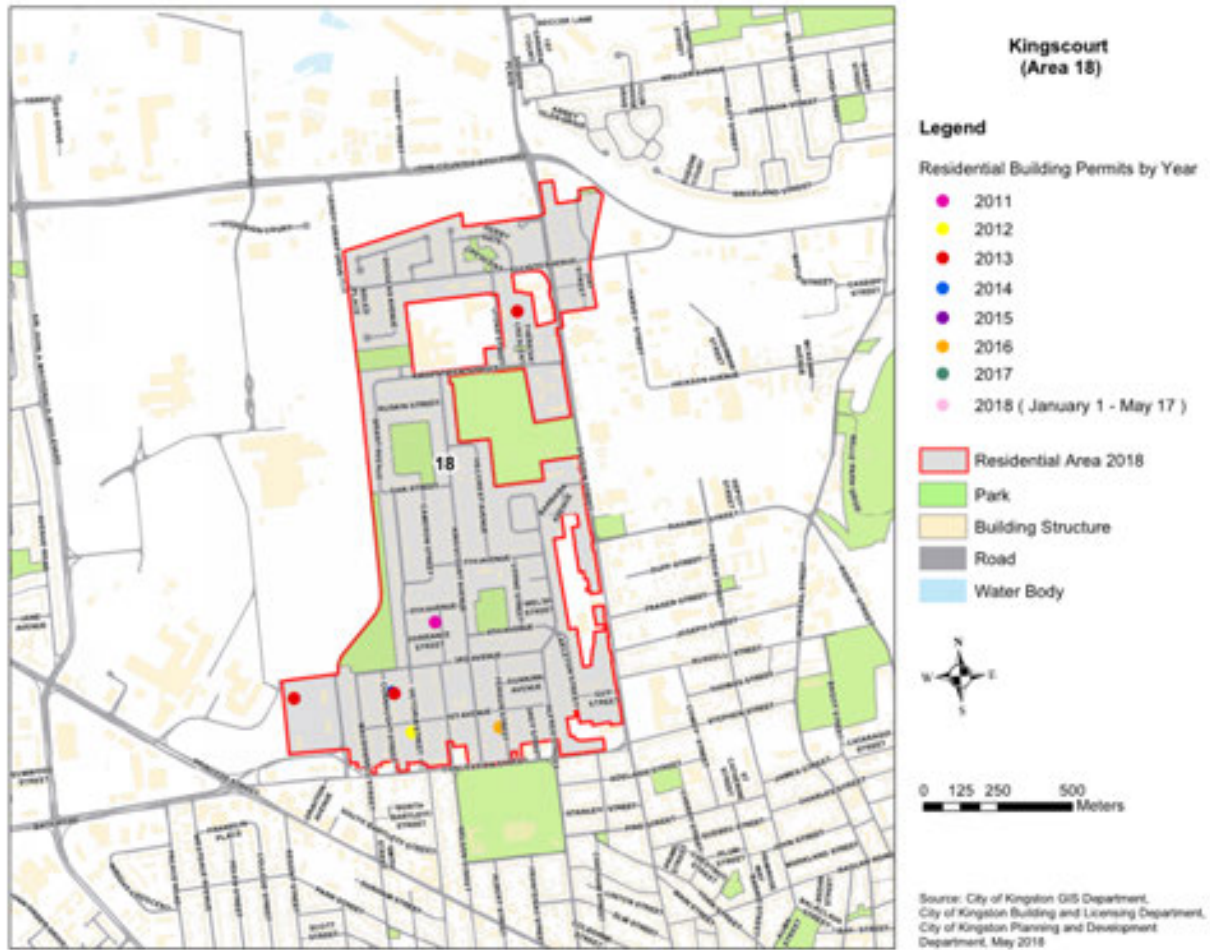
**Map 18.1: 2006 Residential Area**



## b. Residential Building Growth – 2011 to 2018

Between 2011 and 2018, 7 building permits were issued for a total of 262 units (see Tables 18.1, 18.3 and Map 18.2).

**Map 18.2: 2018 Residential Area and Building Permits Issued 2011 - 2018**



**Table 18.1: Residential Unit Construction 2011 – 2018**

**(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)**

2011	2012	2013	2014	2015	2016	2017	2018	Total
1	1	257	1	0	2	0	0	262

### c. Housing Mix

In 2010, the majority of the dwelling units in Area 18 were single detached dwellings at 45.1%. The area also included apartment units at 39.1% and multiple units at 15.5% (see Table 18.2 and Chart 18.1 below).

The 2011 to 2018 building permit data indicated that the proportion of apartment units increased to 46.6% to become the new majority of dwelling units in Area 18. The proportion of single detached units decreased to 40.8% and the proportion of multiples decreased to 14.1% (see Tables 18.3, 18.4 and Chart 18.1 below).

**Table 18.2: 2010 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
2,466	1,111	382	963	5	5

**Table 18.3: 2011 – 2018 New Construction Housing Mix**

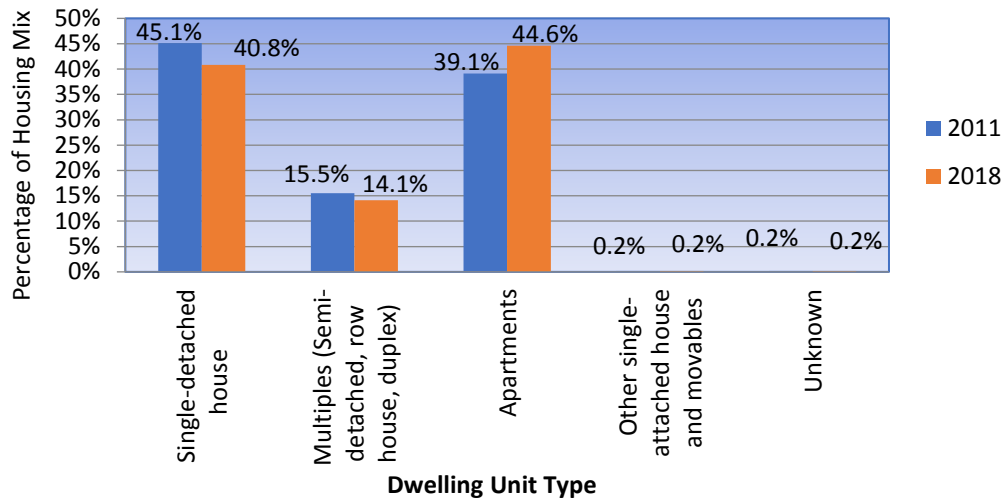
(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)

Total residential units	Single detached	Multiples	Apartments
262	3	4	255

**Table 18.4: 2018 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
2,728	1,114	386	1218	5	5

**Chart 18.1: 2011-2018 Comparative Housing Mix**



**d. Change in Residential Density**

In 2010, Area 18 covered an area of 79.22 net hectares and contained 2,466 residential dwelling units. From these figures, the residential net density of the area was calculated to be 31.13 units per net hectare (see Table 18.5 below).

The size of Area 18 was unchanged from 2010 to 2018 at 79.22 net hectares and the number of residential units increased by 262 units to 2,466. The net residential density in 2018 increased to 34.44 units per net hectare which is an increase in density of 10.63% (see Tables 18.6 and 18.7 below).

**Table 18.5: 2010 Residential Net Density**

2006 Total private dwelling units	New Units to Dec. 31 2010	2010 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
2,418	48	2,466	121.87	79.22	31.13

**Table 18.6: 2018 Residential Net Density**

2010 Total private dwelling units	New Units to May 17 2018	2018 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
2,466	262	2,728	121.87	79.22	34.44



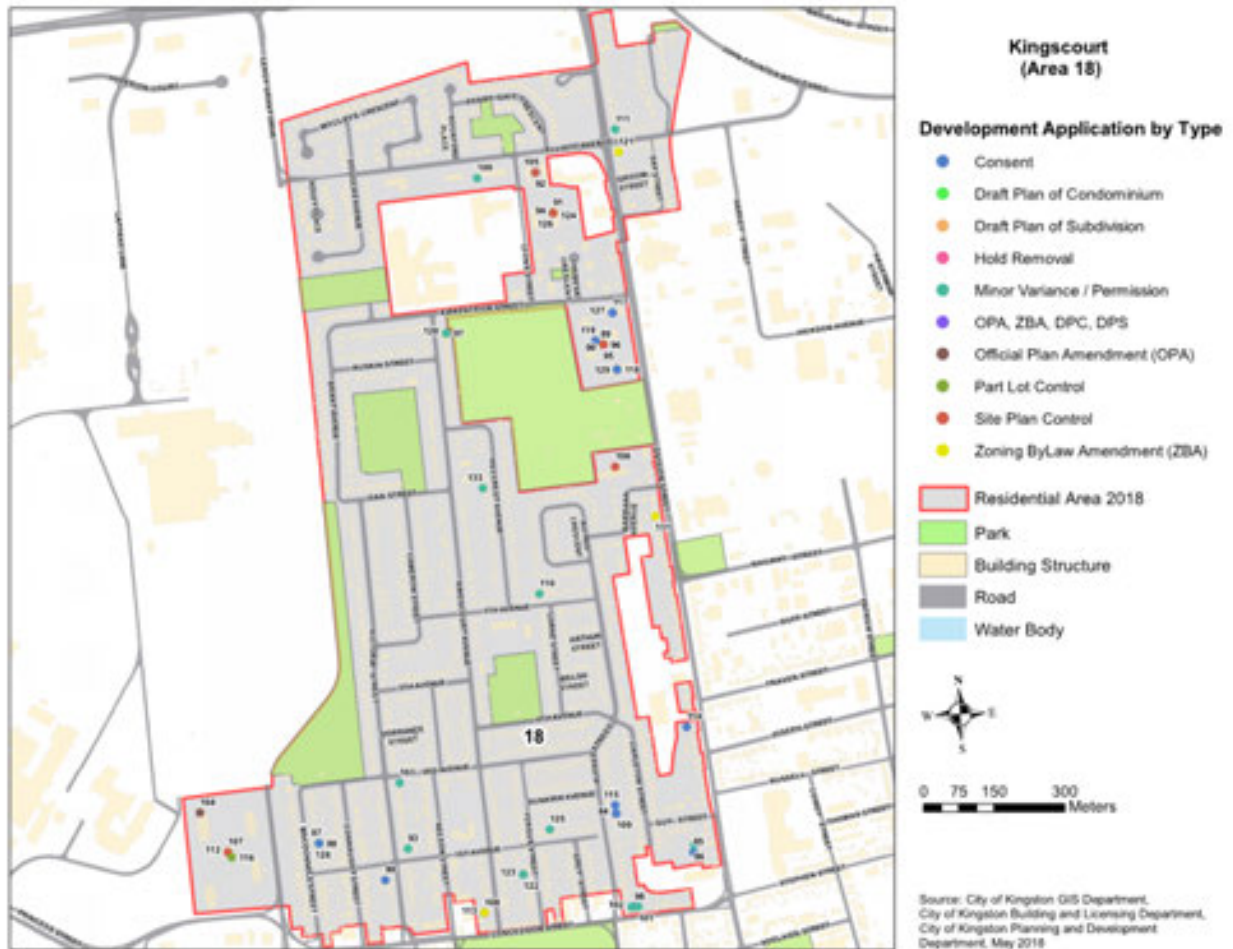
**Table 18.7: 2011– 2018 Change in Residential Net Density**

<b>2011 Net Density (Units/Ha)</b>	<b>2018 Net Density (Units/Ha)</b>	<b>Percentage Change</b>
31.13	34.44	10.63%

**e. Development Applications – 2010 to 2018**

Between 2010 and 2018, 50 development applications were processed (see Tables 18.8, 18.9 and Map 18.3). A large portion of these applications were related to Minor Variance/Permission and Consent. The Minor Variance/Permission applications included reductions to minimum lot area requirements, reduction to bicycle parking requirements, and permissions for the construction of steps, porches and a detached garage. Many of the Site Plan applications processed were related to the development of medium to high density residential apartment units, particularly along Division Street towards Elliot Avenue.

**Map 18.3: 2018 Development Application by Type 2010 - 2018**



**Table 18.8: Development Application by Year 2010 – 2018**

2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
7	2	10	6	3	6	3	13	0	50

**Table 18.9: Development Application by Type 2010 – 2018**

Application Type	Total
Consent	18
Draft Plan of Condominium	0

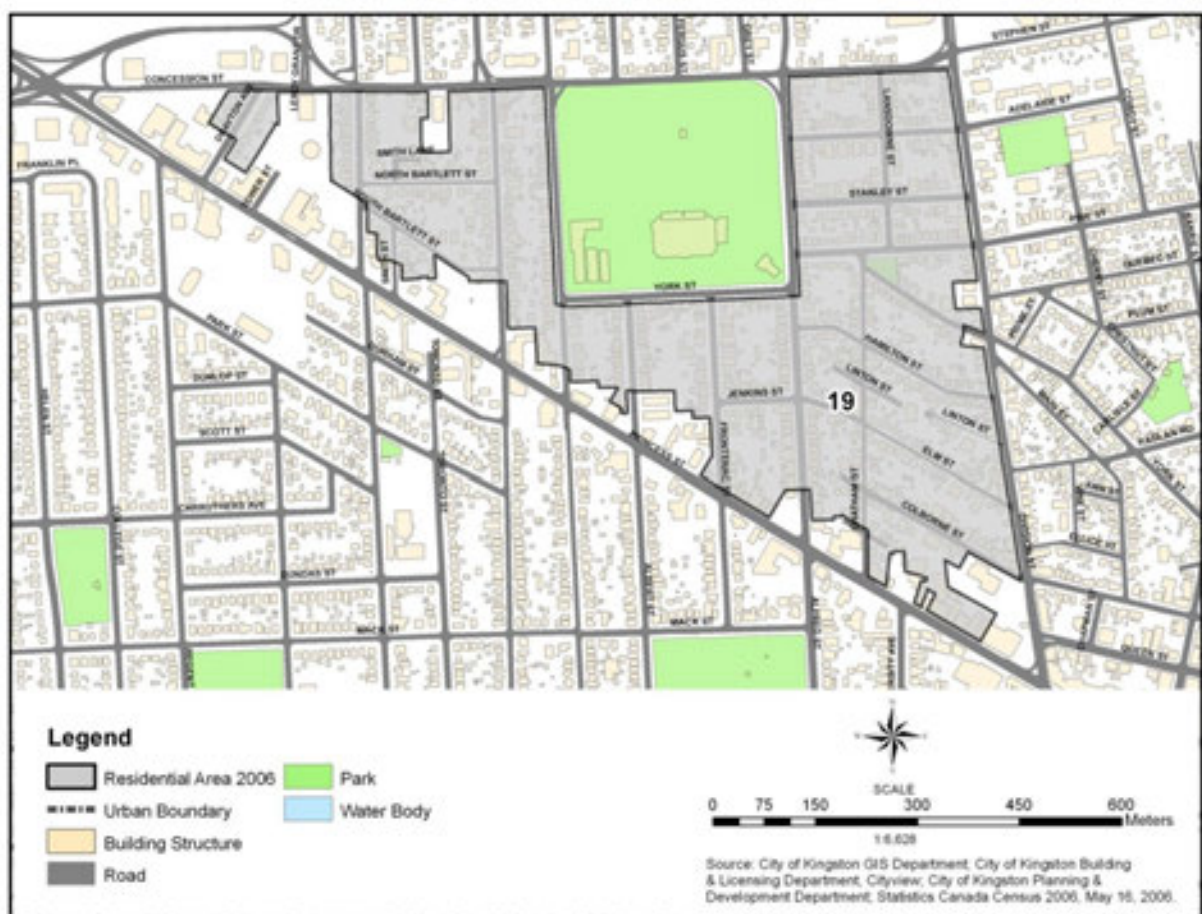
Draft Plan of Subdivision	0
Hold Removal	0
Minor Variance/Permission	17
OPA, ZBA, DPC, DPS	0
Official Plan Amendment	1
Part Lot Control	1
Site Plan	7
Zoning By-Law Amendment	6
<b>Total:</b>	<b>50</b>

## Area 19 - Williamsville

### a. Location

Located in Kingston Central, Area 19 covered an area of 35.41 gross hectares in 2006. It is generally bounded on the north by Concession Street, on the east by Division Street, on the southwest by Princess Street (see Map 19.1 below). In 2018, this area included 1,650 residential units and parts of it are located within the Williamsville neighbourhood (see Table 19.2).

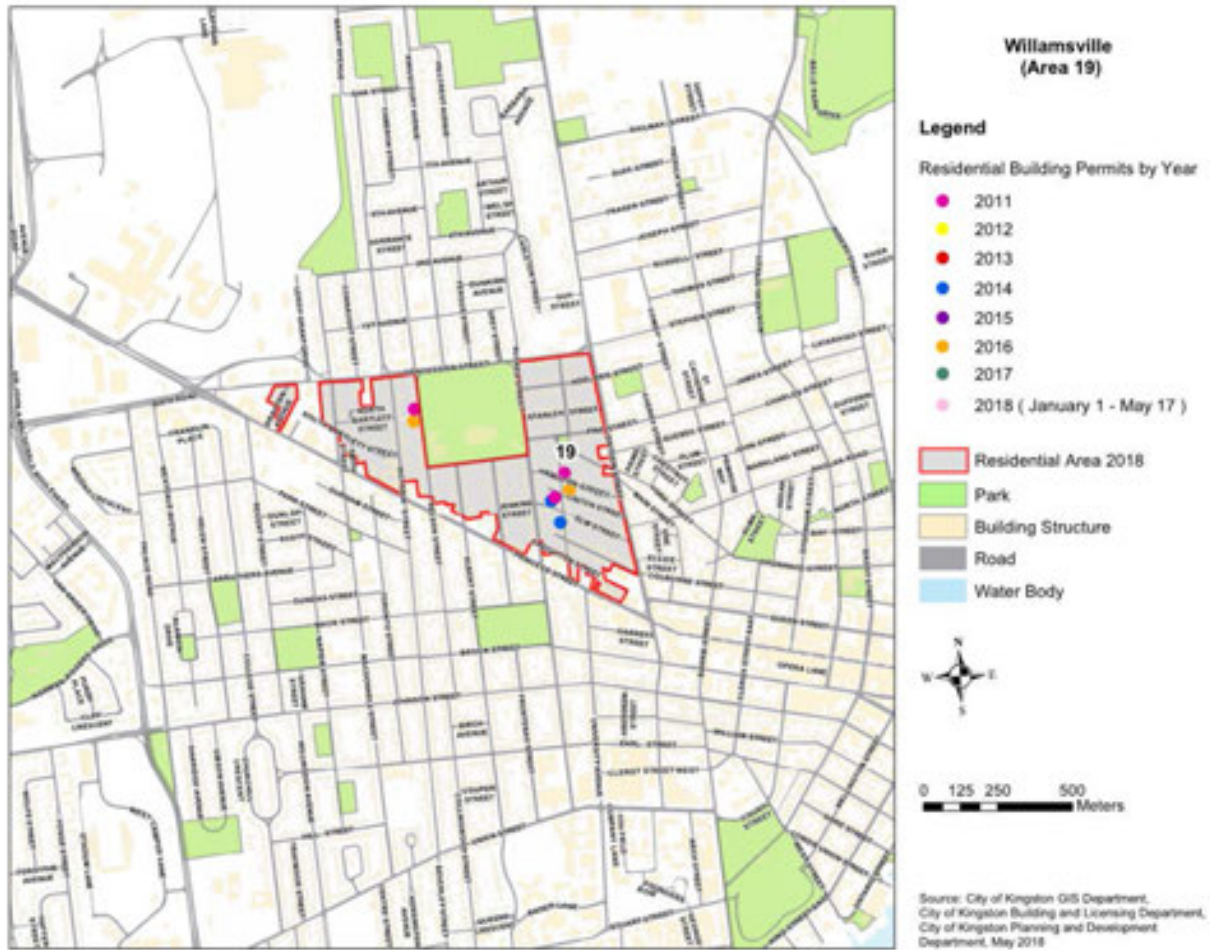
**Map 19.1: 2006 Residential Area**



### b. Residential Building Growth – 2011 to 2018

Between 2011 and 2018, 7 building permits were issued for a total of 9 units (see Tables 19.1, 19.3 and Map 19.2). It should be noted that a building permit for a single detached dwelling in 2011 had replaced former a single detached dwelling destroyed by fire.

**Map 19.2: 2018 Residential Area and Building Permits Issued 2011 - 2018**



**Table 19.1: Residential Unit Construction 2011 – 2018**

**(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)**

2011	2012	2013	2014	2015	2016	2017	2018	Total
2 <sup>(1)</sup>	0	0	4	0	2	0	0	8

Note:

(1) New single detached replaced former single detached destroyed by fire.

### c. Housing Mix

In 2010, the majority of the dwelling units in Area 19 were apartment dwellings at 55.5%. The area also included single detached units at 21.7% and multiple units at 19.5% (see Table 19.2 and Chart 19.1 below).

The 2011 to 2018 building permit data indicated that the proportion of single detached units increased to 21.7%, while the proportion of multiple units and apartments decreased to 19.4% and 55.4% respectively (see Tables 19.3, 19.4 and Chart 19.1 below).

**Table 19.2: 2010 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
1,659	360	323	921	45	10

**Table 19.3: 2011 – 2018 New Construction Housing Mix**

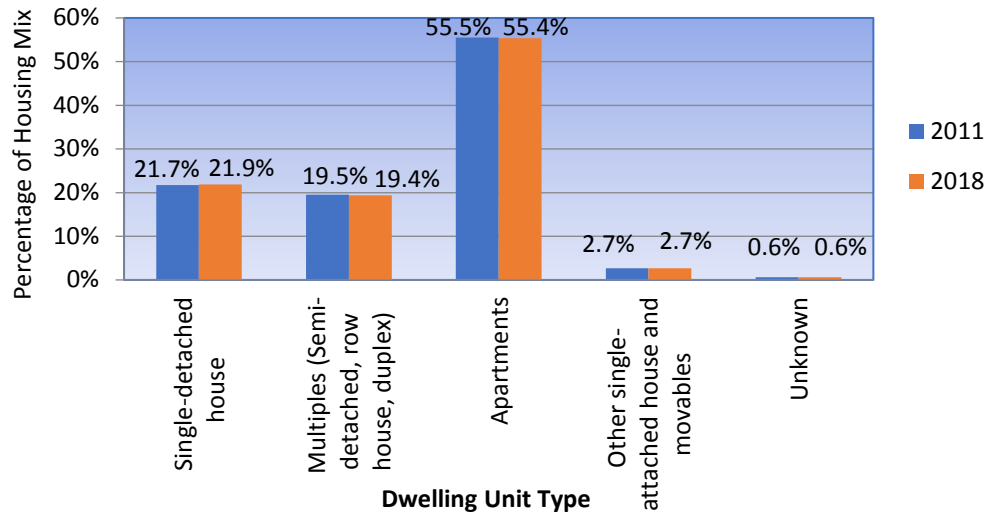
(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)

Total residential units	Single detached	Multiples	Apartments
8	5	0	3

**Table 19.4: 2018 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
1,667	365	323	924	45	10

**Chart 19.1: 2011-2018 Comparative Housing Mix**



**d. Change in Residential Density**

In 2010, Area 19 covered an area of 23.07 net hectares and contained 1,659 residential dwelling units. From these figures, the residential net density of the area was calculated to be 71.91 units per net hectare (see Table 19.5 below).

The size of Area 19 was unchanged from 2011 to 2018 at 23.07 net hectares and the number of residential units increased by 8 units to 1,667. The net residential density in 2018 increased to 72.26 units per net hectare which is an increase in density of 0.49% (see Tables 19.6 and 19.7 below).

**Table 19.5: 2010 Residential Net Density**

2006 Total private dwelling units	New Units to Dec. 31 2010	2010 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
1,650	9	1,659	35.5	23.07	71.91

**Table 19.6: 2018 Residential Net Density**

2010 Total private dwelling units	New Units to May 17 2018	2018 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
1,659	8	1,667	35.5	23.07	72.26

**Table 19.7: 2011– 2018 Change in Residential Net Density**

<b>2011 Net Density (Units/Ha)</b>	<b>2018 Net Density (Units/Ha)</b>	<b>Percentage Change</b>
71.91	72.26	0.49%

**e. Development Applications – 2010 to 2018**

Between 2010 and 2018, 50 development applications were processed (see Tables 19.8, 19.9 and Map 19.3). A large portion of the applications were related to Minor Variance/Permission and Consent. Many of the Site Plan applications processed were related to the development of mixed use buildings along Princess Street, ranging from medium to high densities.



**Map 19.3: 2018 Development Application by Type 2010 - 2018**



**Table 19.8: Development Application by Year 2010 – 2018**

2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
8	5	4	8	8	6	5	6	0	50

**Table 19.9: Development Application by Type 2010 – 2018**

Application Type	Total
Consent	14
Draft Plan of Condominium	0

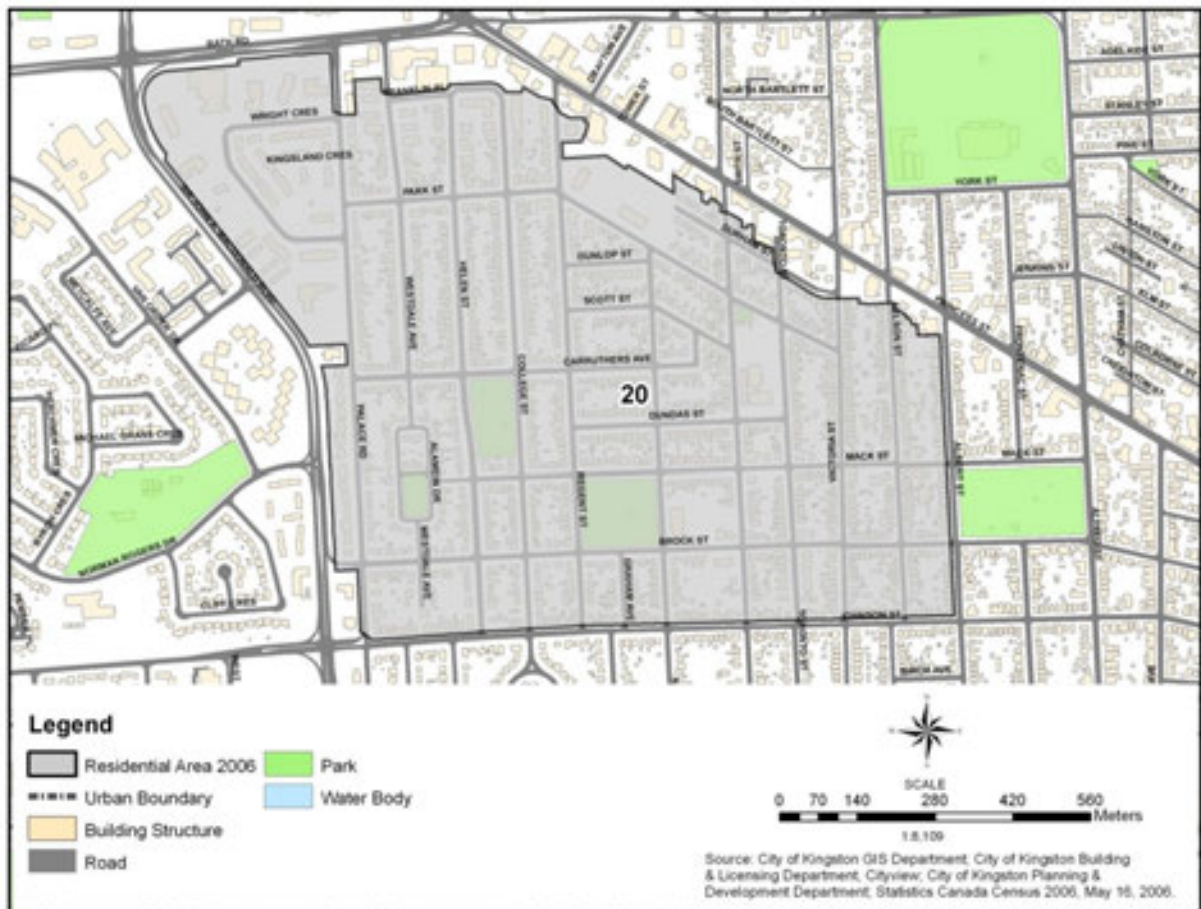
Draft Plan of Subdivision	0
Hold Removal	1
Minor Variance/Permission	15
OPA, ZBA, DPC, DPS	0
Official Plan Amendment	1
Part Lot Control	0
Site Plan	10
Zoning By-Law Amendment	9
<b>Total:</b>	<b>50</b>

## Area 20 - Sunnyside

### a. Location

Located in Kingston Central, Area 20 covered an area of 99.05 gross hectares in 2006. It is generally bounded on the north by Bath Road, on the north-east by Princess Street, on the east by Albert Street, on the south by Johnson Street and on the west by Sir John A. Macdonald Boulevard (see Map 20.1 below). In 2018, this area contained 2,971 residential units (see Table 20.4).

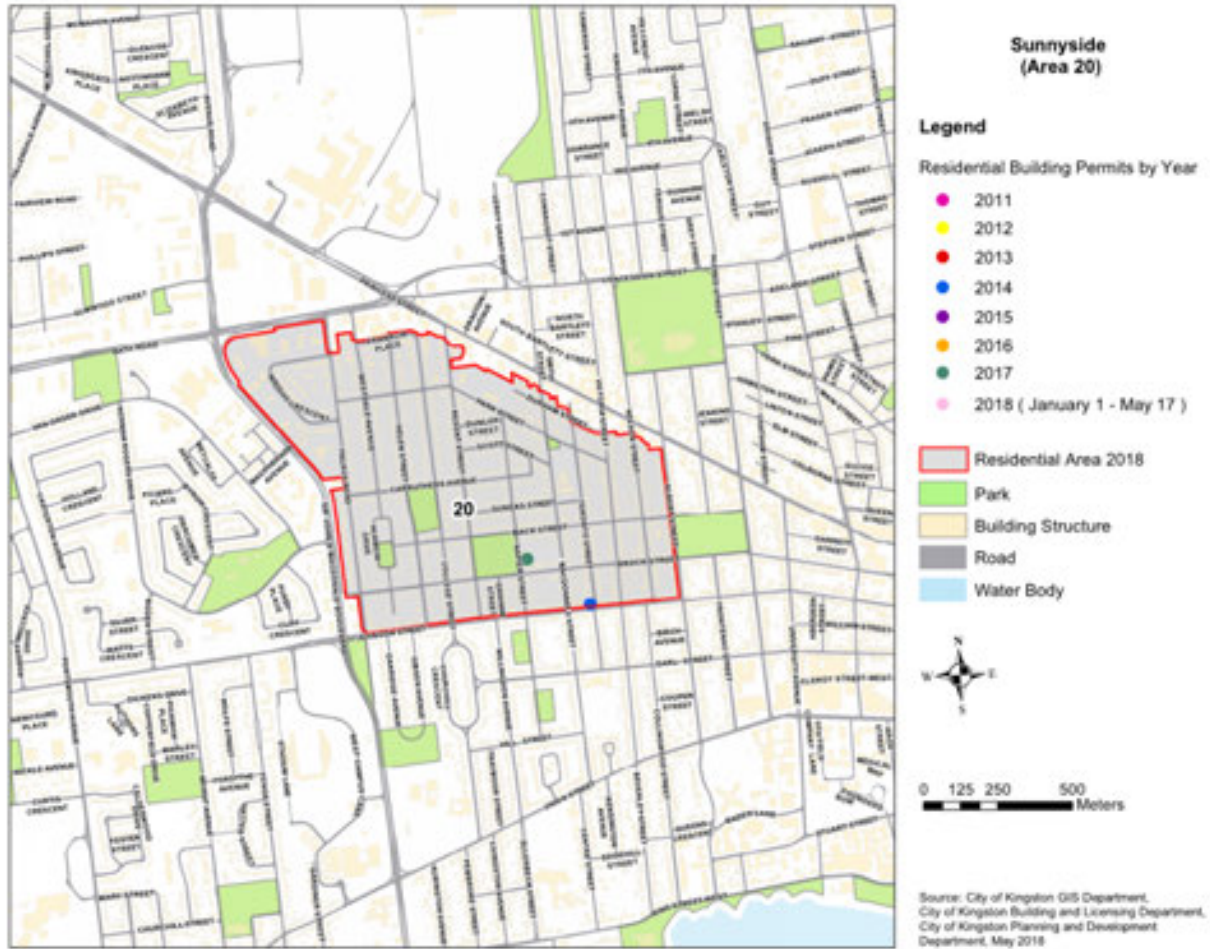
**Map 20.1: 2006 Residential Area**



### b. Residential Building Growth – 2011 to 2018

Between 2011 and 2018, 2 building permits were issued for a total of 57 units (see Tables 20.1, 20.3 and Map 20.2).

**Map 20.2: 2018 Residential Area and Building Permits Issued 2011 - 2018**



**Table 20.1: Residential Unit Construction 2011 – 2018**

**(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)**

2011	2012	2013	2014	2015	2016	2017	2018	Total
0	0	0	28	0	0	29	0	57

### c. Housing Mix

In 2010, the majority of the dwelling units in Area 20 were apartment dwellings at 54.4%. The area also included single detached units at 30.1% and multiple units at 14.9% (see Table 20.2 and Chart 20.1 below).

The 2011 to 2018 building permit data indicated that the proportion of multiple units increased to 16.6%, while the proportion of single detached units and apartments decreased to 29.6% and 53.4% respectively (see Tables 20.3, 20.4 and Chart 20.1 below).

**Table 20.2: 2010 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
2,914	878	435	1586	10	5

**Table 20.3: 2011 – 2018 New Construction Housing Mix**

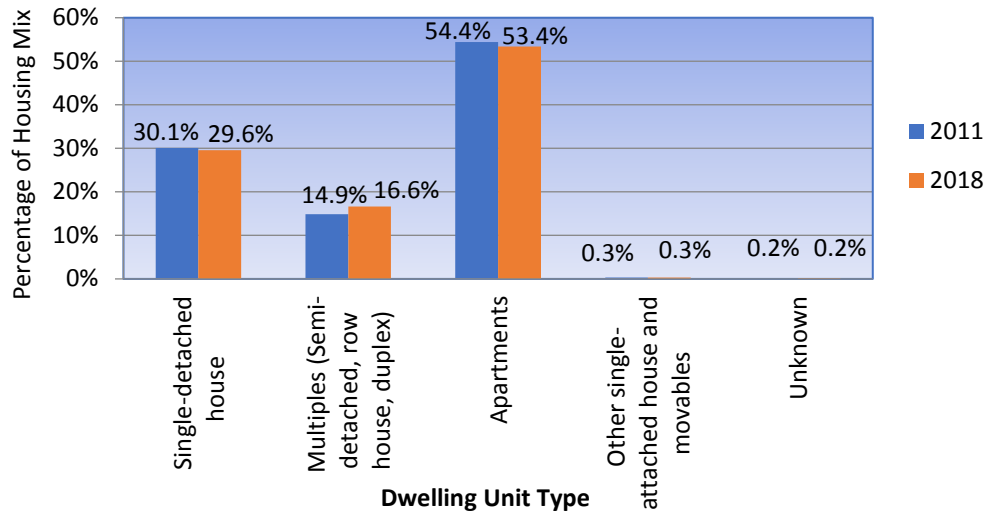
(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)

Total residential units	Single detached	Multiples	Apartments
57	0	57	0

**Table 20.4: 2018 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
2,971	878	492	1586	10	5

**Chart 20.1: 2011-2018 Comparative Housing Mix**



**d. Change in Residential Density**

In 2010, Area 20 covered an area of 64.38 net hectares and contained 2,914 residential dwelling units. From these figures, the residential net density of the area was calculated to be 46.26 units per net hectare (see Table 20.5 below).

The size of Area 20 was unchanged from 2011 to 2018 at 64.38 net hectares and the number of residential units increased by 57 units to 2,971. The net residential density in 2018 increased to 46.15 units per net hectare which is an increase in density of 1.97% (see Tables 20.6 and 20.7 below).

**Table 20.5: 2010 Residential Net Density**

2006 Total private dwelling units	New Units to Dec. 31 2010	2010 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
2,910	4	2,914	99.05	64.38	45.26

**Table 20.6: 2018 Residential Net Density**

2010 Total private dwelling units	New Units to May 17 2018	2018 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
2,914	57	2,971	99.05	64.38	46.15

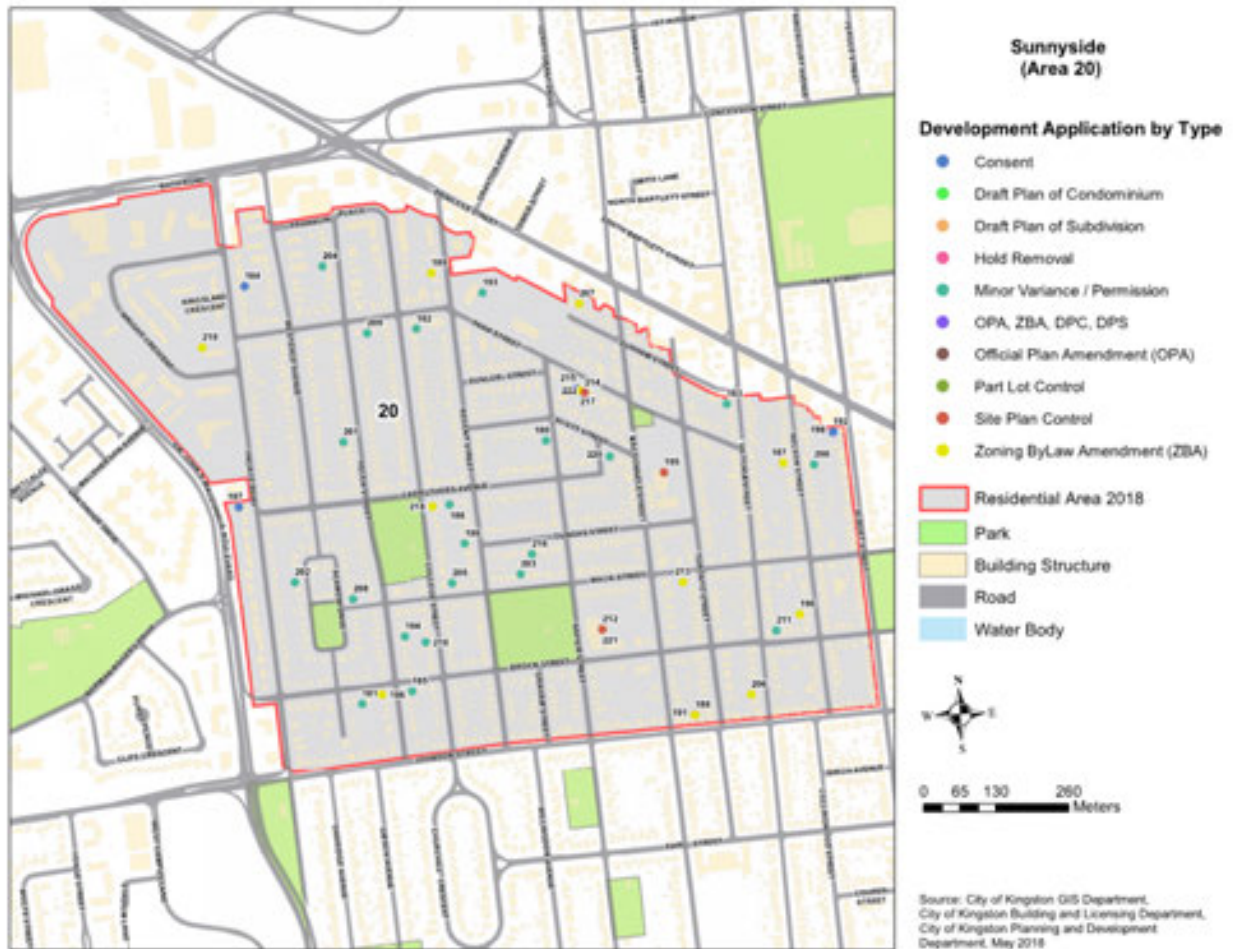
**Table 20.7: 2011– 2018 Change in Residential Net Density**

<b>2011 Net Density (Units/Ha)</b>	<b>2018 Net Density (Units/Ha)</b>	<b>Percentage Change</b>
45.26	46.15	1.97%

**e. Development Applications – 2010 to 2018**

Between 2010 and 2018, 43 development applications were processed (see Tables 20.8, 20.9 and Map 20.3). Minor Variance/Permission applications were the most common at 26 and included increases to maximum building depth, increase to maximum lot coverage, and reductions in side and rear yard setbacks.

**Map 20.3: 2018 Development Application by Type 2010 - 2018**



**Table 20.8: Development Application by Year 2010 – 2018**

2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
2	4	4	5	1	10	6	11	0	43

**Table 20.9: Development Application by Type 2010 – 2018**

Application Type	Total
Consent	6
Draft Plan of Condominium	0



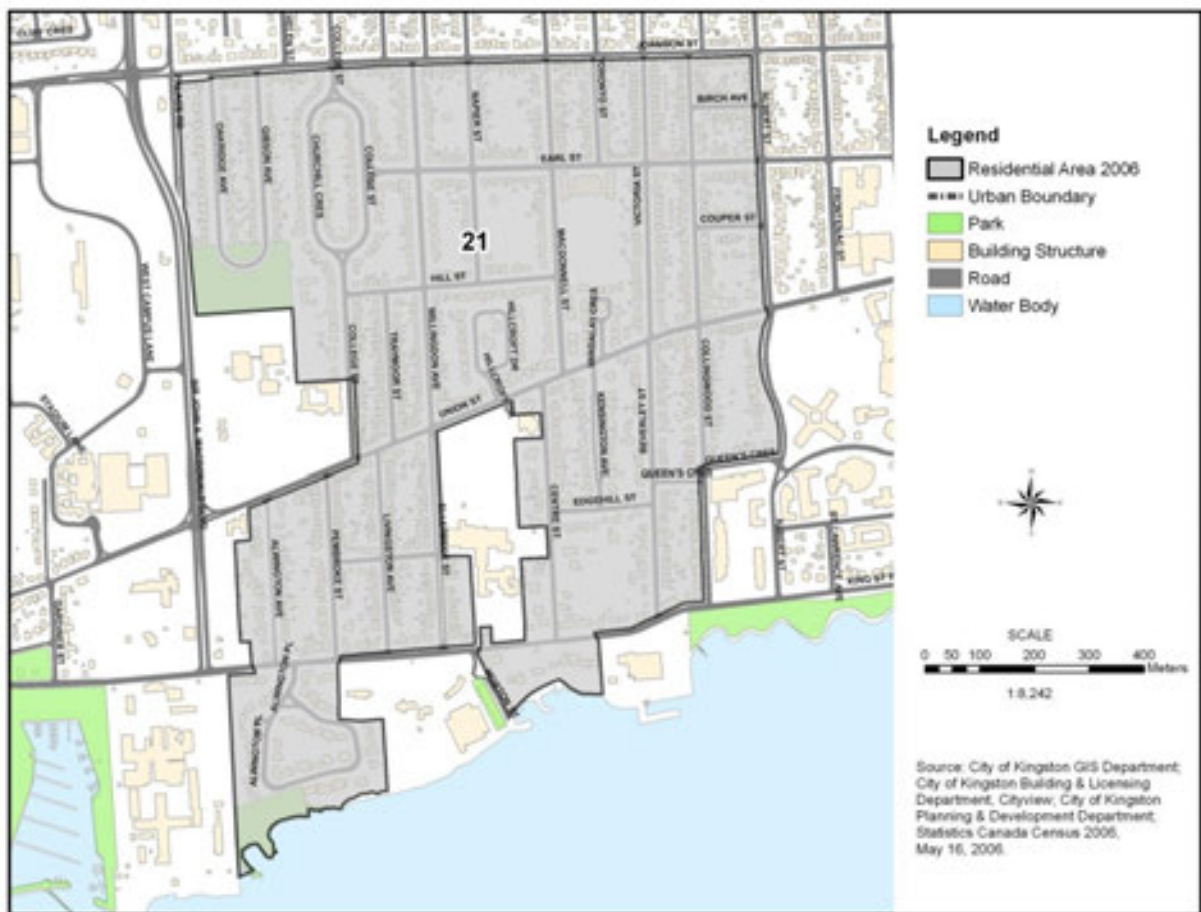
Draft Plan of Subdivision	0
Hold Removal	0
Minor Variance/Permission	21
OPA, ZBA, DPC, DPS	0
Official Plan Amendment	0
Part Lot Control	0
Site Plan	4
Zoning By-Law Amendment	12
<b>Total:</b>	<b>43</b>

## Area 21 – Alwington/Pinehurst

### a. Location

Located in Kingston Central, Area 21 covered an area of 98.85 gross hectares in 2006. It is generally bounded on the north by Johnson Street, on the east by Albert Street and Queen's University, on the south by Lake Ontario and on the west by Sir John A. Macdonald Boulevard and the Canada Corrections Service administration building (see Map 21.1 below). In 2018, this area included 1,466 residential units (see Table 21.4).

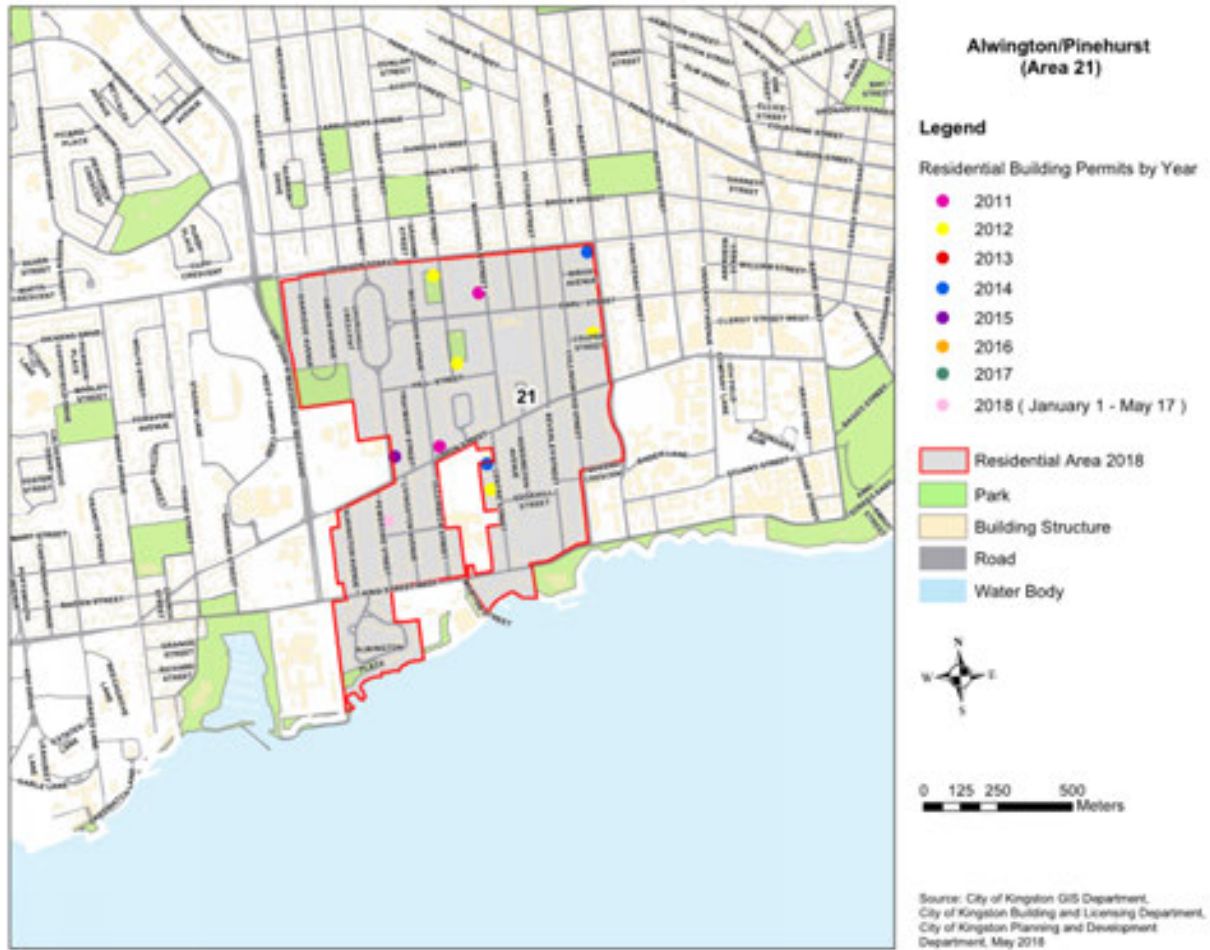
### Map 21.1: 2006 Residential Area



### b. Residential Building Growth – 2011 to 2018

Between 2011 and 2018, 10 building permits were issued for a total of 24 units (see Tables 21.1, 21.3 and Map 21.2). It should be noted that a building permit issued in 2015 for a single detached dwelling replaces an existing single detached dwelling in the same footprint.

**Map 21.2: 2018 Residential Area and Building Permits Issued 2011 - 2018**



**Table 21.1: Residential Unit Construction 2011 – 2018**

**(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)**

2011	2012	2013	2014	2015	2016	2017	2018	Total
2	4	0	5	0 <sup>(1)</sup>	0	0	12	23

Note:

(1) New single detached dwelling replaces former single detached dwelling in existing footprint.

### c. Housing Mix

In 2010, the majority of the dwelling units in Area 21 were single detached dwellings at 66.3%. The area also included multiple units at 19.5% and apartment units at 15.9% (see Table 21.2 and Chart 21.1 below).

The 2011 to 2018 building permit data indicated that the proportion of multiple units increased to 20.3%, while the proportion of single detached units and apartments decreased to 65.7% and 15.7% respectively (see Tables 21.3, 21.4 and Chart 21.1 below).

**Table 21.2: 2010 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
1,443	956	282	230	0	-25

**Table 21.3: 2011 – 2018 New Construction Housing Mix**

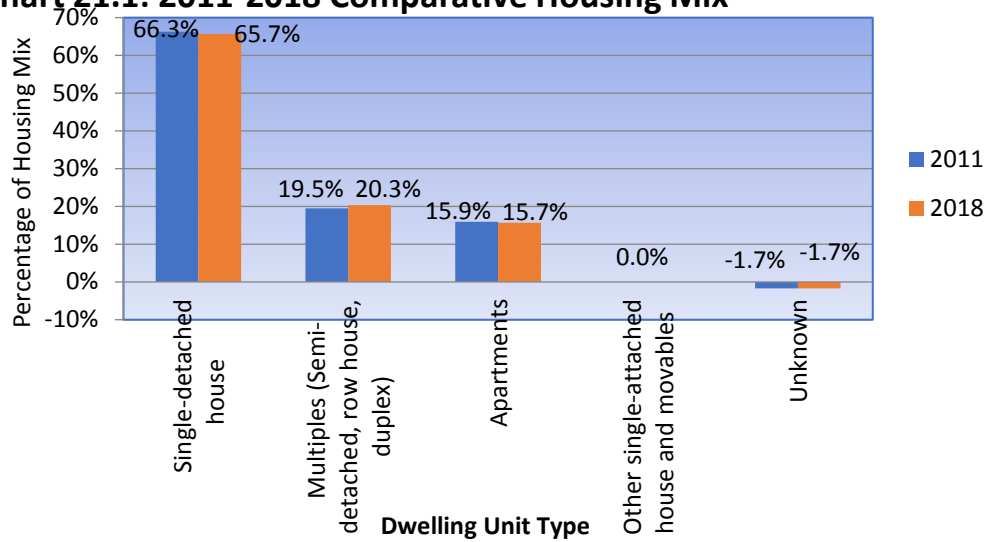
(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)

Total residential units	Single detached	Multiples	Apartments
23	7	16	0

**Table 21.4: 2018 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
1,466	963	298	230	0	-25

**Chart 21.1: 2011-2018 Comparative Housing Mix**



**d. Change in Residential Density**

In 2010, Area 21 covered an area of 64.25 net hectares and contained 1,443 residential dwelling units. From these figures, the residential net density of the area was calculated to be 22.46 units per net hectare (see Table 21.5 below).

The size of Area 21 was unchanged from 2011 to 2018 at 64.25 net hectares and the number of residential units increased by 23 units to 1,466. The net residential density in 2018 increased to 22.83 units per net hectare which is an increase in density of 1.59% (see Tables 21.6 and 21.7 below).

**Table 21.5: 2010 Residential Net Density**

2006 Total private dwelling units	New Units to Dec. 31 2010	2010 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
1,440	3	1,443	98.85	64.25	22.46

**Table 21.6: 2018 Residential Net Density**

<b>2010 Total private dwelling units</b>	<b>New Units to May 17 2018</b>	<b>2018 Total private dwelling units</b>	<b>Area (Gross Ha)</b>	<b>Area (Net Ha)</b>	<b>Net Density (Units/Ha)</b>
1,443	23	1,466	98.85	64.25	22.82

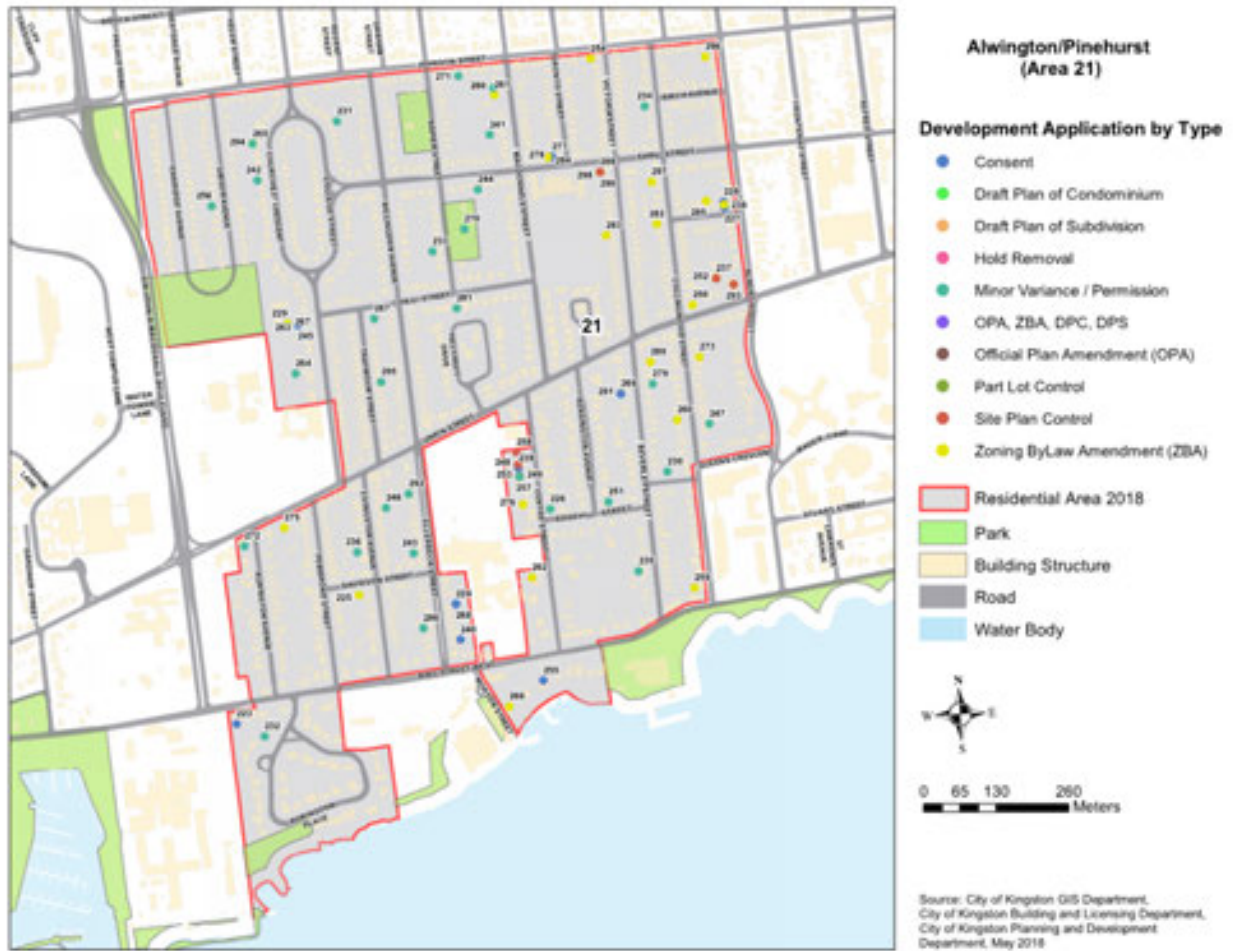
**Table 21.7: 2011– 2018 Change in Residential Net Density**

<b>2011 Net Density (Units/Ha)</b>	<b>2018 Net Density (Units/Ha)</b>	<b>Percentage Change</b>
22.46	22.82	1.59%

**e. Development Applications – 2010 to 2018**

Between 2010 and 2018, 76 development applications were processed (see Tables 21.8, 21.9 and Map 21.3). Minor Variance/Permission applications were the most common (31 total) and were generally related to increase in maximum building depth and increase in maximum lot coverage, reduction of side yard requirements. There were also a number of Zoning By-law Amendment applications which proposed secondary residential units as well as additions/conversions to single family and two-family dwellings.

**Map 21.3: 2018 Development Application by Type 2010 - 2018**



**Table 21.8: Development Application by Year 2010 – 2018**

2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
12	12	4	8	5	12	11	7	0	76

**Table 21.9: Development Application by Type 2010 – 2018**

Application Type	Total
Consent	14
Draft Plan of Condominium	0

Draft Plan of Subdivision	0
Hold Removal	0
Minor Variance/Permission	31
OPA, ZBA, DPC, DPS	0
Official Plan Amendment	1
Part Lot Control	0
Site Plan	6
Zoning By-Law Amendment	25
<b>Total:</b>	<b>76</b>

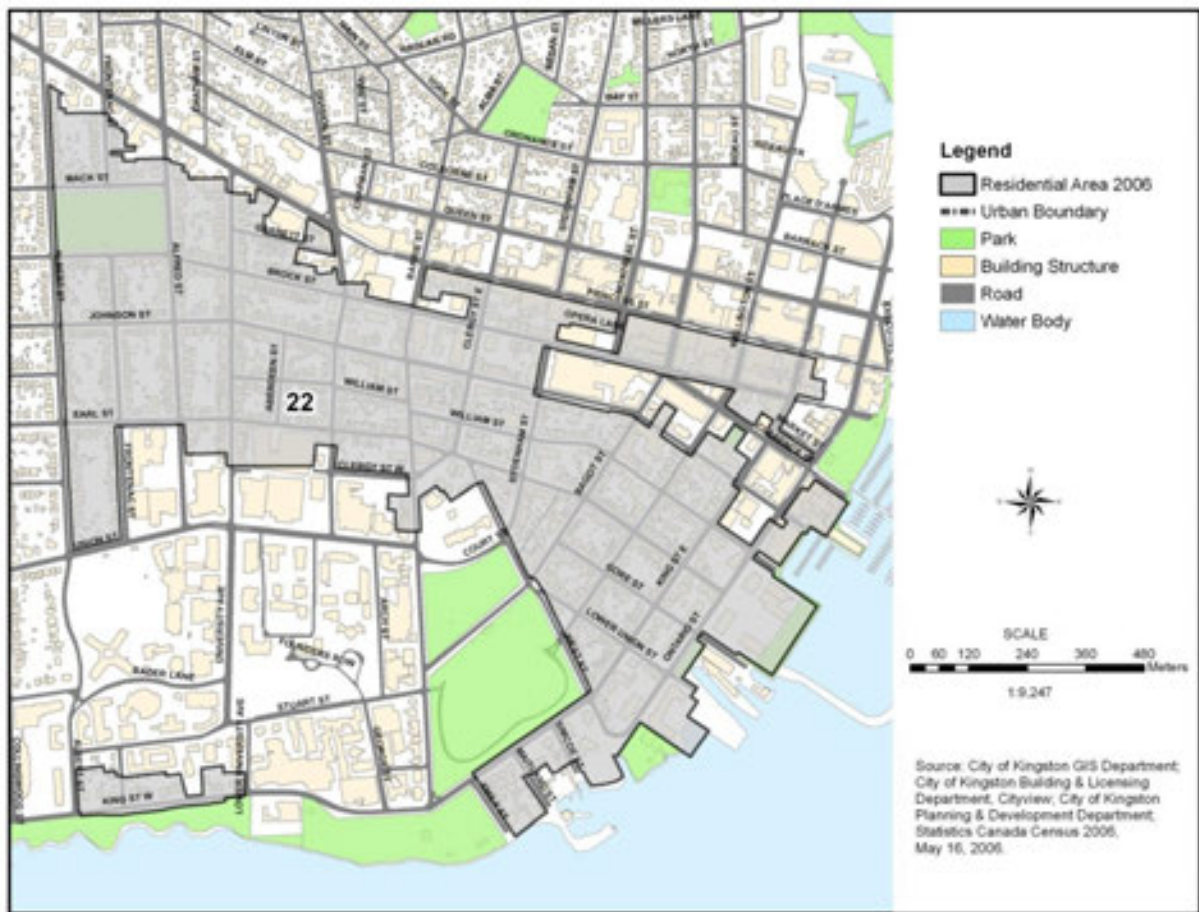


## Area 22 – Downtown Kingston – Princess St.

### a. Location

Located in Kingston Central, Area 22 includes 2 sections and in total, covered an area of 90.67 gross hectares in 2006. The first section is large and is bounded on the north by Princess Street and the properties fronting on Princess Street, on the east by Lake Ontario, on the south by the Queen’s University campus and on the west by the Queen’s campus and Albert Street. The second and smaller section lies to the south of the first. It is bounded on the north by Queen’s University, on the east by Lower University Avenue, on the south by King Street and on the west by Albert Street (see Map 22.1 below). The large section included the area around the Queen’s main campus and the Old Sydenham area. In 2018, there were a total of 4,125 residential units in Area 22 (see Table 22.4).

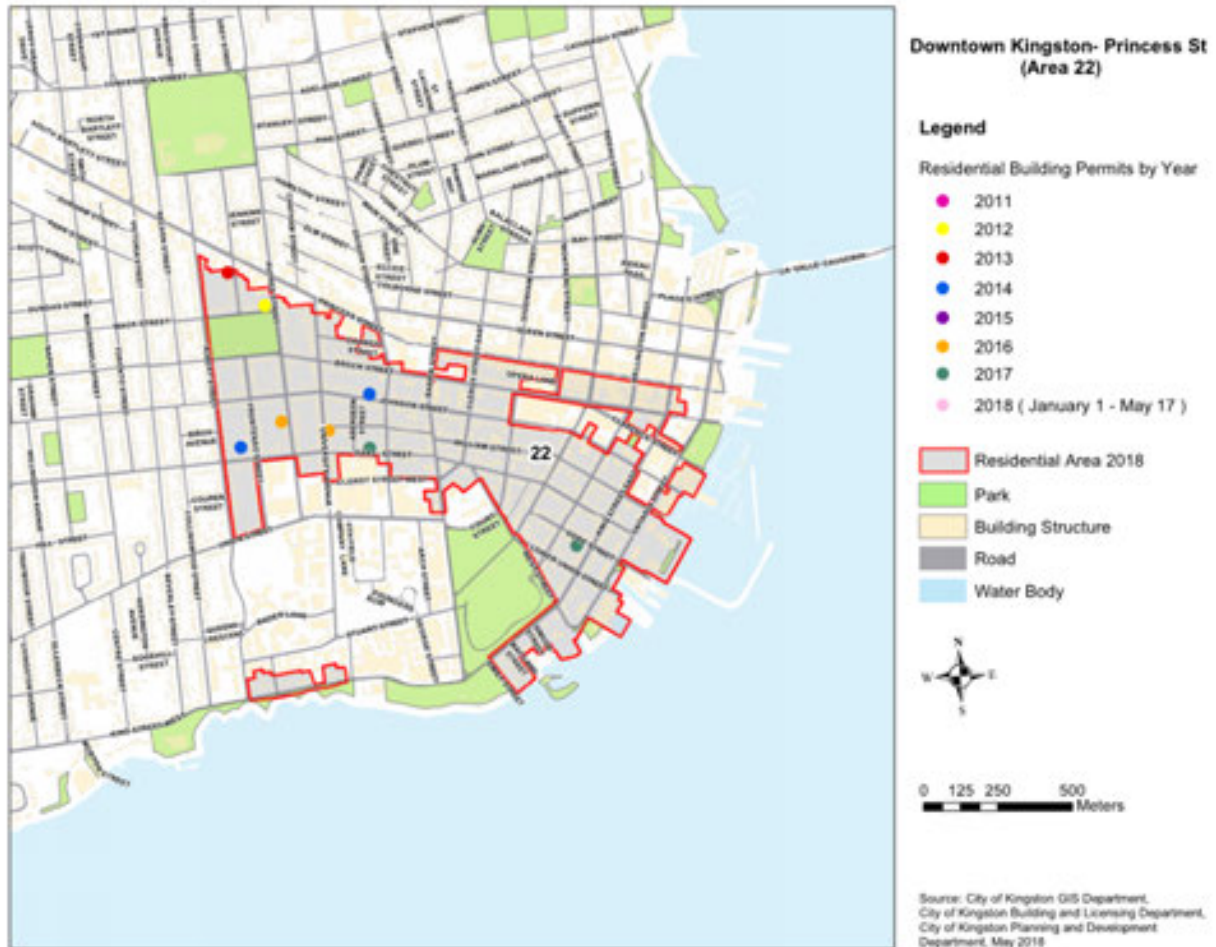
**Map 22.1: 2006 Residential Area**



**b. Residential Building Growth – 2011 to 2018**

Between 2011 and 2018, 8 building permits were issued for a total of 68 units (see Tables 22.1, 22.3 and Map 22.2).

**Map 22.2: 2018 Residential Area and Building Permits Issued 2011 - 2018**



**Table 22.1: Residential Unit Construction 2011 – 2018**

**(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)**

2011	2012	2013	2014	2015	2016	2017	2018	Total
0	15	21	12	0	11	9	0	68

**c. Housing Mix**

In 2010, the majority of the dwelling units in Area 22 were apartment units at 70.2%. The area also included multiple units at 20.0% and single detached units at 9.3% (see Table 22.2 and Chart 22.1 below).

The 2011 to 2018 building permit data indicated that the proportion of multiple units increased to 21.3%, while the proportion of single detached units and apartments decreased to 9.1% and 69.1% respectively (see Tables 22.3, 22.4 and Chart 22.1 below).

**Table 22.2: 2010 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
4,057	376	812	2,849	25	-5

**Table 22.3: 2011 – 2018 New Construction Housing Mix**

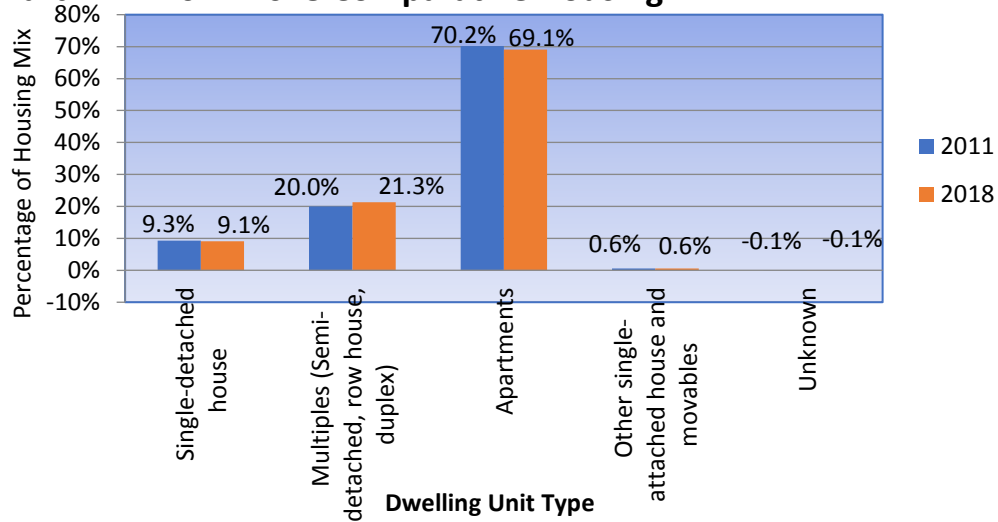
**(Units Resulting from Building Permits Issued January 1, 2011 to May 17, 2018)**

Total residential units	Single detached	Multiples	Apartments
68	1	67	0

**Table 22.4: 2018 Housing Mix**

Total private dwelling units	Single detached	Multiples	Apartments	Other single attached house and movables	Unknown
4,125	377	812	2,916	25	-5

**Chart 22.1: 2011-2018 Comparative Housing Mix**



**d. Change in Residential Density**

In 2006, Area 22 covered an area of 58.40 net hectares and contained 4,057 residential dwelling units. From these figures, the residential net density of the area was calculated to be 69.47 units per net hectare (see Table 22.5 below).

The size of Area 22 was unchanged from 2011 to 2018 at 58.40 net hectares and the number of residential units increased by 68 units to 4,125. The net residential density in 2018 increased to 70.63 units per net hectare which is an increase in density of 1.67% (see Tables 22.6 and 22.7 below).

**Table 22.5: 2010 Residential Net Density**

2006 Total private dwelling units	New Units to Dec. 31 2010	2010 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
3,825	232	4,057	89.85	58.40	69.47

**Table 22.6: 2018 Residential Net Density**

2010 Total private dwelling units	New Units to May 17 2018	2018 Total private dwelling units	Area (Gross Ha)	Area (Net Ha)	Net Density (Units/Ha)
4,057	68	4,125	89.85	58.40	70.63

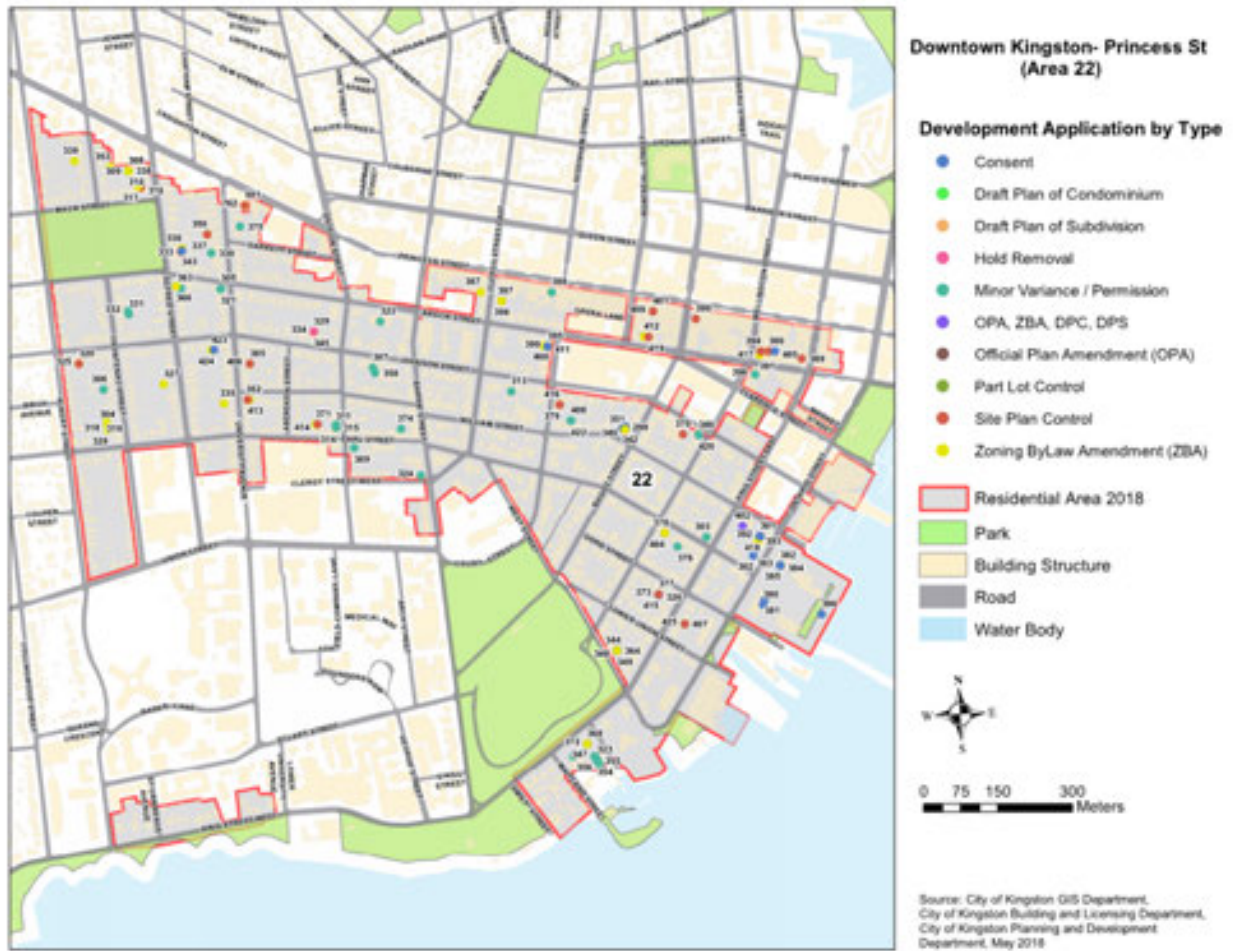
**Table 22.7: 2011– 2018 Change in Residential Net Density**

<b>2011 Net Density (Units/Ha)</b>	<b>2018 Net Density (Units/Ha)</b>	<b>Percentage Change</b>
69.47	70.63	1.67%

**e. Development Applications – 2010 to 2018**

Between 2010 and 2018, 129 development applications were processed (see Tables 22.8, 22.9 and Map 22.3). Area 22 included the largest number of applications in the Study Area. The types of applications were mostly related to Consent, Minor Variance/Permission, Site Plan Control, and Zoning By-law Amendments. The Minor Variance/Permission applications included reductions to minimum interior side yard and rear yard setbacks. Many of the Site Plan applications processed were related to the development of medium to high density residential as well as mixed use apartment units, particularly along Princess Street.

**Map 22.3: 2018 Development Application by Type 2010 - 2018**



**Table 22.8: Development Application by Year 2010 – 2018**

2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
14	12	11	13	23	21	10	18	1	129

**Table 22.9: Development Application by Type 2010 – 2018**

Application Type	Total
Consent	25
Draft Plan of Condominium	1

Draft Plan of Subdivision	0
Hold Removal	1
Minor Variance/Permission	41
OPA, ZBA, DPC, DPS	1
Official Plan Amendment	0
Part Lot Control	0
Site Plan	26
Zoning By-Law Amendment	34
<b>Total:</b>	<b>129</b>

# Appendix E



## Existing Conditions – Sanitary Water

Revised January 2020





## Memo

**TO:** Laura MacCormick and Sukriti Agarwal (City of Kingston)  
**FROM:** John Wright and Michael Flowers  
**SUBJECT:** Central Kingston Growth Strategy – Review of Existing Water and Wastewater Conditions  
**DATE:** January 2020

---

## Project Overview

The Central Kingston Growth Strategy is intended to identify nodes for future infill development and intensification. The study area for this project includes all land parcels with residential zoning in the area of the City generally bounded by Highway 401 to the north, the Little Cataraqui Creek the west, Lake Ontario to the South and the Cataraqui River to the East, but excludes the Inner Harbour neighbourhood containing the Kingston downtown core. It is noted that the study area includes currently undeveloped portions of the Novelis Campus and Markers Acres neighbourhood adjacent to Highway 401.

The City of Kingston has defined a system of 43 distinct neighbourhoods across the City based on Statistics Canada census dissemination areas for the purpose of developing individual neighbourhood planning profiles as a tool for community planning; the Central Kingston Growth Strategy Area includes portions of 17 of these neighbourhoods. Figure 1 illustrates the Central Kingston Growth Strategy Areas as well as the neighbourhoods containing portions of this Study Area.

This report is intended as a planning level review of the existing water and wastewater infrastructure and operations in the Central Kingston area, to identify specific portions of the study area that are relatively more or less prone to operational impacts as a result of new infill developments or intensification; a more detailed corridor and intersection level review will be undertaken once potential development nodes have been identified later in the study.



## Central Kingston Wastewater System

The City of Central Kingston sanitary collection system comprises an area of approximately 2,919 ha. It is generally bordered by Little Cataraqui Creek to the west, Macdonald-Cartier Freeway to the north, Cataraqui River to the east and Lake Ontario to the south. There are approximately 54,600 people living in Central Kingston.

Sanitary flow from Central Kingston is currently pumped to the Kingston East collection system via the River Street Pumping Station and is conveyed to the Ravensview Wastewater Treatment Plant (WWTP). Utilities Kingston is in the process of redirecting flows collected in the Portsmouth Sewage Pumping Station (SPS) catchment area to the Cataraqui Bay WWTP. Figure 2 presents an overview of the sanitary collection system, inclusive of combined sewers. All data presented in this section reflects the Central Kingston Wastewater System, including combined sewers.

The diameters of the wastewater sewer system pipes in the Central Kingston vary between 50 mm and 3,200 mm. The total length of pipe for each diameter size is shown in locations of the pipe segments in relation to diameter size within the study limits. It should be noted that for several pipes the size category “unspecified” is included where pipe diameters are unknown or unverified in the GIS dataset. Table 1 and sewer diameter distribution is presented in Figure 3.

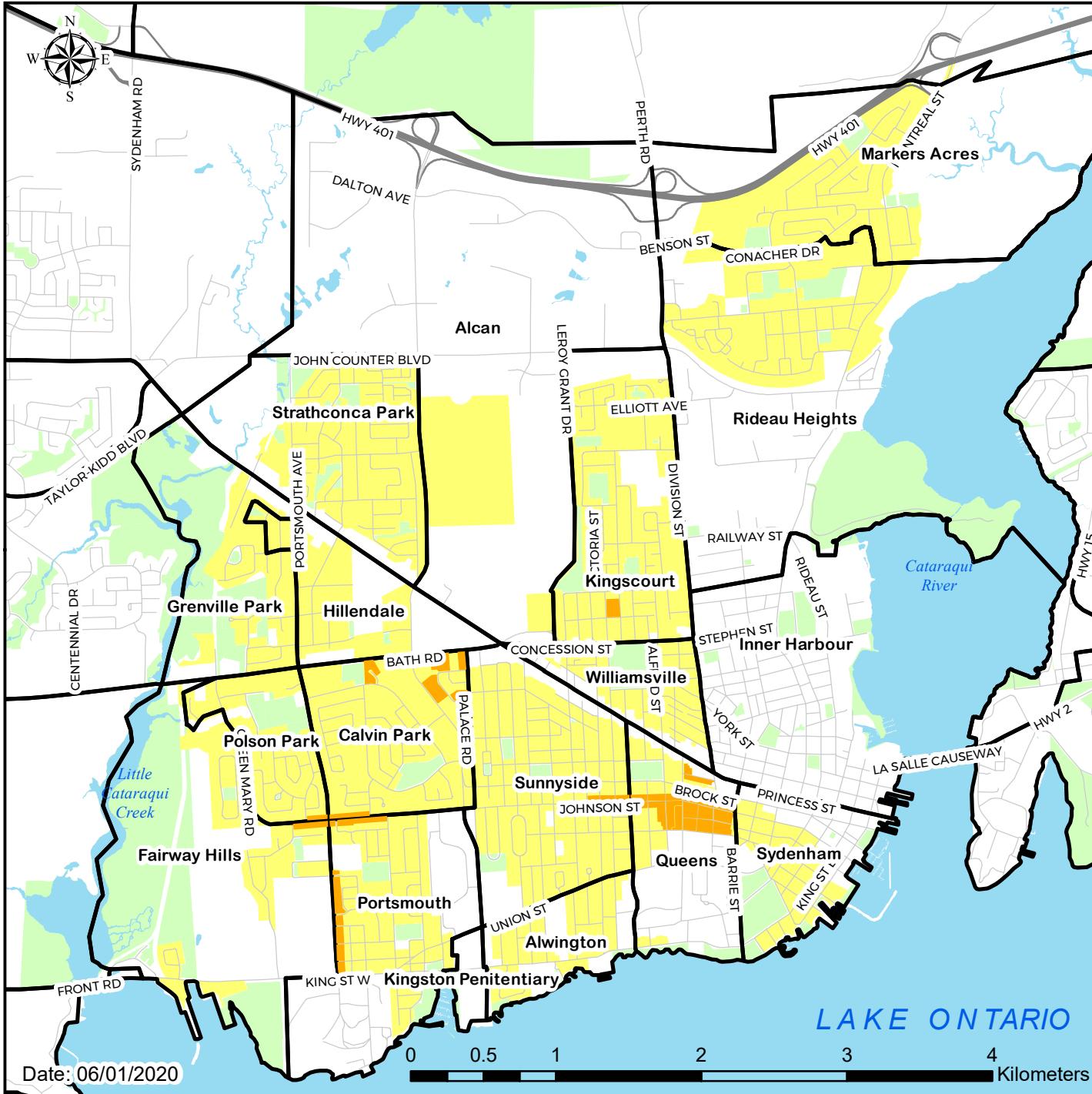
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T: +1 613 634-3523

[wsp.com](http://wsp.com)

# Central Kingston Growth Strategy



**Legend**

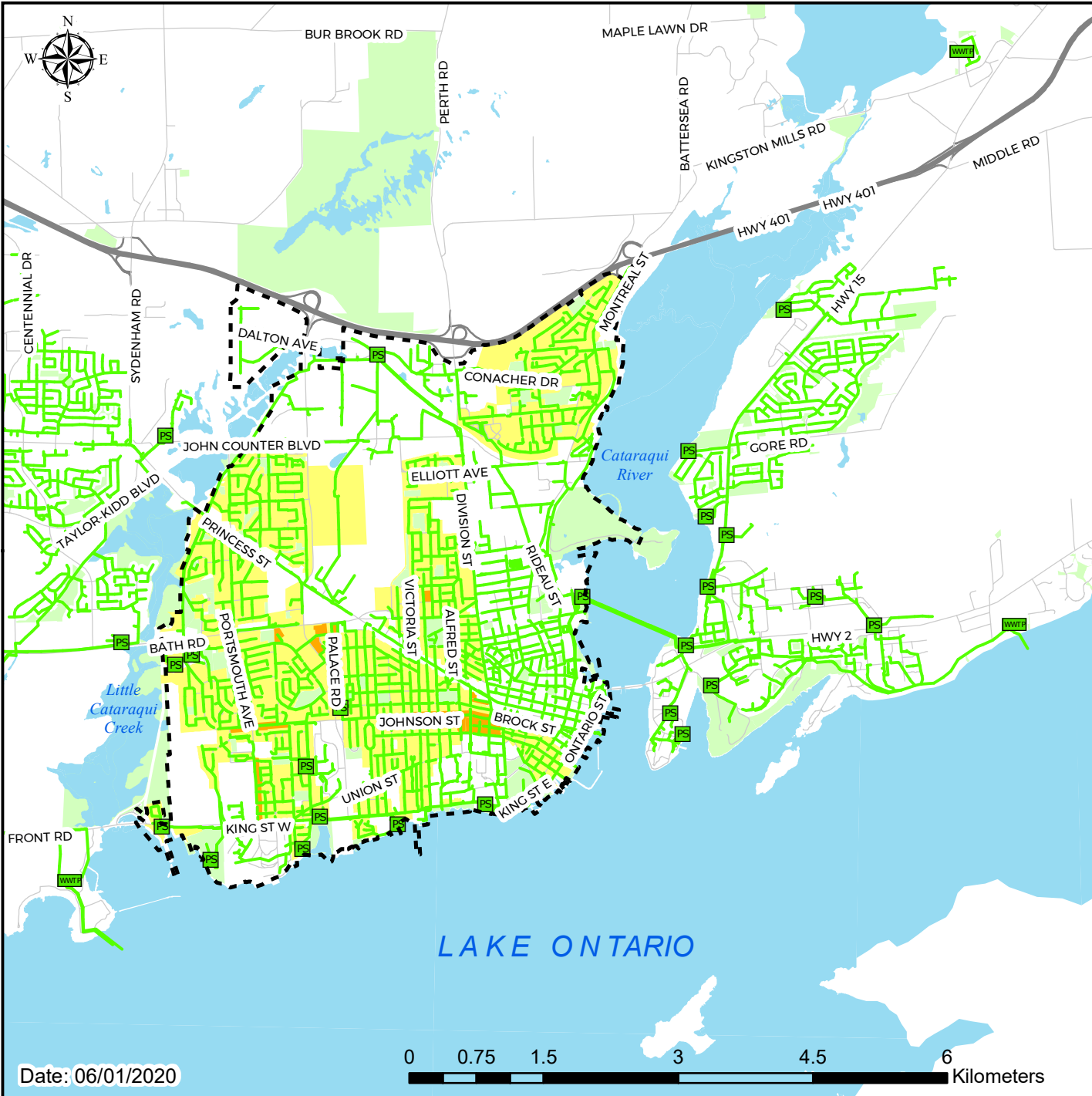
- Kingston Neighbourhood
- Central Kingston Growth Study Area
- Intensification Area
- Parks

GIS Data provided by City of Kingston, Kingston Open Data Catalogue and adopted from Kingston Active Transportation Master Plan (June 2018)

**Figure 1**  
**Study Area and Kingston Neighbourhoods**

Date: 06/01/2020

# Central Kingston Growth Strategy



### Legend

- Central Kingston
- Central Kingston Growth Study Area
- Intensification Area
- Parks
- Wastewater Treatment Plant Sanitary Pumping
- Station
- Sanitary Pipe

Data provided by City of Kingston, Utilities Kingston and from Kingston Open Data Catalogue.

## Figure 2

### Kingston Existing Sanitary Pipe Network



Table 1: Study Area Wastewater Sewer Sizes

Diameter (mm)	Study Area Pipe Length* (m)
50	50
75	24
100	19
125	432
150	3,884
200	53,791
225	5,645
250	32,257
300	19,360
350	905
375	5,091
400	342
450	5,126
500	174
525	1,466
600	2,353
675	1,782
750	1,088
825	1,141
900	1,301
1,050	465
1,200	485
1,350	189
1,500	0
2,000	0
2,400	0
3,200	0
Unspecified	473
<b>Total</b>	<b>137,843</b>

a. Sanitary pipe included in the query: All pipes, maintenance hole pipe leads and sanitary lateral connections to private properties.

b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a 'snapshot' of available asset information at the beginning of the 2018 for the study area where 'unspecified' includes abandoned or removed pipes.

\* Data was obtained from GIS files provided by Utilities Kingston. Study Area data obtained from 2018 GIS information. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.

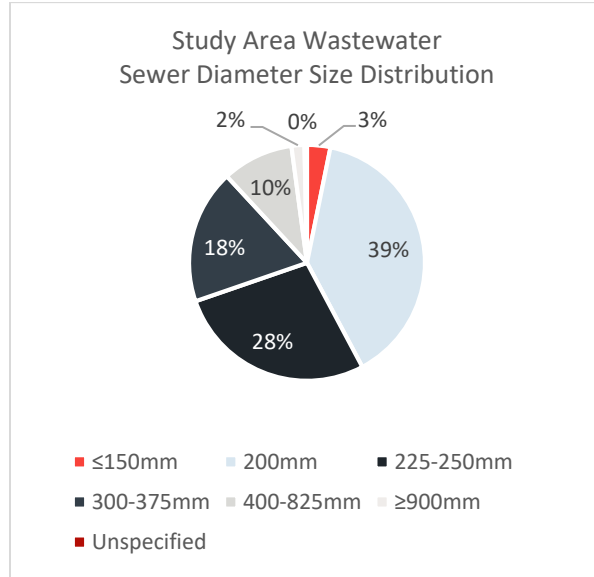


Figure 3: Study Area Wastewater Sewer Diameter Size Distribution

Figure 4 illustrates the locations of the pipe segments in relation to diameter size within the study limits. It should be noted that due to gaps in as-built information for several pipes, the size category “unspecified” is included where pipe diameters are unknown.

# Central Kingston Growth Strategy



**Legend**

- Central Kingston
- Central Kingston Growth Study Area
- Intensification Area
- Parks
- Wastewater Treatment Plant
- Sanitary Booster Station

**Sanitary Pipe Diameter**

- UNKNOWN
- ≤150mm
- 200mm
- 225-250mm
- 300-375mm
- 400-825mm
- ≥900mm

Data provided by City of Kingston, Utilities Kingston and from Kingston Open Data Catalogue.

**Figure 4**  
**Kingston Existing Sanitary Pipe Diameter**

Date: 06/01/2020

0 0.5 1 2 3 4 Kilometers

The Central Kingston wastewater collection system piping is constructed primarily of asbestos cement, clay, concrete, stone, and polyvinyl chloride (PVC). A summary of pipe materials with respect to pipe lengths is provided in Table 2 and Figure 5. Figure 6 illustrates the locations of the pipe segments in relation to material type within the Central Kingston area. It should be noted that the material of several pipes is unspecified due to gaps in the asset inventory with respect to material. It is to be observed from Table 2 that there is a greater Total Pipe Length's for Concrete and Other Material categories in the study area data set as compared to the Central Kingston data. It is assumed that this is reflective of more recent (2018) GIS data provided for just the study area.

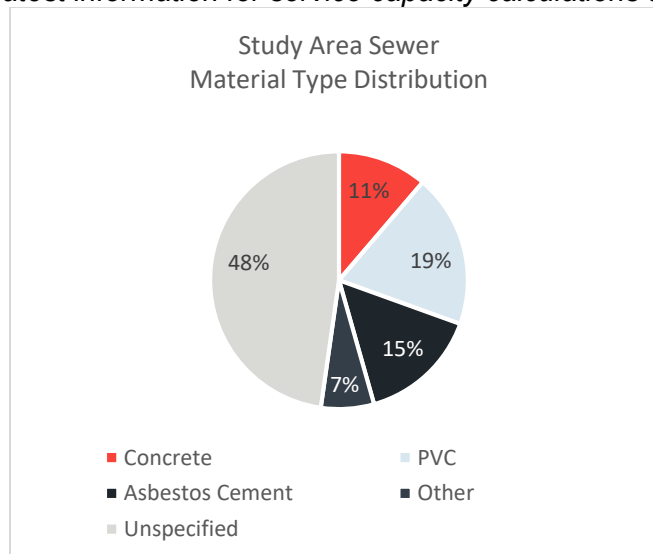
*Table 2: Study Area Wastewater Sewer Material*

Material	Study Area Total Pipe Length (m)*
Concrete	15,526
PVC	26,531
Asbestos Cement	20,811
Other (such as cast iron, CIPP, st	9,176
Unspecified	65,799
<b>Total</b>	<b>137,843</b>

- a. Sanitary pipe included in the query: All pipes, maintenance hole pipe leads and sanitary lateral connections to private properties.
- b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned

or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a 'snapshot' of available asset information at the beginning of the 2018 for the study area where 'unspecified' includes abandoned or removed pipes.

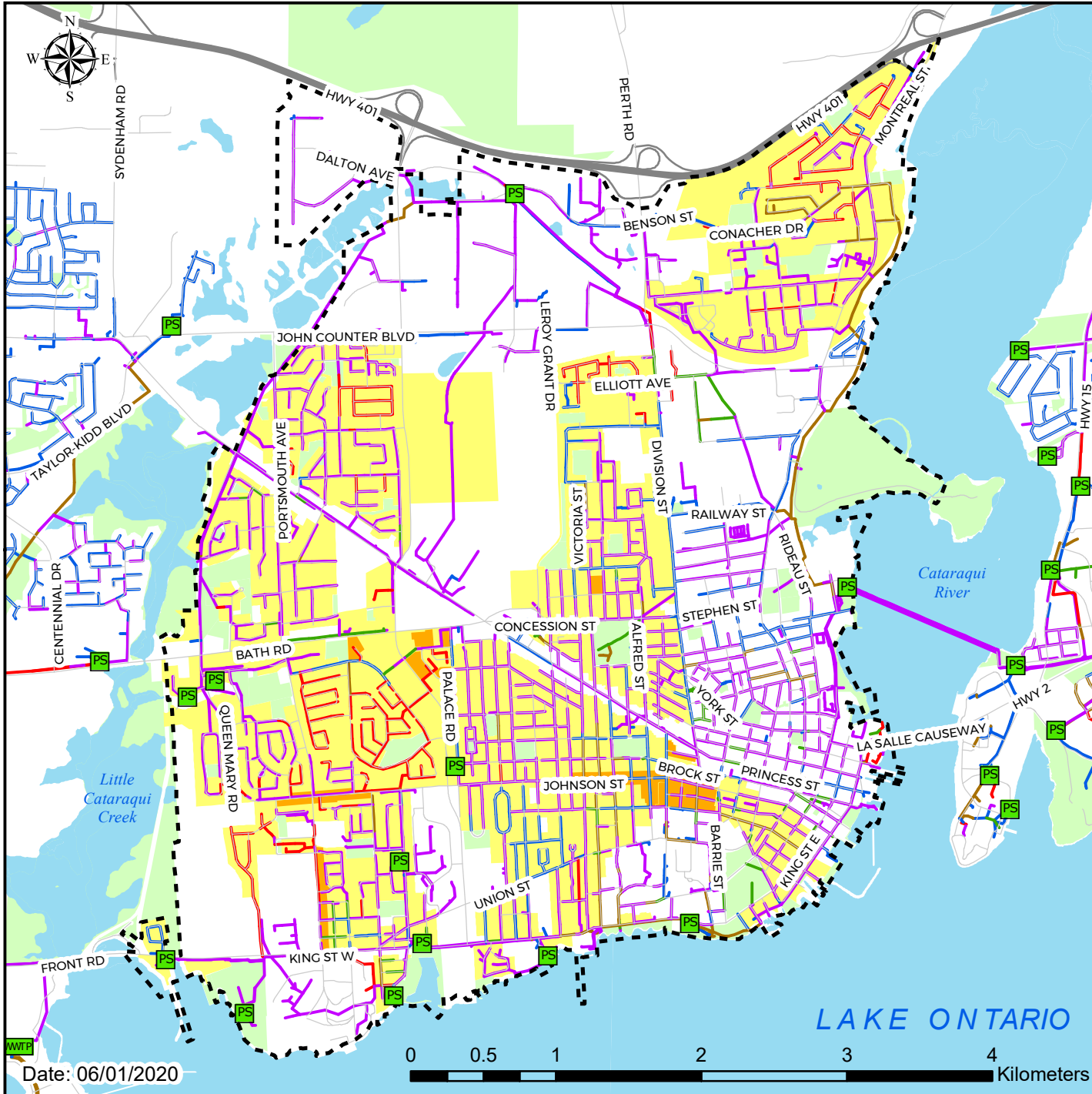
*\* Data was obtained from GIS files provided by Utilities Kingston. Study Area data obtained from 2018 GIS information. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.*



*Figure 5: Study Area Wastewater Sewer Material Type Distribution*



# Central Kingston Growth Strategy



**Legend**

- Central Kingston
- Central Kingston Growth Study Area
- Intensification Area Parks Wastewater
- Treatment Plant
- Waste Water Treatment Plant
- Sanitary Pumping Station

**Sanitary Pipe Material**

- Unknown ASBESTOS
- CEMENT
- Other
- CONCRETE
- PVC

Data provided by City of Kingston and from Kingston Open Data Catalogue.

**Figure 6**  
**Kingston Existing Sanitary Pipe Material**

Date: 06/01/2020

0 0.5 1 2 3 4 Kilometers



The Central Kingston wastewater collection system was built between 1900 and the present day. A summary of pipe installation years is presented in Table 3 and Figure 7. Figure 8 illustrates the locations of the pipe segments in relation to their age within the study limits.

Table 3: Study Area Wastewater Collection System Installation Year

Year Installed	Study Area Total Length of Pipe (m)
1900 - 1950	15,343
1951 - 1980	62,001
1981 - 2000	27,876
2001 - 2018	25,852
Unspecified	6,771
<b>Total</b>	<b>137,843</b>

- a. Sanitary pipe included in the query: All pipes, maintenance hole pipe leads and sanitary lateral connections to private properties.
- b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a ‘snapshot’ of available asset information at the beginning of the 2018 for the study area where ‘unspecified’ includes abandoned or removed pipes.

\* Data was obtained from GIS files provided by Utilities Kingston. Study Area data obtained from 2018 GIS information. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.

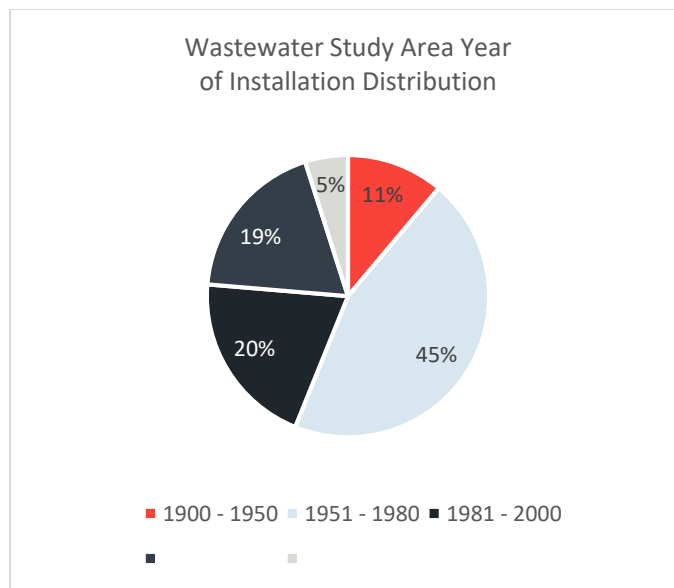


Figure 7: Study Area Wastewater Sewer Year of Installation Distribution

# Central Kingston Growth Strategy



**Legend**

- Central Kingston
- Central Kingston Growth Study Area
- Intensification Area
- Parks
- Wastewater Treatment Plant
- Sanitary Pumping Station

**Sanitary Pipe Year Installed**

- UNKNOWN
- 1900-1950
- 1951-1980
- 1981-2000
- 2001-2018

Data provided by City of Kingston, Utilities Kingston and from Kingston Open Data Catalogue.

**Figure 8**  
**Kingston Existing Sanitary Pipe Installation Year**

Date: 06/01/2020

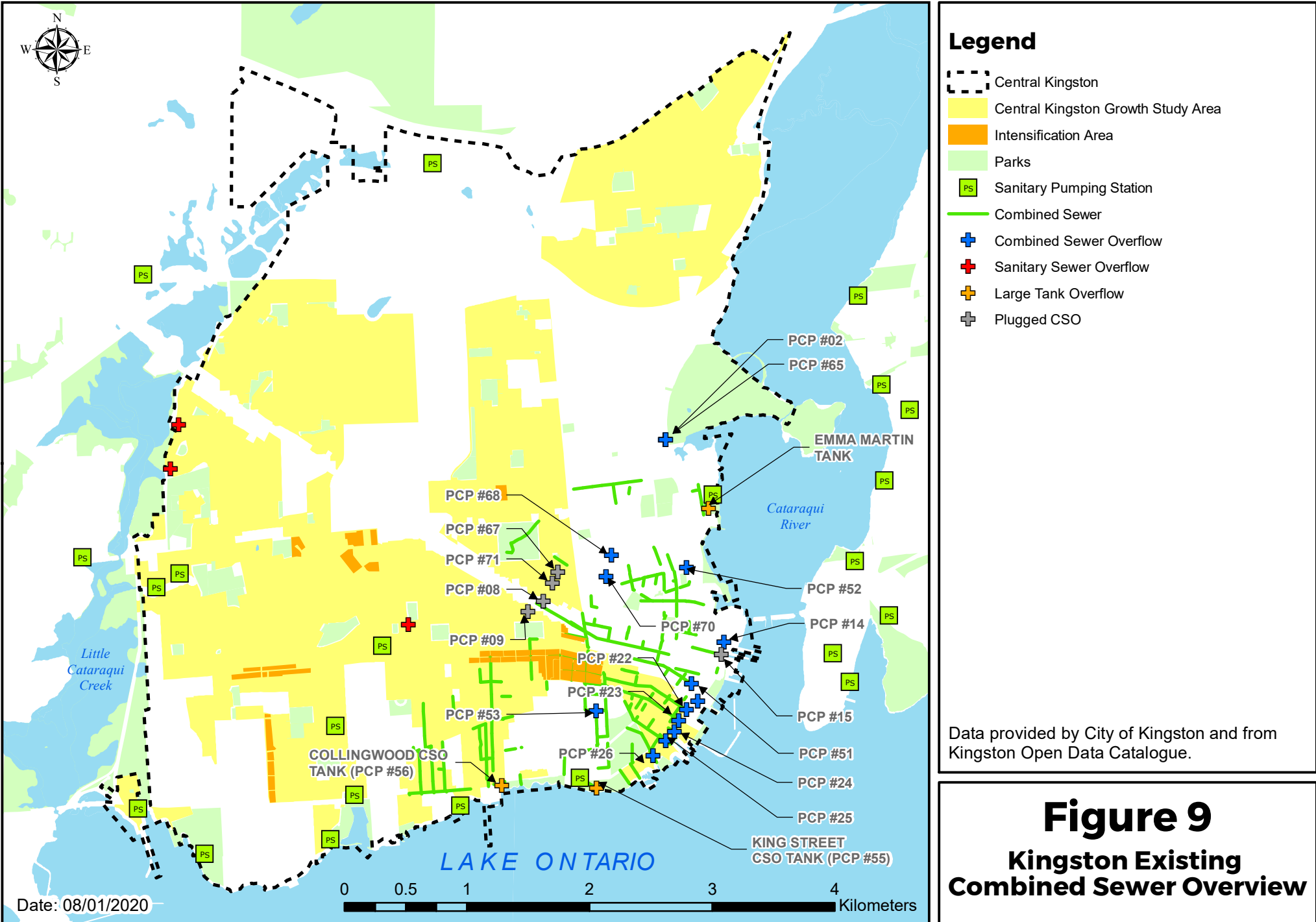




## Central Kingston Combined Sewer System

The City of Kingston has some pipe networks within the study area that are combined sanitary-storm sewers. Combined sewers are those that collect and convey both sanitary and storm water runoff. They are predominantly located in the older areas of the City, installed before sanitary treatment was widely used by municipalities. Partially separated sewers are sanitary sewers that additionally collect and convey storm water from roof leaders, downspouts, sub drains and building sump pumps. The City does not permit storm water connection to the sanitary system, however there are many areas of the City where this occurs. Accurate and complete records of these areas are not available. Separated sanitary sewers convey only sanitary wastewater, however are still subject to infiltration and inflow. All new development is serviced with separate sanitary and storm sewers. The City of Kingston's Official Plan prohibits any new storm or sanitary system to connect to existing combined sewer systems. Figure 9 presents an overview of the combined sewers in Central Kingston.

# Central Kingston Growth Strategy



**Figure 9**  
**Kingston Existing Combined Sewer Overview**

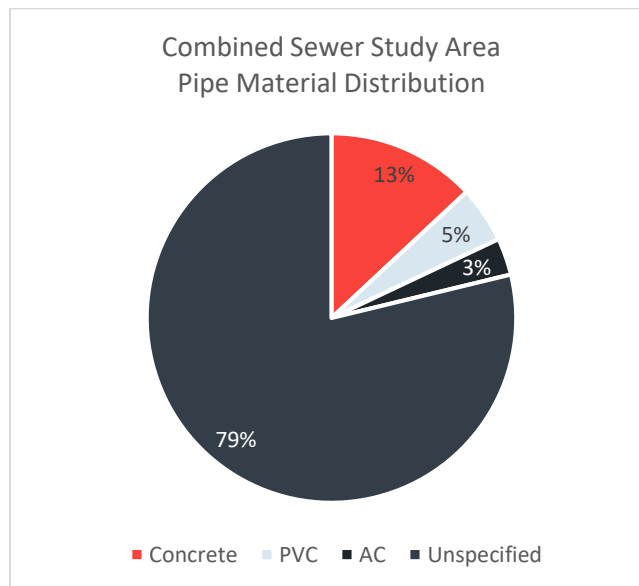
The Central Kingston combined sewer system is generally constructed from concrete, PVC, and Asbestos Cement (AC). A summary of pipe materials with respect to pipe lengths is provided in Table 4 and Figure 10. It should be noted that the material of several pipes is unspecified due to gaps in the asset inventory with respect to material.

*Table 4: Study Area Combined Sewer Material*

Material	Study Area Combined Pipe Length (m)
Concrete	1154
PVC	436
AC	286
Unspecified	6,967
<b>Total</b>	<b>8,843</b>

- a. Sanitary pipe included in the query: All pipes, maintenance hole pipe leads.
- b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a ‘snapshot’ of available asset information at the beginning of the 2018 for the study area where ‘unspecified’ includes abandoned or removed pipes.

*\* Data was obtained from GIS files provided by Utilities Kingston. Study Area data obtained from 2018 GIS information. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.*



*Figure 10: Study Area Combined Sewer Material Distribution Based on Total System Pipe Length*

The diameters of the combined sewer system pipes in the study area vary between 150 mm and 1,350 mm as described in Table 5 and Figure 11.

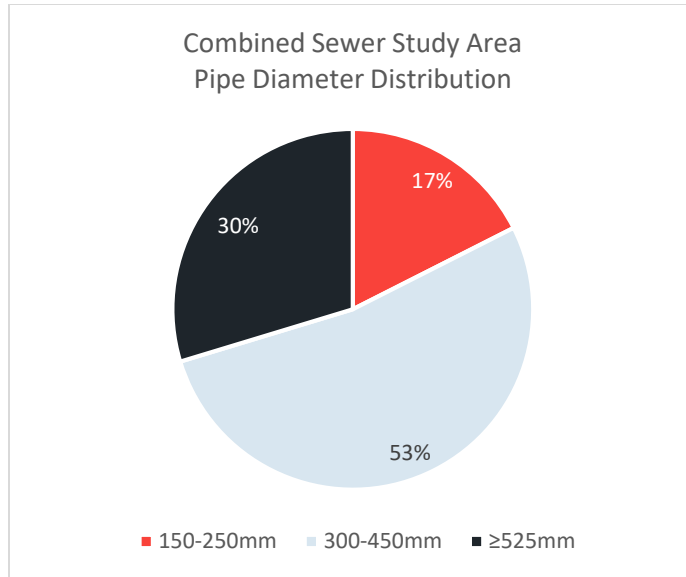


Table 5: Study Area Combined Sewer Diameters

Diameter (mm)	Study Area Total Pipe Length* (m)
150	105
200	413
225	978
250	56
300	2,381
350	18
375	1,255
450	1,012
525	586
600	716
675	569
750	175
825	86
900	200
1,050	149
1,350	144
<b>Total</b>	<b>8,843</b>

- a. Sanitary pipe included in the query: All pipes, maintenance hole pipe leads.
- b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a 'snapshot' of available asset information at the beginning of the 2018 for the study area where 'unspecified' includes abandoned or removed pipes.

*\* Data was obtained from GIS files provided by Utilities Kingston. Study Area data obtained from 2018 GIS information. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.*



*Figure 11: Study Area Combined Sewer Pipe Diameter Distribution*





## Active Combined Sewer Overflows

Combined sewer overflow information in this section was collected from the City of Kingston Pollution Prevention Control Plan (PPCP) locations found within the study area of this project.

### **Pollution Control Plan (PCP) #02 & Pollution Prevention Control Plan (PPCP) #65 Belle Park**

PCP #2 is a CSO from trunk and PCP #65 is a SSO (Sanitary Sewer Overflow) from a local collector, both located in the same chamber in Belle Park behind 525 Rideau Street. PCP #2 services two incoming 900 mm trunk sewers, and PCP #65 services the 1,200 mm local sanitary sewer. A 1,800 mm storm sewer passes through the chamber and receives overflows which discharges to outlet. Low flow from the 1,200 mm sanitary enter a 390 mm orifice and proceeds to the main mixing chamber. Flow from the two 900 mm sanitary trunk sewers enter the main mixing chamber. Overflows from the 1,200 mm sanitary sewer enter directly to the upper level 1,200 mm storm sewer. Low flow from the mixing chamber proceeds to the lower level 1,200 mm sewer to River Street Pumping Station. Overflow from the mixing chamber is conveyed to the upper level 1,200 mm storm sewer which outlets to the Lake.

### **Pollution Prevention Control Plan (PPCP) #14 Barrack Street**

PCP#14 is a CSO from trunk located in a manhole in the right exit lane of the Wolfe Island Ferry Dock. There is a flap gate preventing lake water from entering. From the 1,200 mm trunk sewer, there is a 900 mm outlet to the east that travels into the CSO manhole. Under low flow conditions, sanitary from the east flows west via the 900 mm combined sewer. During an overflow event, sanitary flow from the trunk sewer will back up and flow east to the manhole. The CSO manhole has a weir inside (500 mm higher than low flow outlet) which prevents overflow from entering the adjacent 900 mm storm sewer under low flow conditions.

### **Pollution Prevention Control Plan (PPCP) #22 William Street**

PCP#22 is a CSO in line tank outlet from a local collector located on William Street between King Street and Ontario Street. It is a 41 m long 1,650 x1,340 mm elliptical concrete pipe with a volume of 88 m<sup>3</sup>. Combined sewer flow from the west (600 mm) enters the tank. The outlet chamber is equipped with a vortex device to limit outflows to 15 L/s. Under low flow conditions, sanitary flow is directed to a 300 mm outlet. Under high flow conditions, flow that cannot be contained in the tank will outlet via the 450 mm storm sewer to the east (storage overflow weir is 2220 mm higher than the low flow outlet).



### **Pollution Prevention Control Plan (PPCP) #23 Earl Street**

PPCP#23 is a CSO in line tank outlet from a local collector located on Earl Street between King Street and Ontario Street. It is a 46m long 2,110 x 1,340 mm elliptical concrete pipe with a volume of 106 m<sup>3</sup>. Combined sewer flow from the west (600 mm diameter) enters the tank. The outlet chamber is equipped with a vortex device to limit outflows to 15 L/s. The overflow is located in a manhole downstream of the tank outlet chamber. The downstream manhole has a weir with a 200 mm diameter sanitary orifice which directs low flow to a 200 mm diameter sanitary sewer outlet under low flow conditions. Under high flow conditions, flow that cannot be contained in the tank is directed to a 525 mm diameter storm sewer to the east (storage overflow weir is 3,000 mm higher than the low flow outlet and is equipped with a cone sieve at the storm outlet to limit floatables).

### **Pollution Prevention Control Plan (PPCP) #24 Gore Street**

PPCP#24 is a CSO in line tank outlet from a local collector located on Gore Street between King Street and Ontario Street. It is a 61 m long 1,095 x 1,730 mm elliptical concrete pipe with a volume of 95 m<sup>3</sup>. 300 mm diameter sanitary and 300 mm diameter storm sewer flow from the west (600 mm diameter) enters the tank. The outlet chamber is equipped with a vortex device to limit outflows to 15 L/s. Under low flow conditions, flow from the sanitary sewer continues to the 200 mm diameter sanitary outlet. Under high flow conditions, storm/sanitary flow that cannot be contained in the tank will outlet via the 375 mm diameter storm sewer outlet (storage overflow weir is 1,670 mm higher than the low flow outlet).

### **Pollution Prevention Control Plan (PPCP) #25 Lower Union Street**

PPCP#25 is a CSO in line tank outlet from a local collector located on Lower Union Street between King Street and Ontario Street. It is a 46 m long 1,340 x 2,110 mm elliptical concrete pipe with a volume of 115 m<sup>3</sup>. Combined sewer flow from the west and north (600 mm and 350 mm diameter respectively) enters the tank. The outlet chamber is equipped with a vortex device to limit outflows to 15 L/s. The overflow is located in a manhole downstream of the tank outlet chamber. Under low flow conditions, the downstream manhole directs flow to a 450 mm diameter sanitary sewer outlet to the east. Under high flow conditions, flow that cannot be contained in the tank is directed over a weir to a 450 mm diameter storm sewer to the east (storage overflow weir is 2,550 mm higher than the low flow outlet).

### **Pollution Prevention Control Plan (PPCP) #26 West Street**

PPCP#26 is a CSO from a trunk sewer located in a manhole at the bend where West Street turns east becoming Ontario Street. Under low flow conditions, sanitary flow from the west and south (375 mm combined sewer and 900 mm sanitary sewer respectively) continues north to the 1,200 mm sanitary trunk. Under high flow conditions, combined and sanitary flow will rise above the weir and overflow to the east 900 mm storm sewer (storage overflow weir is 1,400 mm higher than the low flow outlet).



### **Pollution Prevention Control Plan (PPCP) #51 Clarence Street**

PPCP#51 is a CSO in line tank outlet from a local collector located on Clarence Street between King Street and Wellington Street. It is a 78.5 m long box culvert (half 1,800 x 2,400 mm and half 1,800 x 3,000 mm) with a volume of 380 m<sup>3</sup>. Combined sewer flow from the west (450 mm) enters the tank. The outlet chamber is equipped with a vortex device to limit outflows to 15 L/s. Under low flow conditions, the outlet chamber directs flow to a 250 mm sanitary sewer outlet to the east. Under high flow conditions, flows that cannot be contained in the tank is directed over a weir to a 375 mm storm sewer over a to the east (storage overflow weir is 2,810 mm higher than the low flow outlet).

### **Pollution Prevention Control Plan (PCP) #52 Raglan Road**

PPCP#52 is a CSO from a local collector located in a manhole on Raglan Road just west of the Rideau Street intersection. Under low flow conditions, combined wastewater flow from the west (900 mm) enters the manhole and proceeds south east to the 375mm outlet sanitary sewer. Under high flow conditions, flows are directed over a weir and into the 900 mm overflow to the adjacent 900 mm storm sewer (weir is 550 mm higher than the low flow sanitary outlet).

### **Pollution Prevention Control Plan (PCP) #53 Union Street**

PPCP#53 is a CSO from a local collector located in a manhole on Union Street at the Division Street intersection. Under low flow conditions, combined wastewater flow from the west (1,350 mm) enters the manhole and proceeds east to the 1,350 mm outlet combined sewer. Under high flow conditions, flows are directed over a weir and into the 900 mm overflow to the adjacent 1,050 mm storm sewer.

### **Pollution Control Plan (PCP) (PCP) #55 King Street Tank Overflow**

PCP#55 is located in a chamber at the east end of the King St. CSO tank near the Murney Tower parking lot. Combined sewer from the King St. Pump Station enters the CSO tank via a 1,200 mm sewer and is stored until it can be pumped back into the King St. Pump Station. During an overflow event, when the tank reaches capacity, combined wastewater is directed into an overflow trough and on to the overflow chamber to a 1,350 mm storm sewer.



### **Pollution Prevention Control Plan (PPCP) #56 Collingwood Street**

PPCP#56 is located in a chamber at the south west corner of the Collingwood CSO Tank at Collingwood Street south of King Street. Combined sewer enters the CSO tank via a 1,200 mm diameter combined sewer pipe and is stored until it can be pumped back to the gravity system via a 250 mm diameter sanitary forcemain. During an overflow event, when the tank reaches capacity, the combined wastewater is directed into an overflow chamber to a 1,425 x 1,925 mm storm sewer outlet pipe.

### **Pollution Control Plan (PCP) #68 Quebec Street**

PCP#68 is a CSO located in a manhole on Quebec Street in the Barrie Street intersection. Under low flow conditions, wastewater flow from the south and west (300 mm and 375 mm respectively) enters the manhole and proceeds north to the 450 mm sanitary sewer. Under high flow conditions, flows are directed over a weir into a 375 mm overflow pipe to the adjacent 1,050 mm storm sewer (770 mm higher than the low flow outlet).

### **Pollution Control Plan (PCP) #70 Carlisle Street**

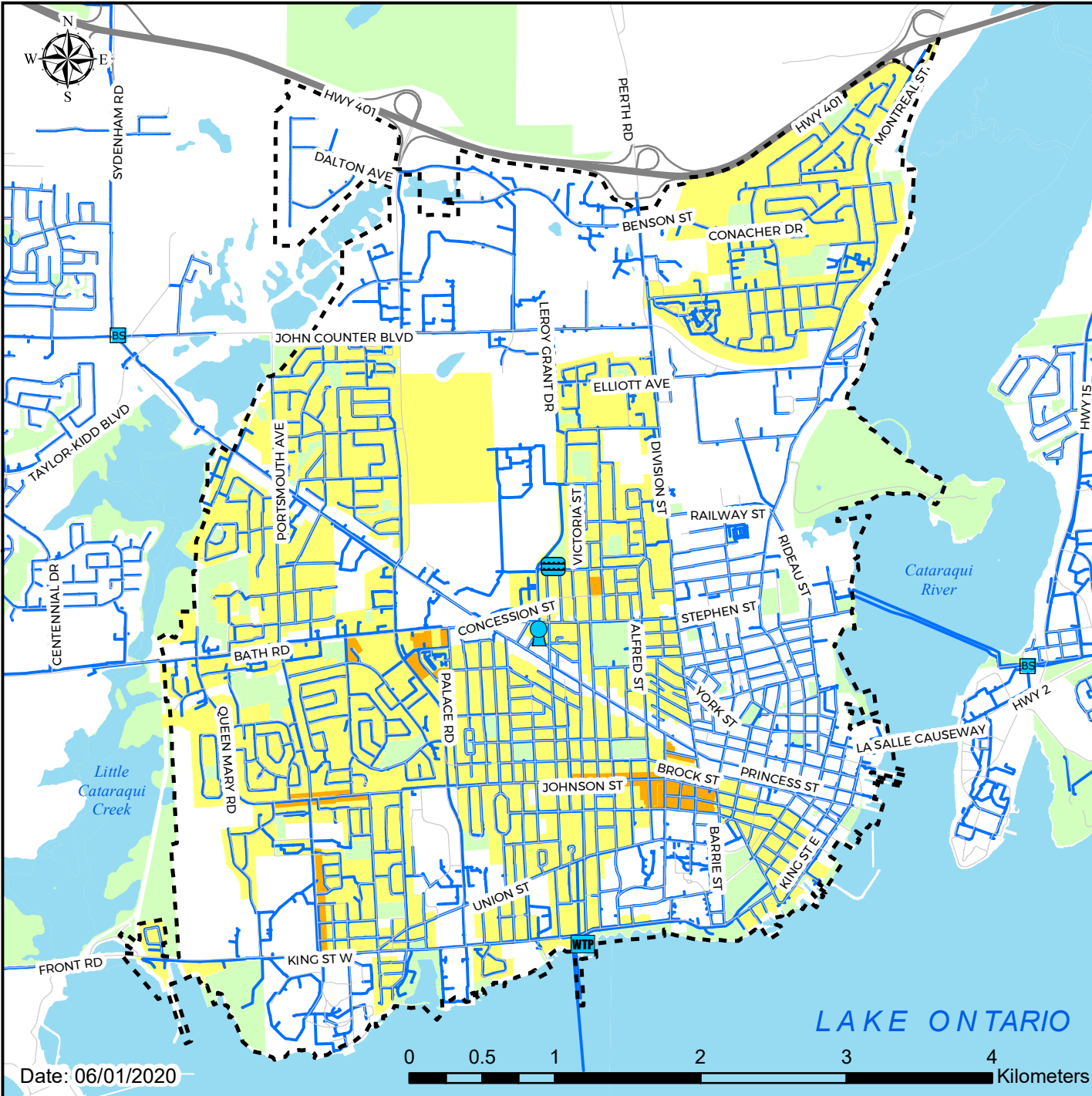
PCP#70 is a CSO located in a manhole in the intersection of Carlisle Street and Chestnut Street. Under low flow conditions, wastewater flow from the south and west (300 mm and 225 mm respectively) enters the manhole and proceeds east to the 375 mm sanitary sewer. Under high flow conditions, flows are directed to a 375 mm overflow pipe to the adjacent 1,350 mm storm sewer (513 mm higher than the low flow outlet). As of 2015, PCP#70 has been temporarily plugged.

### **Central Kingston Water Distribution System**

The Central Kingston water distribution system comprises an area of approximately 2,919 ha. It is generally bordered by Little Cataraqui Creek to the west, Macdonald-Cartier Freeway (Highway 401) to the north, Cataraqui River to the east and Lake Ontario to the south. The Central Kingston water distribution serves a population of 54,600 citizens and comprises over 300 km of watermain. Central Kingston comprises of one water treatment plant, one (1) reservoir/booster station and one (1) elevated storage tank. Figure 12 presents an overview of the water distribution system.

The diameters of the water network pipes in the Central Kingston Area varies between 25 mm and 1,200 mm as described in Table 6 and Figure 13. Figure 14 illustrates the locations of the pipe segments in relation to pipe diameter within the study limits. It should be noted that due to gaps in information for a few pipes, the size category “unspecified” is used for unknown pipe diameters. It is assumed that data presented is reflective of more recent (2018) GIS data provided for just the study area as a ‘snapshot’ of existing infrastructure.

# Central Kingston Growth Strategy



**Legend**

- Central Kingston
- Central Kingston Growth Study Area
- Intensification Area
- Parks
- Water Treatment Plant
- Water Booster Station
- Water Tower
- Water Reservoir
- Water Pipe

Data provided by City of Kingston, Utilities Kingston and from Kingston Open Data Catalogue.

**Figure 12**  
**Kingston Existing Water Network Overview**



Table 6: Study Area Water Pipe Sizes

Diameter (mm)	Study Area Total Pipe Length (m)
25	26
38	94
50	540
75	0
100	1,954
125	3
150	59,823
175	280
200	45,746
250	4,324
300	17,060
400	8,340
450	4,392
500	3,782
600	2,492
750	2,080
1,200	0
Unspecified	9
<b>Total</b>	<b>150,945</b>

- a. Water pipe included in the query: All pipes, hydrant leads and laterals for private water service connections.
- b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a 'snapshot' of available asset information at the beginning of the 2018 for the study area where 'unspecified' includes abandoned or removed pipes.

*\* Data was obtained from GIS files provided by Utilities Kingston. Study Area data obtained from 2018 GIS information. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.*

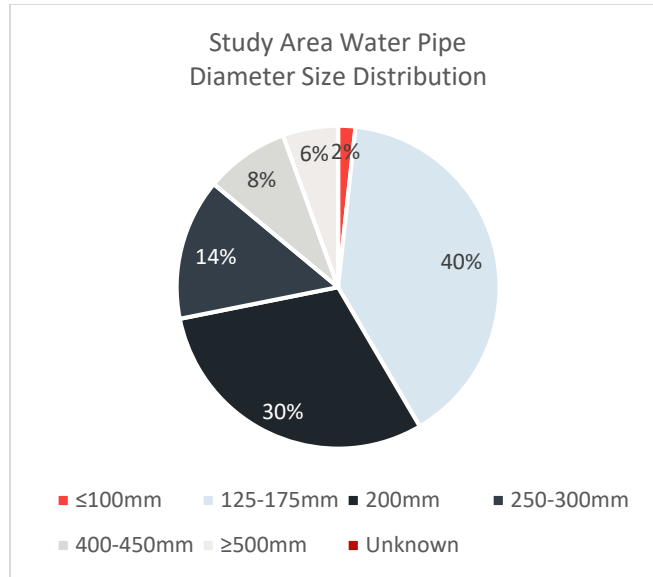
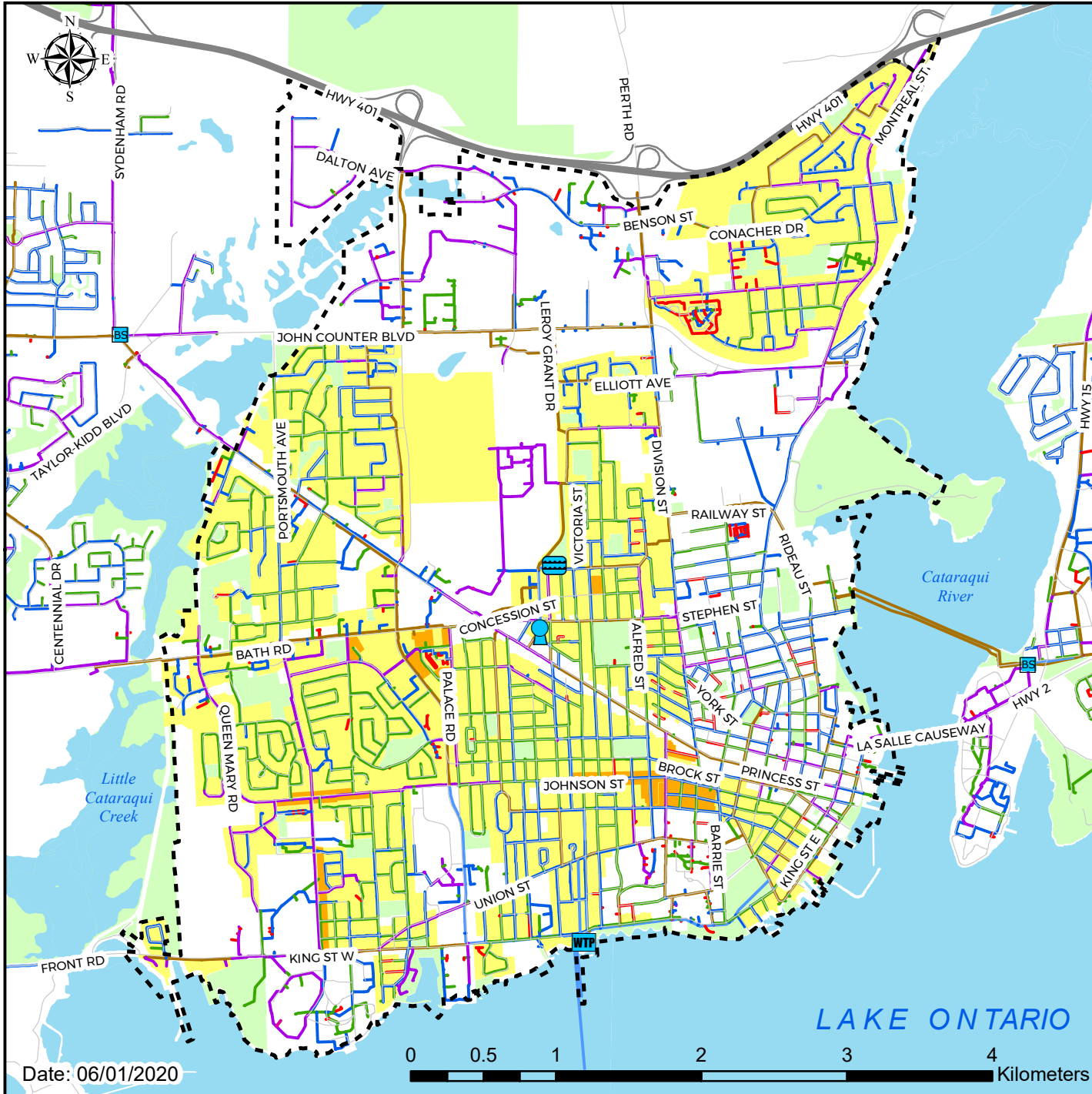


Figure 13: Study Area Water Pipe Diameter Size Distribution

# Central Kingston Growth Strategy



**Legend**

- Central Kingston
- Central Kingston Growth Study Area
- Intensification Area
- Parks
- WTP Water Treatment Plant
- BS Water Booster Station
- Water Tower
- Water Reservoir

**Water Pipe Size**

- Unknown
- ≤100mm
- 150-175mm
- 200mm
- 250-300mm
- 400-500mm
- ≥600mm

Data provided by City of Kingston, Utilities Kingston and from Kingston Open Data Catalogue.

**Figure 14**  
**Kingston Existing Water Pipe Sizes**

Date: 06/01/2020

0 0.5 1 2 3 4 Kilometers





The Central Kingston water system is constructed of cast iron, copper, ductile iron, high density polyethylene (HDPE), polyvinyl chloride (PVC) and concrete material. A summary of pipe materials with respect to pipe lengths is provided in Table 7 and Figure 15. Figure 16 illustrates the locations of the pipe segments in relation to material type within the Central Kingston Area. It should be noted that the material of some pipes is unspecified where gaps in available asset inventory with respect to material exist.

Table 7: Study Area Water Pipe Material

Material Type	Study Area Total Pipe Length (m)
Cast Iron	78,027
PVC/HDPE	28,036
Ductile Iron	35,108
Copper	483
Concrete	7,845
Unspecified	1,446
<b>Total</b>	<b>150,945</b>

- a. Water pipe included in the query: All pipes, hydrant leads and laterals for private water service connections.
- b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a 'snapshot' of available asset information at the beginning of the 2018 for the study area where 'unspecified' includes abandoned or removed pipes.

\* Data was obtained from GIS files provided by Utilities Kingston. Study Area data obtained from 2018 GIS information. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.

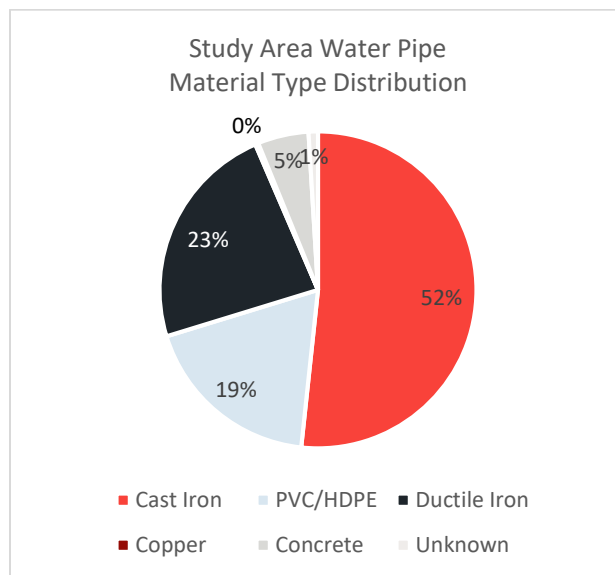
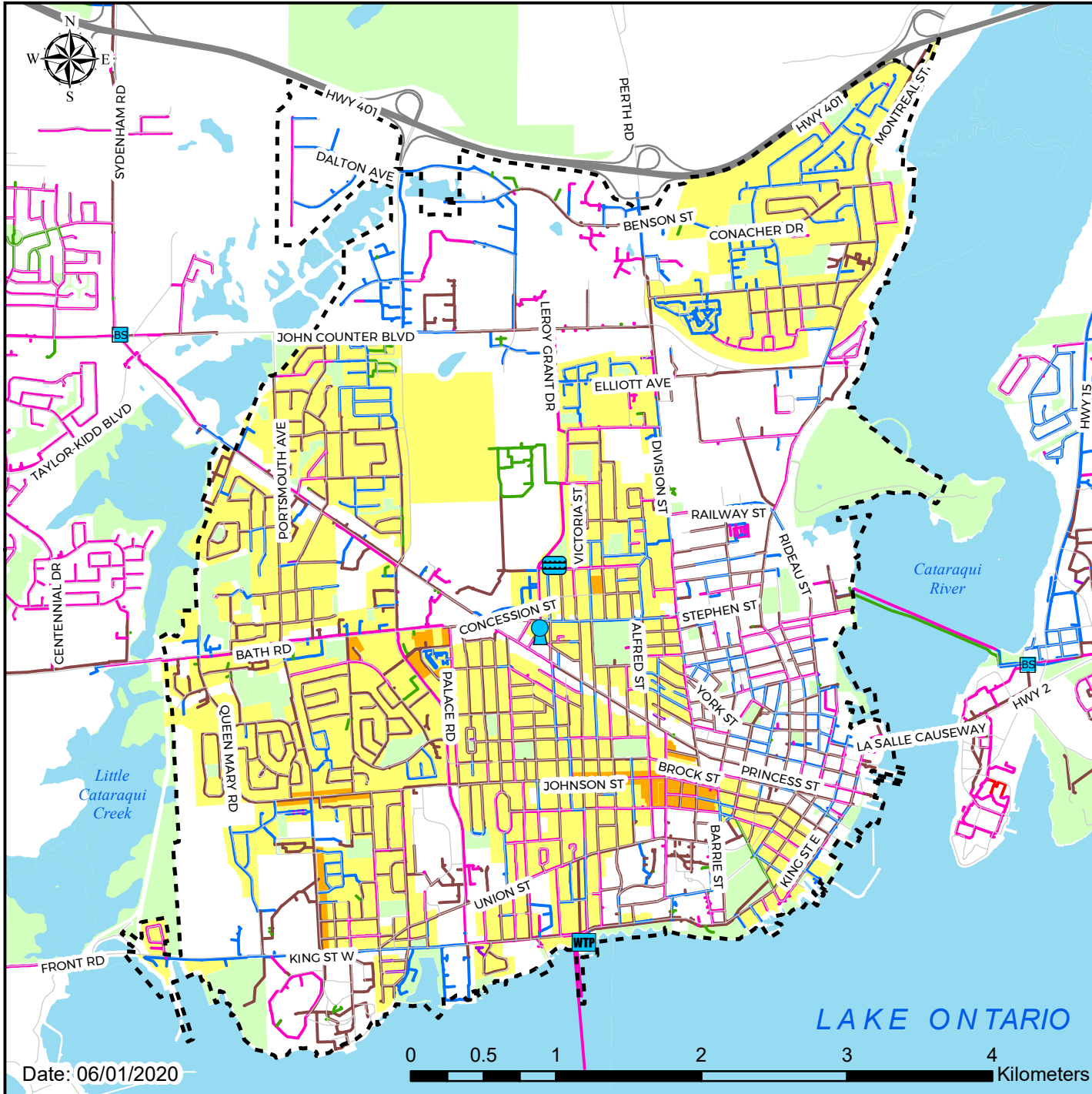


Figure 15: Study Area Water Pipe Material Type Distribution

# Central Kingston Growth Strategy



**Legend**

- Central Kingston
- Central Kingston Growth Study Area
- Intensification Area
- Parks
- Water Treatment Plant
- Water Booster Station
- Water Tower
- Water Reservoir

**Water Pipe Material**

- CI
- CU
- DI
- PVC/ HDPE
- Unspecified
- Other

Data provided by City of Kingston, Utilities Kingston and from Kingston Open Data Catalogue.

**Figure 16**  
**Kingston Existing Water Pipe Material**

Date: 06/01/2020

0 0.5 1 2 3 4 Kilometers

The Central Kingston water system was built between 1900 and the present day. A summary of pipe installation years is presented in Table 8 and Figure 17. Figure 18 illustrates the locations of the pipe segments in relation to their age within the study limits. It should be noted that due to incomplete information for some pipes, the construction year category “unspecified” is included in the age distribution for pipes. GIS data supplied by the City and is regarded as a “snapshot” of the existing condition at the beginning of 2018.

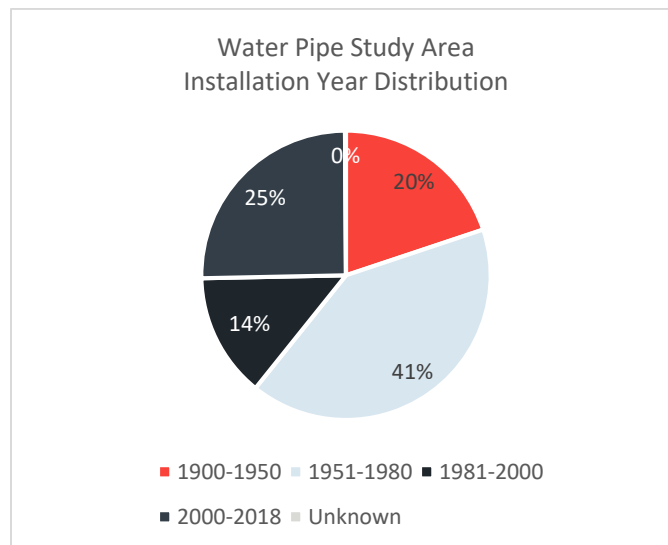
*Table 8: Study Area Water Pipe Installation Year*

Year Installed	Study Area Total Pipe Length (m)*
1900 - 1950	30,004
1951 - 1980	61,712
1981 - 2000	21,003
2001 - 2018	38,058
Unspecified	168
<b>Total</b>	<b>150,945</b>

- a. Water pipe included in the query: All pipes, hydrant leads and laterals for private water service connections.
- b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a

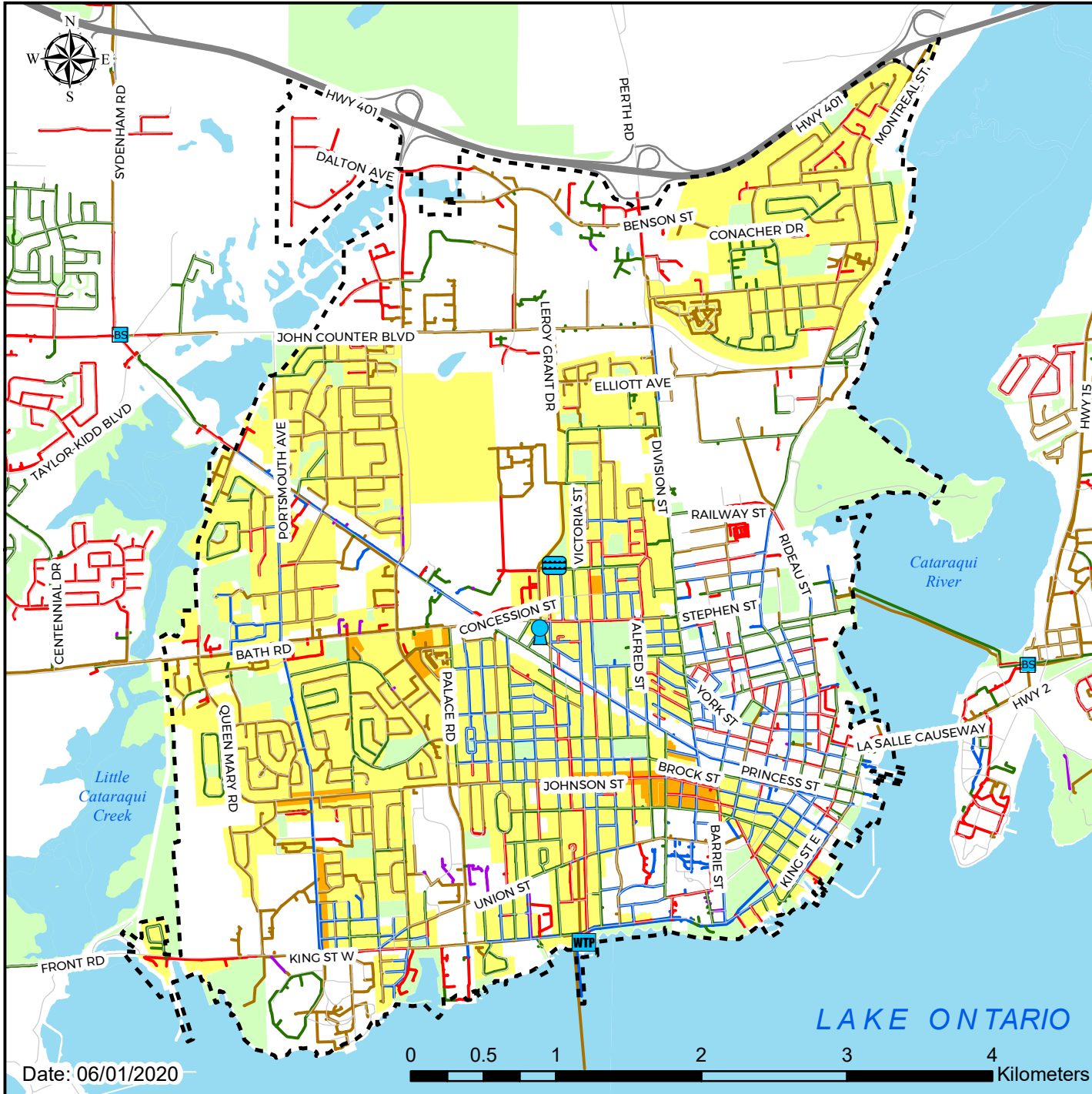
‘snapshot’ of available asset information at the beginning of the 2018 for the study area where ‘unspecified’ includes abandoned or removed pipes.

\* Data was obtained from GIS files provided by Utilities Kingston. Study Area data obtained from 2018 GIS information. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.



*Figure 17: Study Area Water Pipe Installation Year Distribution*

# Central Kingston Growth Strategy



**Legend**

- Central Kingston
- Central Kingston Growth Study Area
- Intensification Area
- Parks
- WTP Water Treatment Plant
- BS Water Booster Station
- Water Tower
- Water Reservoir

**Water Pipe Year Installed**

- Unknown
- 1900-1950
- 1951-1980
- 1981-2000
- 2001-2018

Data provided by City of Kingston, Utilities Kingston and from Kingston Open Data Catalogue.

**Figure 18**  
**Kingston Existing Water Pipe Installation Year**

Date: 06/01/2020

0 0.5 1 2 3 4 Kilometers



## Water Reservoir and Tower

The Central Kingston Water System has one (1) reservoir, the Third Avenue Reservoir.

Table 9 provides information on characteristics of the reservoir.

Table 9: Central Kingston Water Pipe Installation Year

Reservoir	Location	No. of Pumps	Total Storage Volume	Functional Storage Volume	Average Daily Flow
Third Ave.	141 Third Avenue	2	23,200 m <sup>3</sup>	12,800 m <sup>3</sup>	31,600 m <sup>3</sup> /d

The Central Kingston Water System has one (1) water tower. Table 10 provides an overview of the water tower characteristics.

Table 10: Central Kingston Water Tower

Water Tower	Location	Total Volume	Functional Volume	High Water Level
Tower St.	27 Tower Street	3,400 m <sup>3</sup>	1,900 m <sup>3</sup>	139.5 m

## Regulatory Requirements

### MOE Guideline F-5

The Ministry of the Environment, Conservation and Parks (MECP), previously known as the Ontario Ministry of the Environment and Climate Change (MOECC), requires that municipal and private sewage treatment works, outfall structures and emergency overflow facilities be located, designed, constructed and operated so as to minimize pollution of receiving waters and interference with water uses.

The primary purpose of Guideline F-5 is to describe the levels of treatment required for municipal and private sewage treatment works discharging to surface waters. Relevant components of Guideline F-5 are as follows:

- Procedure F-5-1: Determination of Treatment Requirements for Municipal and Private Sewage Treatment Works Discharging to Surface Waters
- Procedure F-5-2: Relaxation of Normal Level of Treatment for Municipal and Private Sewage Treatment Works Discharging to Surface Waters
- Procedure F-5-3: Derivation of Sewage Treatment Works Effluent Requirements for the Incorporation of Effluent Requirements into Environmental Compliance Approvals for New or Expanded Sewage Treatment Works
- Procedure F-5-4: Effluent Disinfection Requirements for Sewage Works Discharging to Surface Waters
- Procedure F-5-5: Determination of Treatment Requirements for Municipal and Private Combined and Partially Separated Sewer Systems



Guideline F-5 states that the level of treatment for new or expanded sewage treatment works must be in accordance with Procedures F-5-1 and F-5-2. Effluent requirements, including both waste loadings and concentrations, must be derived in accordance with Procedure F-5-3 or those established in the Wastewater System Effluent Regulations, whichever is stricter.

### **The City of Kingston Official Plan (2017)**

The City of Kingston Official Plan is a document that provides planning goals and policies that direct:

- Physical development and redevelopment
- Protection of natural and cultural heritage
- Resource management
- Necessary supporting infrastructure

The Planning Act requires that all municipalities adopt an Official Plan that complies with the Provincial Policy Statement. The Official Plan's purpose is to guide development in Kingston until 2036 and is reviewed every five (5) years

in accordance with the requirements of the Planning Act. There are ten (10) main sections:

- 1 Overview
- 2 Strategic Policy Direction
- 3 Land Use Designations and Policies
- 4 Infrastructure and Transportation
- 5 Protection of Health and Safety
- 6 The Environment and Energy
- 7 Cultural Heritage Resources
- 8 Urban Design
- 9 Administration and Implementation
- 10 Special Policies and Secondary Plans



### **Places to Grow Act (2005)**

The Places to Grow Act 2005, provides a framework for the Provincial government to coordinate planning and decision-making for long-term growth and infrastructure renewal in Ontario. It gives the Province the authority to designate geographical growth areas, and to develop growth plans in collaboration with local officials and stakeholders to meet specific needs across the Province. Growth plans developed under the Places to Grow Act integrate and build upon other initiatives such as the Greenbelt Plan, the Niagara Escarpment Plan, the Provincial Policy Statement, the Planning Act, municipal infrastructure planning, and source water protection planning. Growth plans may include population projections and allocations, policies, goals and criteria relating to issues such as intensification and density, land supply, expansions and amendments to urban boundaries, location of industry and commerce, protection of sensitive and significant lands (including agricultural lands and water resources), infrastructure development, affordable housing and community design. Municipalities are required to bring their official plans into conformity with the growth plan for their area. Decisions made under the Planning Act and Condominium Act are also required to conform to applicable growth plans.

### **Ontario Water Resources Act (1990)**

The Ontario Water Resources Act, 1990, was passed for the purposes of conservation, protection and management of Ontario's waters by determining requirements for water works, including wells, and sewage works in relation to planning, design, siting, public notification and consultation, establishment, insurance, facilities, staffing, operation, maintenance, monitoring and record-keeping. The Act is a general water management statute which applies to both groundwater and surface water. This Act specifies the requirements that the community must satisfy in order for the provincial government to grant approval for establishing, altering, extending, or replacing water and wastewater system components.

### **Safeguarding and Sustaining Ontario's Water Act (2007)**

The Province passed the Safeguarding and Sustaining Ontario's Water Act to enable implementation of the Great Lakes – St. Lawrence River Basin Sustainable Water Resources Agreement and other amendments to the Permit to Take Water program.

The principles of the Great Lakes – St. Lawrence River Basin Sustainable Water Resources Agreement, signed in 2005, include the Premiers of Ontario and Quebec and the Governors of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin. This agreement recognizes the following:

- The water of the Basin are a shared public treasure and the parties to the Agreement have a shared duty to protect, conserve and manage the waters;
- Conserving and restoring the waters and water dependent natural resources of the Basin will improve them; and,
- Continued sustainable, accessible and adequate water supplies for the people and economy.



## **Safe Drinking Water Act (2002)**

Following the Walkerton Inquiry, the Ontario government enacted the Safe Drinking Water Act (SDWA). This Act covers all matters related to the treatment and distribution of drinking water. Part of the SDWA, O. Reg. 170/03 Drinking Water Systems provides sampling and testing requirements, minimum treatment standards, adverse water quality notification, non-compliance penalties, operator certification, and public reporting requirements.

O. Reg 170/03 also details the requirements for municipalities to comply with the Municipal Drinking Water Licencing (MDWL) program. Formerly, municipal water supply systems were granted Certificates of Approval (C of A) for individual facilities within a respective supply system. However, following the Walkerton Tragedy in 2000, Justice O’Conner made several recommendations toward improving the approvals process for public water supplies, the outcome of which is the MDWL program. The MDWL consolidates approvals for all facilities in a single water system into a single set of documents, including a Drinking Water Works Permit (DWWP), a Financial Plan, a Quality Management System, and a Permit to Take Water.

## **Clean Water Act (2006)**

The Province of Ontario developed the Clean Water Act to protect drinking water through a “source to tap” policy. This policy is intended to provide necessary protection of drinking water resources through a multi barrier approach which includes protection of the source water, such as surface or groundwater, prior to intake into the drinking water system. A key requirement of the Act is development of a Source Protection Plan specific to a respective watershed.

The three main phases of developing a Source Protection Plan include: Assessment, Planning, and Management. Assessment involves taking an inventory of current conditions of and potential threats to drinking water sources. Planning ensures appropriate land use designations to prevent threats of existing and future land use activities to drinking water sources. Finally, Management aims to monitor to prevent threats to drinking water sources.

## **Cataraqui Source Protection Plan**

The Cataraqui Source Protection Plan’s (CSPP) purpose is to reduce threats to sources of drinking water. It focuses on the protection of municipal drinking water supplies and includes policies for the entire Cataraqui Source Protection Area. A full download of the CSPP can be found at <http://www.cleanwatercataraqui.ca/sourceProtectionPlan.html>.





Source protection focuses on municipal intakes and wells, called Intake Protection Zones (IPZ) and Wellhead Protection Area (WHPA) respectively. There are 12 protection areas in the Cataraqui Region:

- 1 Kingston: Cana WHPA
- 2 Kingston: Point Pleasant IPZ
- 3 Kingston: Central IPZ
- 4 Sydenham IPZ
- 5 Lansdowne WHPA
- 6 Mallorytown: Miller Manor WHPA
- 7 Greater Napanee: A.L. Dafoe IPZ and
- 8 Sandhurst Shores IPZ
- 9 Bath IPZ 10 Brockville IPZ 11 Amherstview: Fairfield IPZ 12 Gananoque: James W. King IPZ

There are two local groups responsible for source protection. The Cataraqui Source Protection Authority (CSPA) is made up of 17 members and governs the planning process and availability/distribution of documents. The CSPA collaborates with others to implement specific policies in the Plan. The Cataraqui Source Protection Committee coordinates the development of the Assessment Report and Source Protection Plan.

The Cataraqui Source Protection Plan addresses the following activities:

- Handling and storage of liquid fuel
- On-site sewage systems
- Application of commercial fertilizer
- Application of road salt
- Agricultural/non-agricultural source material
- Handling, storage and transportation of dense non-aqueous phase liquids (NDAPL) and organic solvents

The policies in the Plan specifically focus on:

- Promoting responsible decisions about land use and development
- Improving information availability
- Recommending changes to municipal operations
- Enhancing education and outreach initiatives
- Conducting research



## **Wastewater Systems Effluent Regulations (2012)**

On June 29, 2012, amendments to the Fisheries Act received Royal Assent. The changes focus on protecting the productivity of recreational, commercial and Aboriginal fisheries. Of particular importance to this Master Plan is the Wastewater System Effluent Regulations, 2012, which is one of the regulations created under the Fisheries Act.

The Wastewater System Effluent Regulations are applicable to wastewater systems that collect, or are designed to collect, an average volume of 100 m<sup>3</sup>/d or more of influent. The Regulations require wastewater treatment plant (WWTP) effluents to meet average concentration limits of 25 mg/L for CBOD<sub>5</sub> and TSS and 0.02 mg/L for total residual chlorine (TRC), and a maximum concentration limit of 1.25 mg/L for un-ionized ammonia (expressed as nitrogen) at 15°C +/- 1°C. The effluent must also not be acutely lethal

(based on the rainbow trout acute lethality test). The Regulations also specify effluent sampling frequencies, recordkeeping and reporting requirements.

The requirements set in the Regulations are to be enforced in a phased fashion. The Regulations require the measurement of wastewater volume treated and the monitoring of deleterious substances in the effluent (CBOD<sub>5</sub>, TSS, TRC, and un-ionized ammonia) starting January 2013. Acute lethality monitoring begins January 1, 2015 for systems treating over 2,500 m<sup>3</sup>/d. An Identification Report needs to be submitted by May 15, 2013. An Annual Monitoring Report has to be submitted annually or quarterly depending on the size of treatment facility. Quarterly reporting is required starting May 15, 2013 for continuous plants with capacity greater than or equal to 2,500 m<sup>3</sup>/d and then within 45 days of the end of each quarter. Annual reporting is required starting February 14, 2014 and then 45 days after the end of each calendar year for intermittent systems and for continuous systems with capacities less than 2,500 m<sup>3</sup>/d. A Combined Sewer Overflow Report has to be submitted for systems with at least one CSO point by February 15 of every year starting February 15, 2014.

Transitional authorization may be obtained if a facility does not meet the effluent limits established by the Regulation. Particularly, a transitional authorization to discharge un-ionized ammonia may be obtained if un-ionized ammonia 100 m from discharge point is less than or equal to 0.016 mg/L N and it is found that acute toxicity is caused by ammonia (i.e. the effluent fails the acute toxicity test and the effluent un-ionized ammonia concentration is over 1.25 mg/L N). The initial application for transitional authorization is required within 30 days of the acute toxicity result.

The various wastewater systems in the CGS will need to be reviewed to determine whether they can meet the effluent treatment requirements set by the Regulations.

## **Combined Sewer Improvement Projects**

This section summarizes known stormwater system improvement projects either in progress or to be completed, within the City of Kingston, based on the findings of the City's current Pollution Prevention Control Plan (PPCP).



## **CSO Monitoring Program**

CSO monitoring was recommended to continue and be expanded to include CSOs not currently monitored, or those that are currently only monitored to indicate the occurrence of an overflow event. Monitoring systems that permit the source of flow (storm or sanitary), volume, duration, and frequency should be installed or updated to continue to support monitoring system performance. Utilities Kingston (UK) should continue to use the monitoring program to work towards the goal of “virtual elimination”, where overflows only occur during major rainfall events or during unusually long periods of wet-weather as supported by a review of CSO flow monitoring data.

Flow monitoring may be considered to improve future updates to hydraulic models and to support future Master Plans and PPCP updates. To support this, it was recommended that data be collected, to provide an indication of flow direction, duration, frequency, level, and volume, and be considered for a minimum of two (2) years prior to study updates. In-line flow monitors, SCADA, and remote level monitors may be used in conjunction to support the data collection with monitors to be strategically located around CSOs, SSOs, PSOs, pumping stations and contributing local and trunk sewers within the scope of analysis.

## **Long Term CSO Reduction Strategy - Sewer Separation Program**

The 2017 Master Plan recommended that the projected sewer separation reduction continue, at a minimum, as the primary strategy for reducing combined sewer overflows. This strategy reduces the scale of major infrastructure conveyance improvements required throughout the systems.

Adjustments to the projected sewer separation program may be made as updated CSO monitoring data is made available and in future PPCP / Master Plan Update Studies which continue to improve the accuracy of projected overflows in the existing system. All source control efforts which work to eliminate direct wet-weather inflow support the goal of ‘virtual elimination’ of CSOs within the system. Analysis shows that accelerating the program would provide additional reduction of overflows. Reducing the rate of sewer separation has been shown to prolong achievement of the goal of ‘virtual elimination’ of CSOs.



## Summary of Water and Wastewater Master Plan (2017) Reccomended Projects

### Water

The recommended water projects outlined in Water and Wastewater Master Plan Updates Final Report prepared by WSP in 2017 have been separated into two (2) tables below for the projects located within the identified Central Kingston Growth Strategy Areas. Table 11 details projects which have been identified as required to satisfy growth and development in Central Kingston and Table 12 details the projects that have been identified as required to improve reliability and redundancy of the system.

*Table 11: Central Kingston Water Growth/Development Projects*

Growth / Development Pro	Description	Timing
<b>Front Road – Interconnect</b>	Install 1,050 mm watermain along Front Rd. between Point Pleasant WTP and Sir John A. Blvd.	2018
<b>Adjust Operational Levels in Third Ave. Reservoir</b>	Adjust operational levels in Third Ave. Reservoir to increase functional storage.	
<b>John Counter Boulevard – Watermain</b>	New 400 mm watermain along John Counter Blvd. from Indian Rd. to Princess St.	2021

*Table 12: Central Kingston Water Resiliency/Redundancy Projects*

Resiliency / Redundancy Projects	Description	Timing
<b>Calvin Park – Watermain Looping</b>	New 150 mm watermain through easements to Norman Rogers Dr. located at Herchmer Cres. ( $\pm 75m$ ), Holland Cr. ( $\pm 95m$ ) out to Norman Rogers	2021
<b>Norman Rogers Avenue – Watermain Upsizing</b>	Replace $\pm 1$ km of 300 mm dia. watermain on Norman Rogers Dr. and Roden Rd. between Van Order Dr. and Johnson St.	2026
<b>Dalton Avenue – Watermain Replacement</b>	Replace $\pm 1$ km of 300 mm watermain on Dalton Ave. between Division St. to Don St.	2026
<b>Balsam Grove – Rideau Trail Watermain</b>	Install $\pm 500m$ of 200 mm watermain to loop Balsam Grove. Extend from Queen Mary Rd. to Sherwood Dr.	2036
<b>Dalton Avenue – Watermain Twinning</b>	Twin watermain along Dalton Ave. between Sir John A. MacDonald Blvd. and Grant Timmins Dr. ( $\pm 300m$ ).	2036

### WASTEWATER

The recommended wastewater projects outlined in Water and Wastewater Master Plan Updates Final Report prepared by WSP in 2017 have been separated into the two (2) following tables for the projects located within the identified Central Kingston Growth Strategy Areas. Table 13 details projects which have been identified as required to satisfy growth and development in Central Kingston and Table 14 details the projects that have been identified as required reduce sewer overflow volume and continue to work towards Utilities Kingston's goal of "Virtual Elimination" of CSO events.



Table 13: Central Kingston Wastewater Growth/Development Projects

Growth/Development Project	Description	Timing
Multiple Locations – Flow Monitoring	Conduct flow monitoring at Crerar Collector, McEwen Dr. collector, Bath-Collins Bay Road PS, Lakeshore Boulevard PS to confirm pattern and magnitude of flow.	2021
King Street Collector – Upsize	Upsize King St. Collector along King St. W just east of County Club Dr. to McDonald Ave. (manhole 0054-030 to 0051-104) from a 400/350 mm to a 450 mm, approximately ±550 m.	2021
Alfred/Elm Sewer Upsize	Upsize sewer from 375 mm to 450 mm on Alfred St. (Princess to Elm) and Elm St. (Alfred to Chatham).	2021
Schooner Dr. PS Replace	Replace Schooner Dr. PS with new Riverview PS.	2021
North End Trunk Sewer – Twinning Phase 1	Twining of the sewer along Queen Mary Rd. heading north from Greenview Dr. to Sherwood Cres (manhole 9341-010 to 2284-131), ±900 m. 131), ±900 m. Twin from Princess St. heading north to south of John Counter Blvd. (manhole 2284-010 to 509081) ±700 m	2021
Princess Street Collector – Upsize Phase 1	Indian Rd. to Parkway Rd. to a 525 mm	2021
Notch Hill Collector – Upsize	Upsizing of the sewer along Notch Hill Rd. from Portsmouth Ave. to Runnymede Rd. (between manholes 9716-010 to 3942-030) from a 450 mm to a 600 mm, ±350 m.	2026
Cataraqui Bay WWTP	Planning and design for the Phase 2 upgrade.	2026
Princess Street Collector Phase 2	West of Sir John A. MacDonald Blvd. to Indian Rd. to a 450 mm / 525 mm.525 mm.	2026
Palace Rd PS Back-up Power	Install permanent backup generator.	2036
Cataraqui Bay WWTP – Capacity Upgrade	Construction of Phase 2 upgrade.	2031
North End Trunk Sewer Phase 2	Twin sewer along John Counter Blvd. heading north to Dalton Ave. (manhole 614091 to 1760-010), ±1,900 m.	2036
Princess Street Collector Upsize - Phase 3	East of Mooalim Pl to west of Sir John A MacDonald Blvd. to a 450 mm.	2036
Ravensview Trunk Sewer Twinning	Twinning Ravensview Trunk Sewer entire length, ±3,400m	2036
King Street PS – Twin Force	Twin ±282m of 600 mm forcemain	2026
Charles Street Collector – Capacity Investigation	Confirm Local Sewer Capacity, Plug PCP#68	2036



Table 14: Central Kingston Wastewater CSO Reduction Projects

CSO Reduction Projects	Description	Timing
Sewer Separation	Separate 45 ha of combined sewers in the central collection area. Refer to CSO separation plan.	2021
West Street CSO – Weir Adjustment	West St. bypass (PCP#26) weir adjustment to an elevation of 75.5 m	2015
King-Portsmouth PS – Capacity Upgrade and Flow Redirect	Upgrade the capacity of King-Portsmouth PS to 425 L/s firm capacity and install a new forcemain to redirect flow to Cataraqui Bay WWTP.	2021
Collingwood Street Collector Upsize	Upsizing of the sewer along Helen St. to Mack St., along Mack St. to Regent St. and along Regent St. to Dundas St. (manhole 0423-010 to 04511-020) from a 300 mm to a 375 mm, ±400 m.	2021
Sewer Separation	Separate 36 ha of combined sewers in the central collection area. Refer to CSO separation plan.	2026
River Street PS Inlet Trunk Sewer – Twinning	Twin 250 m of sewer between Cataraqui St. and River St. pumping station.	2036
Sewer Separation	Separate 36 ha of combined sewers in the central collection area. Refer to CSO separation plan.	2036
Rideau Street Collector – Upsize	Upsize a ±250 m section of the sewer at the downstream end before it connects in the Harbourfront Trunk sewer from a 375 mm to a 600 mm	2036

## Conclusions

The system constraints and recommendations from the Kingston Water and Wastewater Master Plan and Pollution Prevention Control Plan will be considered in the development of water and wastewater servicing solutions for the Central Kingston Growth Strategy. More detailed impacts to water and wastewater services will be assessed during the identification of specific development nodes within the study area during the next stage of this project. Further assessments will consider servicing infrastructure within the targeted study area, as well as downstream infrastructure that may be impacted by development.

# Appendix F



## Distribution Conditions— Gas and Electrical Utility

June 2019



## Memo

**TO:** Laura MacCormick and Sukriti Agarwal, City of Kingston

**FROM:** John Wright and Malcolm Wallace

**SUBJECT: Central Kingston Growth Strategy – Review of Existing Electrical & Gas Utility Distribution Conditions**

**DATE:** June 28, 2019

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## Project Overview

The Growth and Infill Study for the City of Kingston is intended to identify nodes for future infill development and intensification. The study area for this project includes all land parcels with residential zoning in the area of the City generally bounded by Highway 401 to the north, the Little Cataraqui Creek the west, Lake Ontario to the South and the Cataraqui River to the East, but excludes the Inner Harbour neighbourhood containing the Kingston downtown core. It is noted that the study area includes currently undeveloped portions of the Novelis Campus and Markers Acres neighbourhood adjacent to Highway 401.

The City of Kingston has defined a system of 43 distinct neighbourhoods across the City based on Statistics Canada census dissemination areas for the purpose of developing individual neighbourhood planning profiles as a tool for community planning; the Growth and Infill Study area includes portions of 17 of these neighbourhoods. Figure 1 illustrates the Growth and Infill Study Area as well as the neighbourhoods containing portions of this Study Area.

This report is intended as a planning level review of the existing electrical and natural gas infrastructure in the project study area.

## Planning Process – Gas Infrastructure

The existing gas infrastructure drawings have been reviewed and digested alongside the memo provided by Utilities Kingston at RFP stage. Following this process, it can be confirmed that generally there are no constraints (or benefits) created by the existing Gas infrastructure which should be considered to influence the overall Growth & Infill Strategy. The proposed developments will generally require an upgrade to the local gas infrastructure regardless of where they are located in the City, hence the upstream implications are considered similarly demanding at this initial stage.

A more detailed study will be carried out at the next stage to assess the impacts of specific intensification options identified.



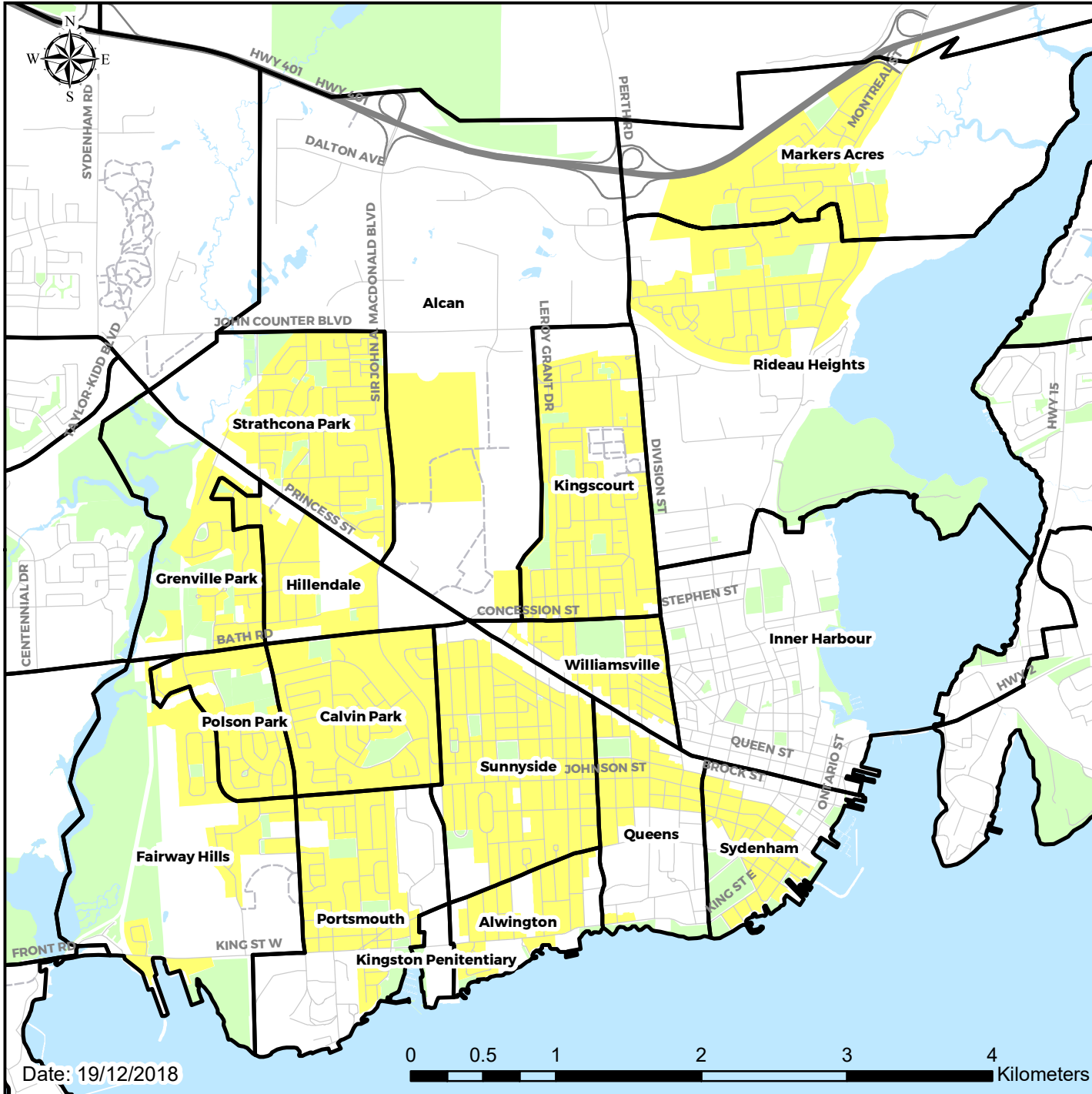


## PLANNING PROCESS – ELECTRICAL INFRASTRUCTURE

The existing electrical infrastructure masterplans and GIS has been reviewed and digested alongside the memo provided by Utilities Kingston at RFP stage. This GIS shows local distribution including information on reticulation type and phasing, as well as the location of transformers. The two masterplans (5 & 15KV and 44KV) from 2012 indicate existing capacity constraints, with the 44V masterplan containing extensive information in the forms of maps and substation schematic. These reports also include recommendations and budgets for ongoing upgrades.

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1145 Hunt Club Road Ottawa,  
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T: +1 613 736-7200  
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[wsp.com](http://wsp.com)

# Central Kingston Growth Strategy



## Legend

- Central Kingston Growth Strategy Study Area
- Parks
- Kingston Neighbourhoods

GIS Data obtained from City of Kingston, Kingston Open Data Catalogue and adopted from Kingston Active Transportation Master Plan (June 2018)

### Figure 1

#### Study Area and Kingston Neighbourhoods



The work already completed confirms that some areas are close to installed capacity, whilst other areas have a greater level of capacity in the system. However the high level conclusion is that any and all areas identified for intensification will, due to the scale of the development, require an electrical infrastructure upgrade. This will be confirmed during the second iteration when more detail of the proposed intensification is released, allowing completion of the load calculation for intensification. The new load data can be tabulated against existing capacities as far as known, which will inform the size of the capacity upgrade required, and in turn form the basis of the engineered solution to deliver this extra capacity. In the event that any of the smaller intensification areas can be supplied from existing spare capacity, this will be identified with some certainty at this stage. Furthermore, the availability of a firm load estimate will enable cost implications to be budgeted to verify the viability of the intensification options considered.

The load calculation will be amended to indicate projected electrical consumption trends, including increase in use of electrical vehicle charging (at home at in commercial premises), domestic solar generation and other factors. This will be shown separately as such projected data is, due to lack of historical data, inherently less accurate than calculations of demand from existing systems and services.

## Municipal Energy Study

Specify items from the City's Municipal Energy Study will be incorporated into the next stage of investigations. The key ambitions informing the utility study are reducing consumption, and localising generation of energy where possible to keep the entire system (generation-transmission-consumption) localised within the City.

Strategies that could be brought into the intensification study would include use of solar energy (photo voltaic and hot water) and supporting district energy schemes, which would make more effective use of solar power and also open up the potential for geothermal and even deep lake cooling.

Provision of electric vehicle charging stations in new developments for public use would also be included, in addition to the requirement for residents parking areas to be provide with EV charging to meet or exceed current guidelines.



## Conclusions

In summary, it is possible to increase the electrical and gas supply throughout the study area to accommodate any of the projected commercial and residential developments, hence at this initial stage of the planning process, it does not appear to be necessary to consider the availability of electrical & gas supplies as major drivers of the areas and neighbourhoods considered for intensification.

It is likely that infrastructure upgrades for both electrical and gas supply will be required with any of the intensification solutions. Some of these upgrades may be costly and require space for new infrastructure. As the plan develops and identifies more detailed options, a detailed assessment will be carried out for each site to inform the final selection process.

Attached are the template demand calculations spreadsheets for use in the study.

# Attachments

Draft

Kingston Growth and Infill Study

Electrical Demand Load Calculation - Winter



Block	Block Area m <sup>2</sup>	Total Building Area m <sup>2</sup>	Density FSI	Building Ground Floor Area m <sup>2</sup>	#/ Floors	OESC 8-202 (3)									OESC 8-210				Lobby & Amenity Space 25w/m <sup>2</sup> at 75%	Total Residential & Commercial & Lobby/ Amenity kW		
						Residential GFA m <sup>2</sup>	Commercial GFA m <sup>2</sup>	Lobby & Amenity Space m <sup>2</sup>	#/ Residential Units	1st Unit @	Next 2 Units @	Next 2 Units @	Next 15 Units @	Remaining Units @	Residential Heating 10kw + 75% of balance w	Total Residential kW	Commercial occupancy /m <sup>2</sup>	Commercial Space Heating			Commercial Special Loads	Total Commercial kW
1										100%	65%	40%	25%	10%			50					
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Notes:

1 Density FSI is Total Building Area divided by Block Area

Total Residential Units:		1 unit per:	
Total Residential Population:		People per unit:	
Total Retail Population:		m <sup>2</sup> of retail per person:	

Kingston Growth and Infill Study

Electrical Demand Load Calculation - Summer



Block	Block Area m <sup>2</sup>	Total Building Area m <sup>2</sup>	Density FSI	Building Ground Floor Area m <sup>2</sup>	#/ Floors	OESC 8-202 (3)									OESC 8-210				Lobby & Amenity Space 25w/m <sup>2</sup> at 75%	Total Residential & Commercial & Lobby/ Amenity kW				
						Residential GFA m <sup>2</sup>	Commercial GFA m <sup>2</sup>	Lobby & Amenity Space m <sup>2</sup>	#/ Residential Units	1st Unit @ 100%	Next 2 Units @ 65%	Next 2 Units @ 40%	Next 15 Units @ 25%	Remaining Units @ 10%	Residential Air Conditioning w	Total Residential kW	Commercial occupancy /m <sup>2</sup> 50	Commercial Space Heating			Commercial Special Loads	Total Commercial kW		
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								

Notes:

1 Density FSI is Total Building Area divided by Block Area

<b>Total Residential Units:</b>		1 unit per:	
<b>Total Residential Population:</b>		People per unit:	
<b>Total Retail Population:</b>		m <sup>2</sup> of retail per person:	

Kingston Growth and Infill Study  
 Electrical Load Summary



Item	Parcel Reference on Map	Description (Address/ Owner/ Developer etc)	OESC Calculated Demand, Summer kW	OESC Calculated Demand, Winter kW	Predicted PF	Predicted MD (summer or winter) / PF	SSFA	Predicted Load kVA	Comments
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Notes:  
1



Kingston Growth and Infill Study  
 Natural Gas Demand Load Summary



Item	Parcel Reference on Map	Description (Address/ Owner/ Developer etc)	Area SF	Consumption in BTUH/SF							Total CFH	Comments
				Gross Floor Area @ 30	Gross Floor Area @ 33	Gross Floor Area @ 35	Gross Floor Area @ 40	Gross Floor Area @ 50	Gross Floor Area @ 70	Gross Floor Area @ 90		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

Consumption Categories:

Notes:

1 Gross floor area is Square Feet; consumption is BTUH/SF

- 30 Residential High Density (over 4 stories) and mixed use
- 33 Residential Medium Density (Typically 3-4 stories)
- 35 Residential Low Density (houses)
- 40 Commercial
- 50 Not Used (heritage)
- 70 Not Used
- 90 Not Used (Hospital)

# Appendix G



## Existing Conditions – Stormwater

Revised January 2020



## **Memo**

**TO:** Laura MacCormick and Sukriti Agarwal (City of Kingston)

**FROM:** John Wright and Michael Flowers

**SUBJECT:** **Central Kingston Growth Strategy – Review of Existing Stormwater Conditions**

**DATE:** **January 2020**

---

## **Project Overview**

The Central Kingston Growth Strategy for the City of Kingston (City) is intended to identify nodes for future infill development and intensification. The study area for this project includes all land parcels with residential zoning in the area of the City generally bounded by Highway 401 to the north, the Little Cataraqui Creek the west, Lake Ontario to the South and the Cataraqui River to the East, but excludes the Inner Harbour neighbourhood containing the Kingston downtown core. It is noted that the study area includes currently undeveloped portions of the Novelis Campus and Markers Acres neighbourhood adjacent to Highway 401.

The City of Kingston has defined a system of 43 distinct neighbourhoods across the City based on Statistics Canada census dissemination areas for the purpose of developing individual neighbourhood planning profiles as a tool for community planning; the Central Kingston Growth Strategy area includes portions of 17 of these neighbourhoods.

Figure 1 illustrates the Central Kingston Growth Strategy as well as the neighbourhoods containing portions of this Study Area.

This report is intended as a planning level review of the existing stormwater infrastructure and operations in the project study area, to identify specific portions of the study area that are relatively more or less prone to stormwater operational impacts as a result of new infill developments or intensification; a more detailed corridor and intersection level review will be undertaken once potential development nodes have been identified later in the study.



## Central Kingston Stormwater System

The City of Central Kingston stormwater collection system comprises an area of approximately 2,919 ha. It is generally bordered by Little Cataraqui Creek to the west, Macdonald-Cartier Freeway to the north, Cataraqui River to the east and Lake Ontario to the south. There are approximately 54,600 people living in the Central Kingston area. Figure 2 presents an overview of the stormwater collection system, inclusive of combined sewers.

The diameters of the stormwater sewer system pipes in the study area vary between 150 mm and 1,500 mm as described in Table 1 and Figure 3. Figure 4 illustrates the locations of the pipe segments in relation to their diameters within the study limits. It should be noted that due to gaps in as-built information for several pipes, the size category “unspecified” is included for unknown pipe diameters. GIS data supplied by the City and regarded it as a “snapshot” of the condition as of the beginning of 2018.

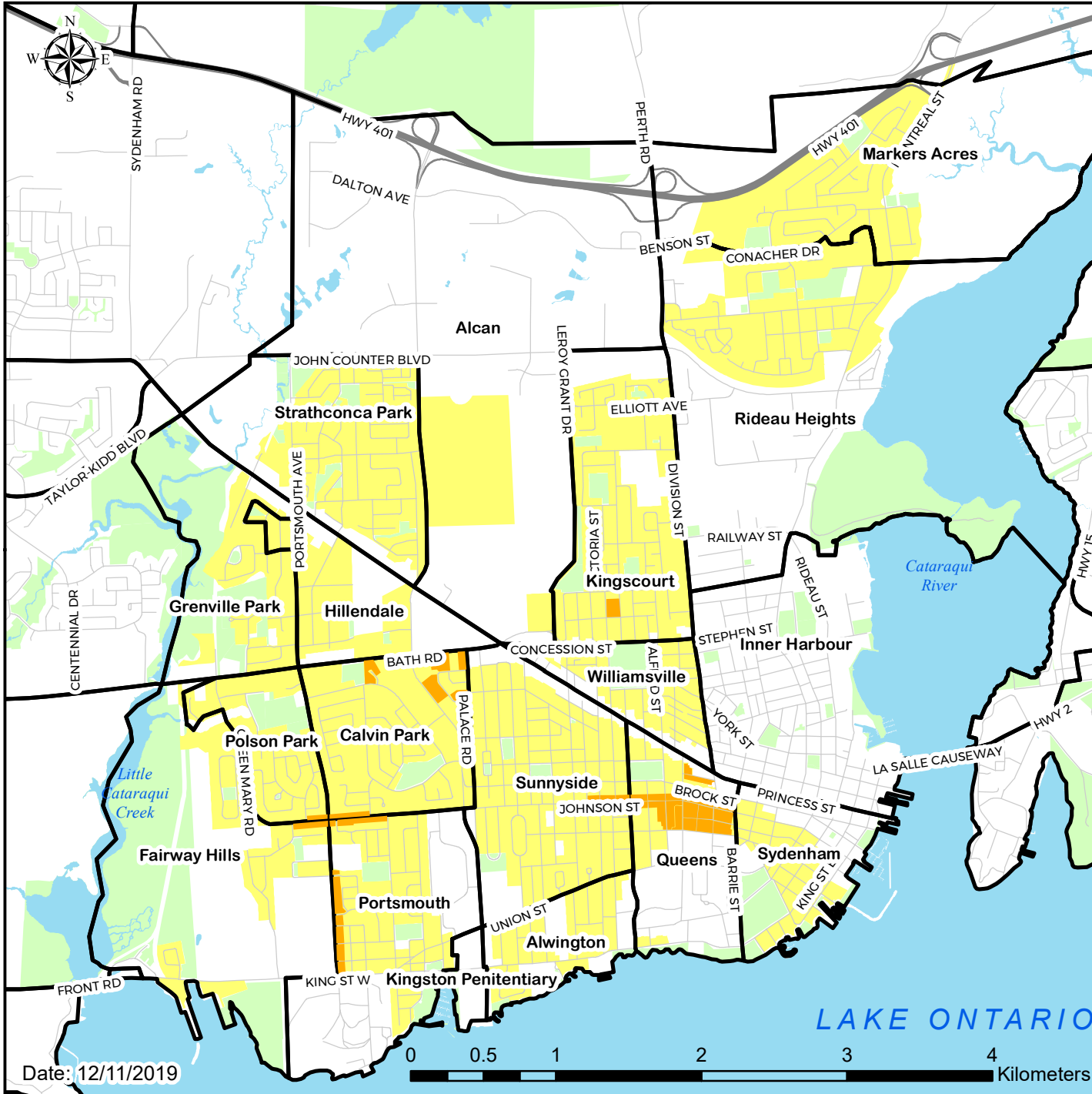
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wsp.com

# Central Kingston Growth Strategy



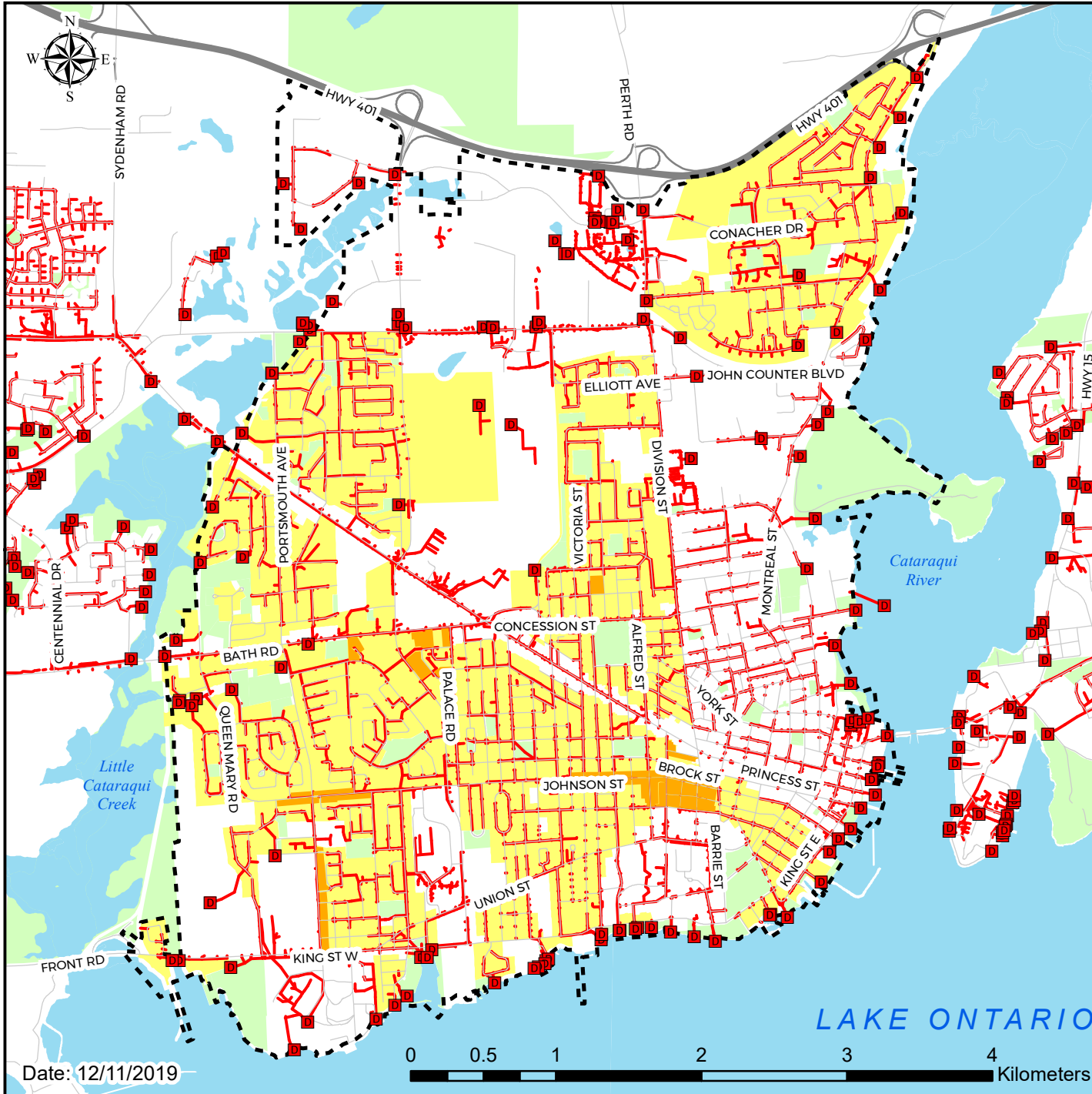
**Legend**

- Kingston Neighbourhood
- Central Kingston Growth Study Area
- Intensification Area
- Parks

GIS Data provided by City of Kingston, Kingston Open Data Catalogue and adopted from Kingston Active Transportation Master Plan (June 2018)

**Figure 1**  
**Study Area and Kingston Neighbourhoods**

# Central Kingston Growth Strategy



### Legend

- Central Kingston
- Central Kingston Growth Study Area
- Intensification Area
- Parks
- Storm Outfalls
- Storm Pipe

Data provided by City of Kingston and from Kingston Open Data Catalogue.

## Figure 2

### Kingston Existing Stormwater Overview

Date: 12/11/2019

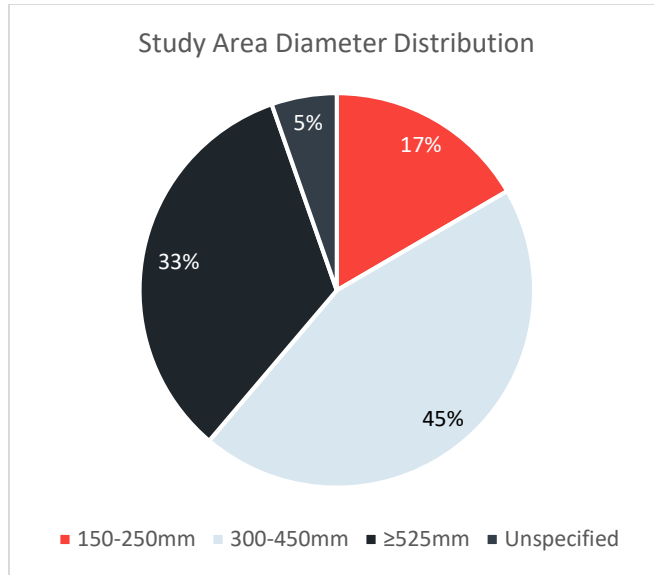


Table 1: Study Area Stormwater Sewer Sizes

Diameter (mm)	Study Area Pipe Length* (m)
150	32
200	9,969
250	6,203
300	17,875
350	190
375	14,067
450	11,387
525	7,201
600	7,096
675	3,366
750	4,571
825	1,604
900	2,668
975	154
1,050	2,663
1,200	1,236
1,350	866
1,500	1,211
Unspecified	5,226
<b>Total</b>	<b>97,585</b>

- a. Included in the query: All pipes, catch basin leads and storm lateral connections to private properties.
- b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a 'snapshot' of available asset information at the beginning of the 2018 for the study area where 'unspecified' includes abandoned or removed pipes.

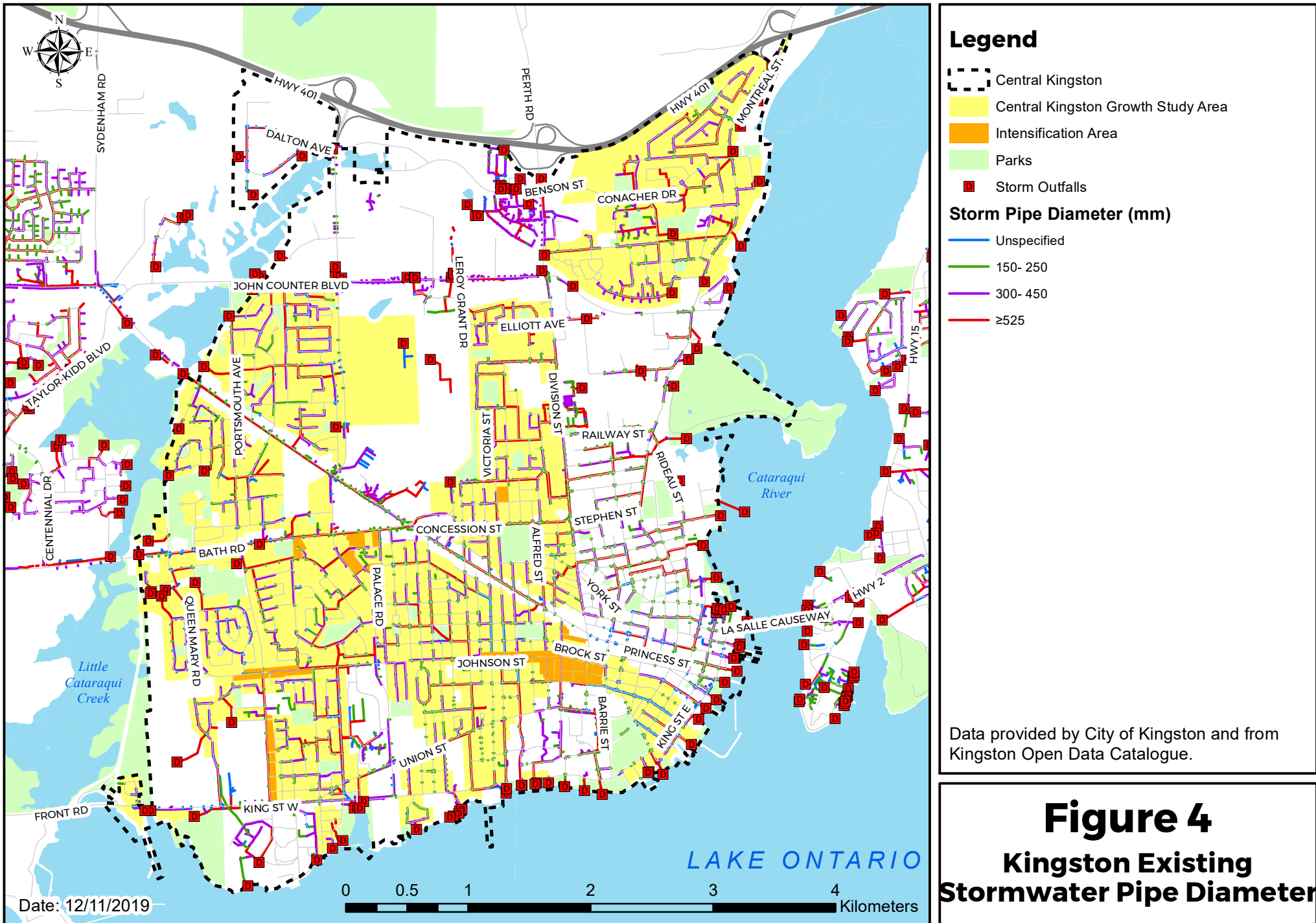
\*Data was obtained from GIS files provided by the City of Kingston in winter 2017/2018. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.



*Figure 3: Study Area Stormwater Sewer Diameter Distribution*



# Central Kingston Growth Strategy



**Figure 4**  
**Kingston Existing Stormwater Pipe Diameter**

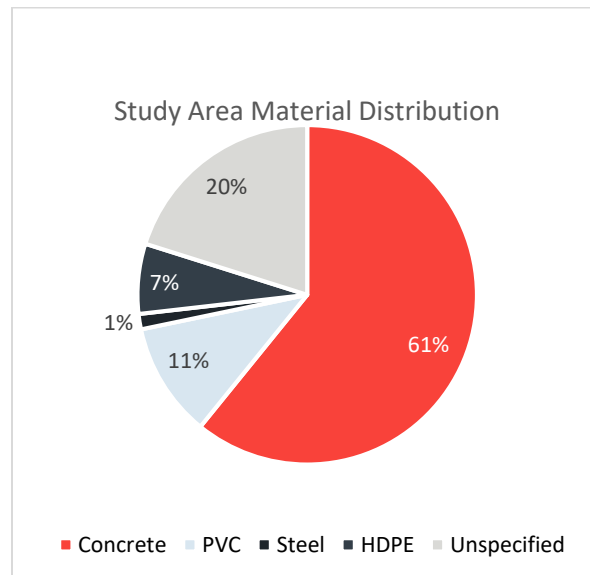
The Central Kingston stormwater collection system is generally constructed from polyvinyl chloride (PVC), high-density polyethylene (HDPE), concrete, and steel. A summary of pipe materials with respect to pipe lengths is provided in Table 2 and Figure 5. Figure 6 illustrates the locations of the pipe segments in relation to material type within the study limits. It should be noted that the material of several pipes is unspecified due to gaps in the asset inventory with respect to material.

*Table 2: Study Area Stormwater Sewer Material*

Material	Study Area - Combined Pipe Length (m)*
Concrete	59,368
PVC	10,634
Steel	1,426
HDPE	6,507
Unspecified	19,650
<b>Total</b>	<b>97,585</b>

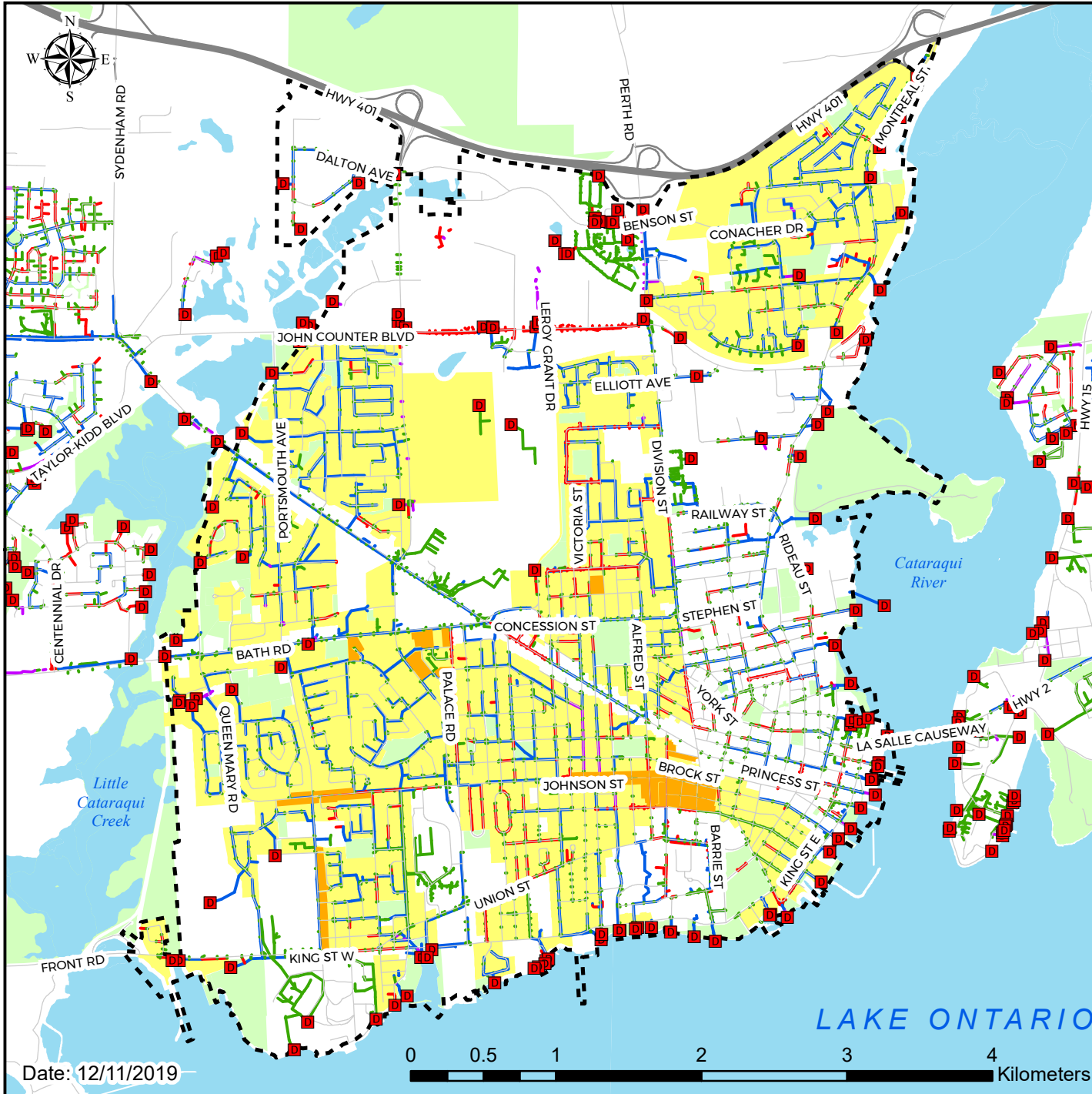
- a. Included in the query: All pipes, catch basin leads and storm lateral connections to private properties.
- b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a 'snapshot' of available asset information at the beginning of the 2018 for the study area where 'unspecified' includes abandoned or removed pipes.

\*Data was obtained from GIS files provided by the City of Kingston in winter 2017/2018. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.



*Figure 5: Study Area Stormwater Sewer Material Distribution*

# Central Kingston Growth Strategy



**Legend**

- Central Kingston
- Central Kingston Growth Study Area
- Intensification Area
- Parks
- Storm Outfalls

**Storm Pipe Material**

- Unspecified
- Concrete
- PVC/ HDPE
- Steel

Data provided by City of Kingston and from Kingston Open Data Catalogue.

**Figure 6**  
**Kingston Existing Stormwater Pipe Material**

Date: 12/11/2019

0 0.5 1 2 3 4 Kilometers



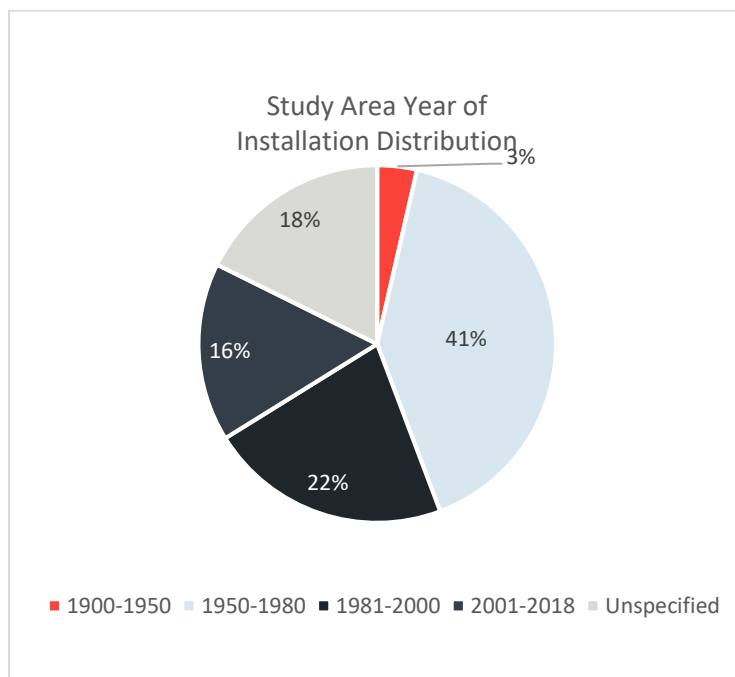
The Central Kingston storm water collection system was built between 1940 and the present day. A summary of pipe installation years is presented in Table 3 and Figure 7. Figure 8 illustrates the locations of the pipe segments in relation to their age within the study limits. It should be noted that due to incomplete as-built information for several pipes, the construction year category “unspecified” is included in the age distribution for pipes.

*Table 3: Study area Stormwater Collection System Installation Year*

Year Installed	Study Area Total Pipe Length (m)
1900 - 1950	3,500
1951 - 1980	39,368
1981 - 2000	21,369
2001 - 2018	15,774
Unspecified	17,244
<b>Total</b>	<b>97,585</b>

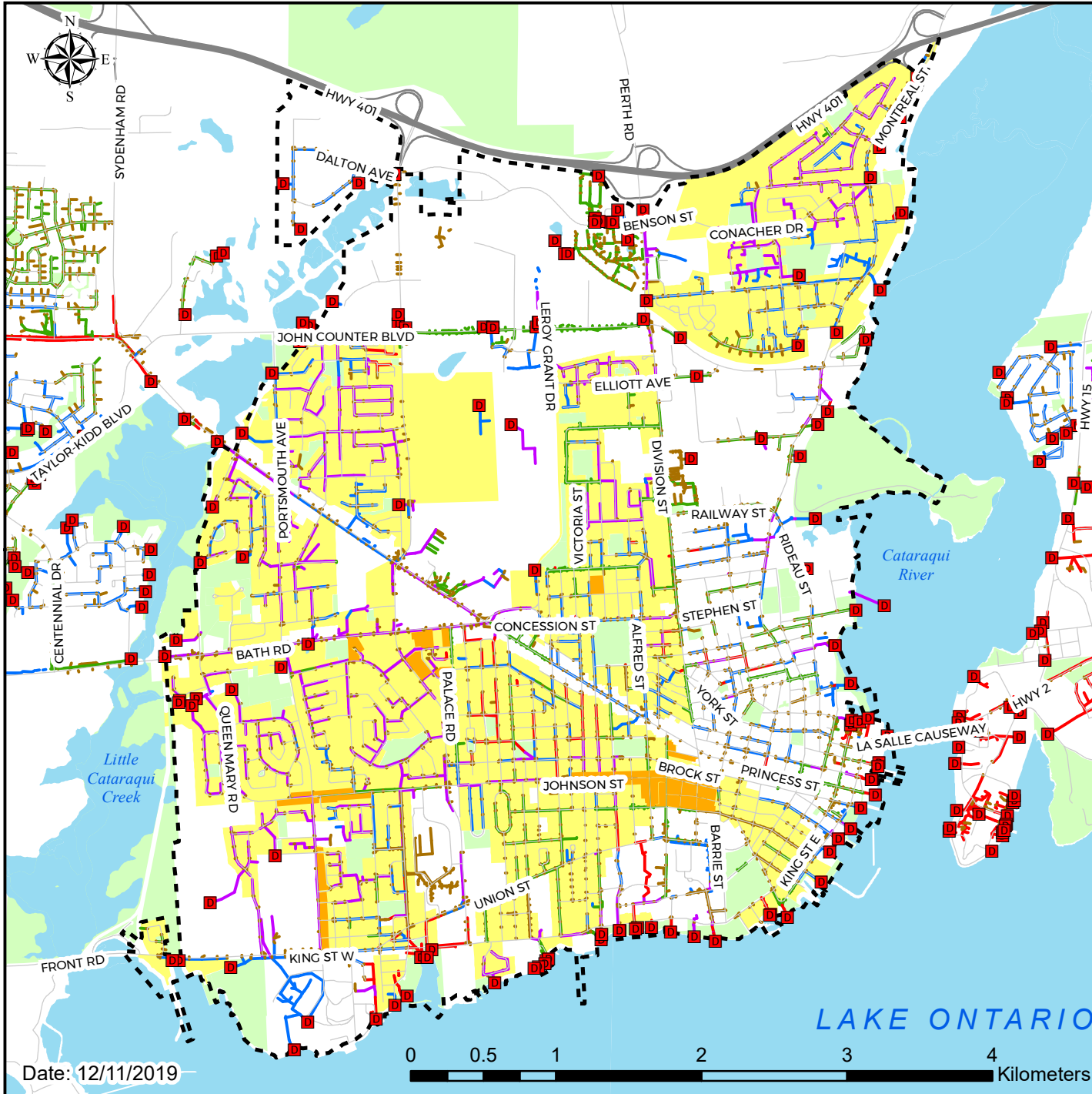
- a. Included in the query: All pipes, catch basin leads and storm lateral connections to private properties.
- b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a ‘snapshot’ of available asset information at the beginning of the 2018 for the study area where ‘unspecified’ includes abandoned or removed pipes.

*\* Data was obtained from GIS files provided by the City of Kingston in winter 2017/2018. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.*



*Figure 7: Study Area Stormwater Sewer Year of Installation Distribution*

# Central Kingston Growth Strategy



**Legend**

- Central Kingston
- Central Kingston Growth Study Area
- Intensification Area
- Parks
- Storm Outfalls

**Storm Pipe Year Installed**

- Unknown
- 1900-1950
- 1951-1980
- 1981-2000
- 2001-2018

Data provided by City of Kingston and from Kingston Open Data Catalogue.

**Figure 8**  
**Kingston Existing Storm Pipe Installation Year**

Date: 12/11/2019



## Central Kingston Combined Sewer System

The City of Kingston has some pipe networks within the study area that are combined sanitary-storm sewers. Combined sewers are those that collect and convey both sanitary and storm water runoff. They are predominantly located in the older areas of the City, installed before sanitary treatment was widely used by municipalities. Partially separated sewers are sanitary sewers that additionally collect and convey storm water from roof leaders, downspouts, sub drains and building sump pumps. The City of Kingston Official Plan states:

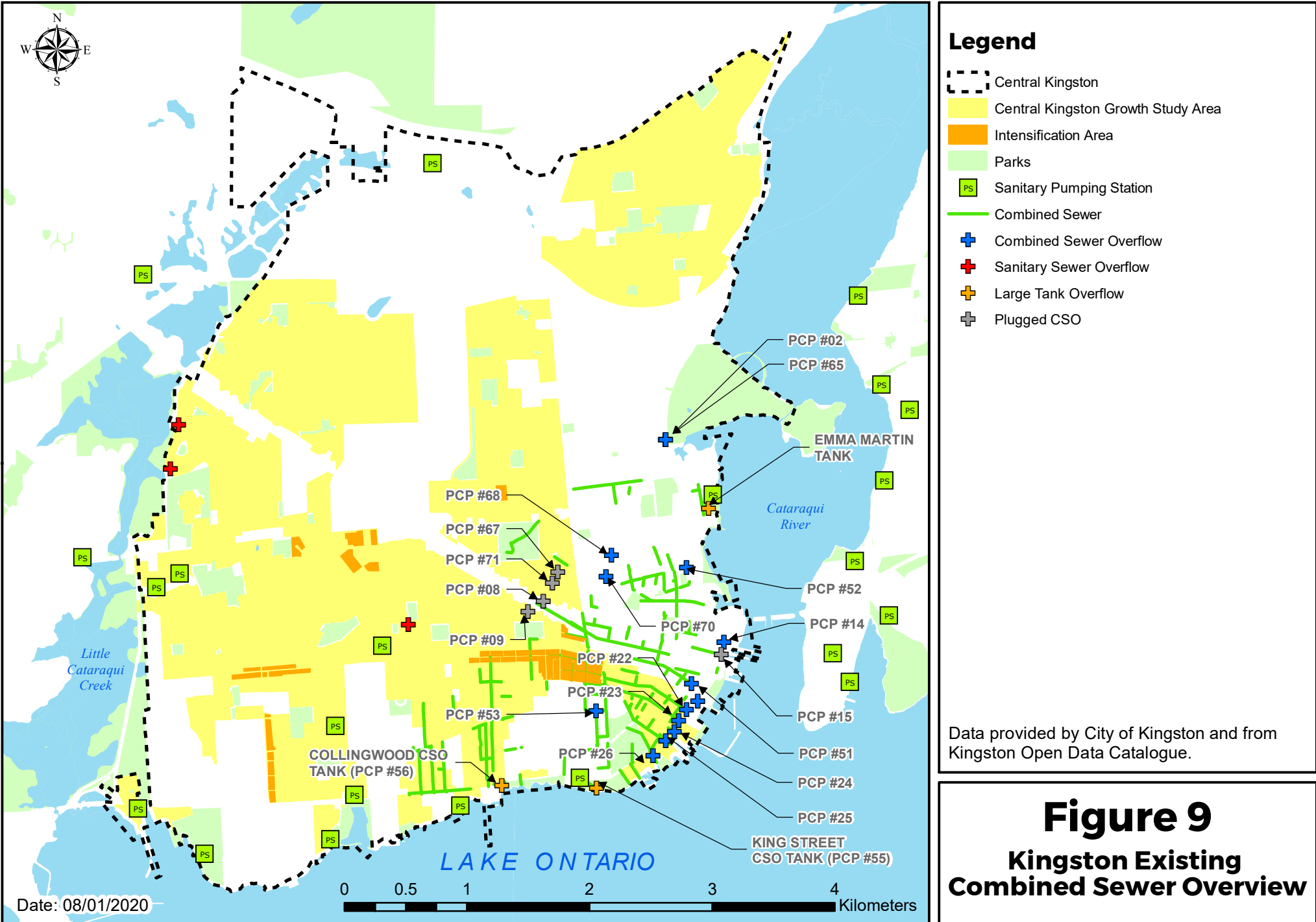
### *Stormwater Management*

*2.8.5. Stormwater runoff will be managed on site where feasible, and runoff may be required to be stored, treated and directed away from the natural heritage system. Its quantity will be required to be controlled to prevent impact on downstream areas.*

*Stormwater connections are not permitted in areas where combined sewer infrastructure exists in the City. (Amended by By-Law Number 2017-57, OPA Number 50)*

While the City's Official plan does not permit new storm water connection to the sanitary system, there are still many areas of the City where this occurs. Accurate and complete records of these areas are not available. Separated sanitary sewers convey only sanitary wastewater, however are still subject to infiltration and inflow. All new development is serviced with separate sanitary and storm sewers. The City of Kingston's Official Plan prohibits any new storm or sanitary system to connect to existing combined sewer systems. Figure 9 presents an overview of the combined sewer in the Central Kingston area.

# Central Kingston Growth Strategy



**Figure 9**  
**Kingston Existing Combined Sewer Overview**

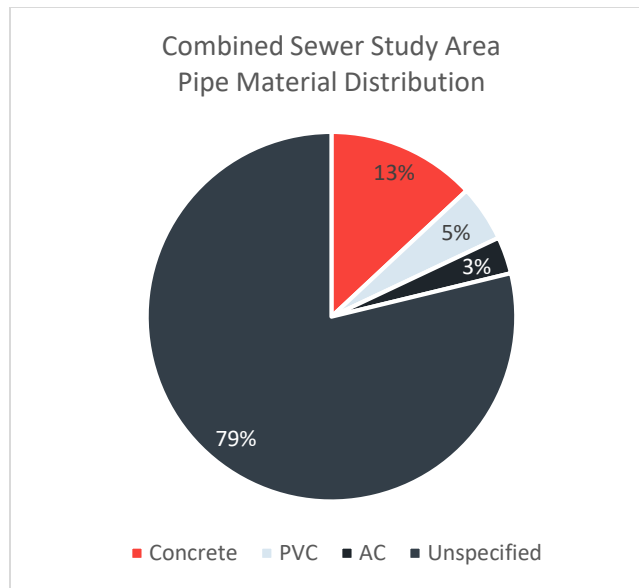
The Central Kingston combined sewer system is generally constructed from concrete, PVC, and Asbestos Cement (AC). A summary of pipe materials with respect to pipe lengths is provided in Table 4 and Figure 10. It should be noted that the material of several pipes is unspecified due to gaps in the asset inventory with respect to material.

*Table 4: Study Area Combined Sewer Material*

Material	Study Area - Combined Pipe Length (m)*
Concrete	1,154
PVC	436
AC	286
Unspecified	6,967
<b>Total</b>	<b>8,843</b>

- a. Included in the query: All pipes, catch basin leads and storm lateral connections to private properties.
- b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a 'snapshot' of available asset information at the beginning of the 2018 for the study area where 'unspecified' includes abandoned or removed pipes.

*\*Data was obtained from GIS files provided by the City of Kingston in winter 2017/2018. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.*



*Figure 10: Study Area Combined Sewer Material Distribution Based on Total System Pipe Length*

The diameters of the combined sewer system pipes in the study area vary between 150 mm and 1,350 mm as described in Table 5 and Figure 11. It should be noted that due to gaps in as-built information for several pipes, the size category “unspecified” is included for unknown pipe diameters.





Table 5: Study Area Combined Sewer Diameters

Diameter (mm)	Study Area - Total Pipe Length* (m)
150	105
200	413
225	978
250	56
300	2,381
350	18
375	1,255
450	1,012
525	586
600	716
675	569
750	175
825	86
900	200
1,050	149
1,350	144
<b>Total</b>	<b>8,843</b>

- a. Included in the query: All pipes, catch basin leads and storm lateral connections to private properties.
- b. Pipe status included in the query: All Status - includes pipe segments identified as abandoned or removed, as well as pipes approved but not yet constructed or constructed but not yet assumed by the municipality. It is to be noted that the GIS data provides a 'snapshot' of available asset information at the beginning of the 2018 for the study area where 'unspecified' includes abandoned or removed pipes.

\*Data was obtained from GIS files provided by the City of Kingston in winter 2017/2018. It is to be noted that City GIS records are updated on a regular basis. The Central Kingston Growth Strategy will use the latest information for service capacity calculations and review.

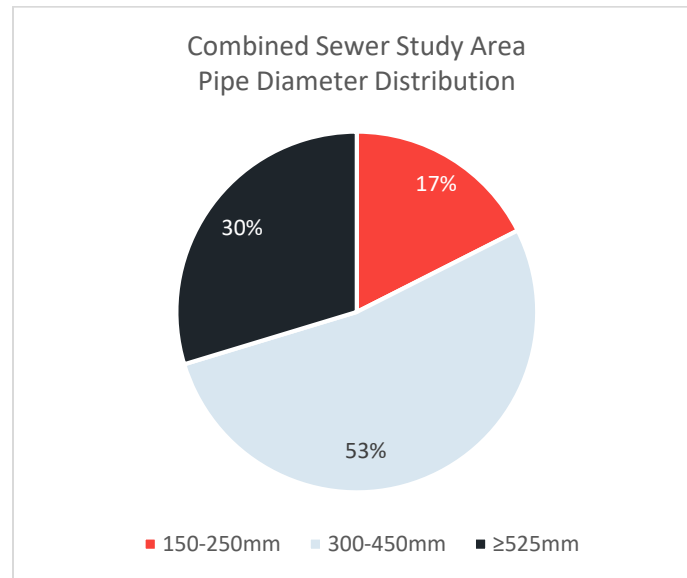


Figure 11: Study Area Combined Sewer Pipe Diameter Distribution

## Active Combined Sewer Overflows

Combined sewer overflow information in this section was collected from the City of Kingston Pollution Prevention Control Plan

(PPCP) locations found within the study area of this project. There are currently 15 active combined sewer overflows in Central Kingston and 3 large tank overflows.

### **PPollution Prevention Control Plan (PPCP) #02 & Pollution Prevention Control Plan (PPCP) #65 Belle Park**

PCP #2 is a CSO from trunk and PCP #65 is a SSO (Sanitary Sewer Overflow) from a local collector, both located in the same chamber in Belle Park behind 525 Rideau Street. PCP #2 services two incoming 900 mm trunk sewers, and PCP #65 services the 1,200 mm local sanitary sewer. A 1,800 mm storm sewer passes through the chamber and receives overflows which discharges to outlet. Low flow from the 1,200 mm sanitary enter a 390 mm orifice and proceeds to the main mixing chamber. Flow from the two 900 mm sanitary trunk sewers enter the main mixing chamber. Overflows from the 1,200 mm sanitary sewer enter directly to the upper level 1,200 mm storm sewer. Low flow from the mixing chamber proceeds to the lower level 1,200 mm sewer to River Street Pumping Station. Overflow from the mixing chamber is conveyed to the upper level 1,200 mm storm sewer which outlets to the Lake.



### **Pollution Prevention Control Plan (PPCP) #22 William Street**

PCP#22 is a CSO in line tank outlet from a local collector located on William Street between King Street and Ontario Street. It is a 41 m long 1,650 x 1,340 mm elliptical concrete pipe with a volume of 88 m<sup>3</sup>. Combined sewer flow from the west (600 mm) enters the tank. The outlet chamber is equipped with a vortex device to limit outflows to 15 L/s. Under low flow conditions, sanitary flow is directed to a 300 mm outlet. Under high flow conditions, flow that cannot be contained in the tank will outlet via the 450 mm storm sewer to the east (storage overflow weir is 2,220 mm higher than the low flow outlet).

### **Pollution Prevention Control Plan (PPCP) #23 Earl Street**

PCP#23 is a CSO in line tank outlet from a local collector located on Earl Street between King Street and Ontario Street. It is a 46m long 2,110 mm x 1,340 mm elliptical concrete pipe with a volume of 106 m<sup>3</sup>. Combined sewer flow from the west (600 mm diameter) enters the tank. The outlet chamber is equipped with a vortex device to limit outflows to 15 L/s. The overflow is located in a manhole downstream of the tank outlet chamber. The downstream manhole has a weir with a 200 mm diameter sanitary orifice which directs low flow to a 200 mm diameter sanitary sewer outlet under low flow conditions. Under high flow conditions, flow that cannot be contained in the tank is directed to a 525 mm diameter storm sewer to the east (storage overflow weir is 3,000 mm higher than the low flow outlet and is equipped with a cone sieve at the storm outlet to limit floatables).

### **Pollution Prevention Control Plan (PPCP) #24 Gore Street**

PCP#24 is a CSO in line tank outlet from a local collector located on Gore Street between King Street and Ontario Street. It is a 61 m long 1,095 mm x 1,730 mm elliptical concrete pipe with a volume of 95 m<sup>3</sup>. 300 mm diameter sanitary and 300 mm diameter storm sewer flow from the west (600 mm diameter) enters the tank. The outlet chamber is equipped with a vortex device to limit outflows to 15 L/s. Under low flow conditions, flow from the sanitary sewer continues to the 200 mm diameter sanitary outlet. Under high flow conditions, storm/sanitary flow that cannot be contained in the tank will outlet via the 375 mm diameter storm sewer outlet (storage overflow weir is 1,670 mm higher than the low flow outlet).



### **Pollution Prevention Control Plan (PPCP) #25 Lower Union Street**

PCP#25 is a CSO in line tank outlet from a local collector located on Lower Union Street between King Street and Ontario Street. It is a 46 m long 1,340 mm x 2,110 mm elliptical concrete pipe with a volume of 115 m<sup>3</sup>. Combined sewer flow from the west and north (600 mm and 350 mm diameter respectively) enters the tank. The outlet chamber is equipped with a vortex device to limit outflows to 15 L/s. The overflow is located in a manhole downstream of the tank outlet chamber. Under low flow conditions, the downstream manhole directs flow to a 450 mm diameter sanitary sewer outlet to the east. Under high flow conditions, flow that cannot be contained in the tank is directed over a weir to a 450 mm diameter storm sewer to the east (storage overflow weir is 2,550 mm higher than the low flow outlet).

### **Pollution Prevention Control Plan (PPCP) #26 West Street**

PCP#26 is a CSO from a trunk sewer located in a manhole at the bend where West Street turns east becoming Ontario Street. Under low flow conditions, sanitary flow from the west and south (375 mm combined sewer and 900 mm sanitary sewer respectively) continues north to the 1,200 mm sanitary trunk. Under high flow conditions, combined and sanitary flow will rise above the weir and overflow to the east 900 mm storm sewer (storage overflow weir is 1,400 mm higher than the low flow outlet).

### **Pollution Prevention Control Plan (PPCP) #51 Clarence Street**

PCP#51 is a CSO in line tank outlet from a local collector located on Clarence Street between King Street and Wellington Street. It is a 78.5 m long box culvert (half 1,800 x 2,400 mm and half 1,800 x 3,000 mm) with a volume of 380 m<sup>3</sup>. Combined sewer flow from the west (450 mm diameter) enters the tank. The outlet chamber is equipped with a vortex device to limit outflows to 15 L/s. Under low flow conditions, the outlet chamber directs flow to a 250 mm diameter sanitary sewer outlet to the east. Under high flow conditions, flows that cannot be contained in the tank is directed over a weir to a 375 mm diameter storm sewer over a to the east (storage overflow weir is 2,810 mm higher than the low flow outlet).

### **Pollution Prevention Control Plan (PPCP) #52 Raglan Road**

PCP#52 is a CSO from a local collector located in a manhole on Raglan Road just west of the Rideau Street intersection. Under low flow conditions, combined wastewater flow from the west (900 mm diameter) enters the manhole and proceeds south east to the 375 mm diameter outlet sanitary sewer. Under high flow conditions, flows are directed over a weir and into the 900 mm diameter overflow to the adjacent 900 mm diameter storm sewer (weir is 550 mm higher than the low flow sanitary outlet).

### **Pollution Prevention Control Plan (PPCP) #53 Union Street**

PCP#53 is a CSO from a local collector located in a manhole on Union Street at the Division Street intersection. Under low flow conditions, combined wastewater flow from the west (1,350 mm diameter) enters the manhole and proceeds east to the 1,350 mm diameter outlet combined sewer. Under high flow conditions, flows are directed over a weir and into the 900 mm diameter overflow to the adjacent 1,050 mm diameter storm sewer.



### **Pollution Prevention Control Plan (PPCP) #55 King Street Tank Overflow**

PCP#55 is located in a chamber at the east end of the King St. CSO tank near the Murney Tower parking lot. Combined sewer from the King St. Pump Station enters the CSO tank via a 1,200 mm sewer and is stored until it can be pumped back into the King St. Pump Station. During an overflow event, when the tank reaches capacity, combined wastewater is directed into an overflow trough and on to the overflow chamber to a 1,350 mm storm sewer.

### **Pollution Prevention Control Plan (PPCP) #56 Collingwood Street**

PCP#56 is located in a chamber at the south west corner of the Collingwood CSO Tank at Collingwood Street south of King Street. Combined sewer enters the CSO tank via a 1,200 mm diameter combined sewer pipe and is stored until it can be pumped back to the gravity system via a 250 mm diameter sanitary forcemain. During an overflow event, when the tank reaches capacity, the combined wastewater is directed into an overflow chamber to a 1,425 mm x 1,925 mm storm sewer outlet pipe.

### **Pollution Prevention Control Plan (PPCP) #68 Quebec Street**

PCP#68 is a CSO located in a manhole on Quebec Street in the Barrie Street intersection. Under low flow conditions, wastewater flow from the south and west (300 mm and 375 mm diameter respectively) enters the manhole and proceeds north to the 450 mm diameter sanitary sewer. Under high flow conditions, flows are directed over a weir into a 375 mm diameter overflow pipe to the adjacent 1,050 mm diameter storm sewer (770 mm higher than the low flow outlet).

### **Pollution Prevention Control Plan (PPCP) #70 Carlisle Street**

PCP#70 is a CSO located in a manhole in the intersection of Carlisle Street and Chestnut Street. Under low flow conditions, wastewater flow from the south and west (300 mm and 225 mm diameter respectively) enters the manhole and proceeds east to the 375 mm diameter sanitary sewer. Under high flow conditions, flows are directed to a 375 mm diameter overflow pipe to the adjacent 1,350 mm diameter storm sewer (513 mm higher than the low flow outlet). As of 2015, PCP#70 has been temporarily plugged.

### **Regulatory Requirements**

#### **MOE Guideline F-5**

The Ministry of the Environment, Conservation and Parks (MECP), previously known as the Ontario Ministry of the Environment and Climate Change (MOECC), requires that municipal and private sewage treatment works, outfall structures and emergency overflow facilities be located, designed, constructed and operated so as to minimize pollution of receiving waters and interference with water uses.

The primary purpose of Guideline F-5 is to describe the levels of treatment required for municipal and private sewage treatment works discharging to surface waters. Relevant components of Guideline



F-5 are as follows

- Procedure F-5-1: Determination of Treatment Requirements for Municipal and Private Sewage Treatment Works Discharging to Surface Waters
- Procedure F-5-2: Relaxation of Normal Level of Treatment for Municipal and Private Sewage Treatment Works Discharging to Surface Waters
- Procedure F-5-3: Derivation of Sewage Treatment Works Effluent Requirements for the Incorporation of Effluent Requirements into Environmental Compliance Approvals for New or Expanded Sewage Treatment Works
- Procedure F-5-4: Effluent Disinfection Requirements for Sewage Works Discharging to Surface Waters
- Procedure F-5-5: Determination of Treatment Requirements for Municipal and Private Combined and Partially Separated Sewer Systems

Guideline F-5 states that the level of treatment for new or expanded sewage treatment works must be in accordance with Procedures F-5-1 and F-5-2. Effluent requirements, including both waste loadings and concentrations, must be derived in accordance with Procedure F-5-3 or those established in the Wastewater System Effluent Regulations, whichever is stricter.

### **The City of Kingston Official Plan (2017)**

The City of Kingston Official Plan is a document that provides planning goals and policies that direct:

- Physical development and redevelopment
- Protection of natural and cultural heritage
- Resource management
- Necessary supporting infrastructure

The Planning Act requires that all municipalities adopt an Official Plan that complies with the Provincial Policy Statement. The Official Plan's purpose is to guide development in Kingston until 2036 and is reviewed every five (5) years in accordance with the requirements of the Planning Act. There are ten (10) main sections:

- 1 Overview
- 2 Strategic Policy Direction
- 3 Land Use Designations and Policies
- 4 Infrastructure and Transportation
- 5 Protection of Health and Safety
- 6 The Environment and Energy
- 7 Cultural Heritage Resources
- 8 Urban Design
- 9 Administration and Implementation



### **Places to Grow Act (2005)**

The Places to Grow Act 2005, provides a framework for the Provincial government to coordinate planning and decision-making for long-term growth and infrastructure renewal in Ontario. It gives the Province the authority to designate geographical growth areas, and to develop growth plans in collaboration with local officials and stakeholders to meet specific needs across the Province. Growth plans developed under the Places to Grow Act integrate and build upon other initiatives such as the Greenbelt Plan, the Niagara Escarpment

Plan, the Provincial Policy Statement, the Planning Act, municipal infrastructure planning, and source water protection planning. Growth plans may include population projections and allocations, policies, goals and criteria relating to issues such as intensification and density, land supply, expansions and amendments to urban boundaries, location of industry and commerce, protection of sensitive and significant lands (including agricultural lands and water resources), infrastructure development, affordable housing and community design. Municipalities are required to bring their official plans into conformity with the growth plan for their area. Decisions made under the Planning Act and Condominium Act are also required to conform to applicable growth plans.

### **Ontario Water Resources Act (1990)**

The Ontario Water Resources Act, 1990, was passed for the purposes of conservation, protection and management of Ontario's waters by determining requirements for water works, including wells, and sewage works in relation to planning, design, siting, public notification and consultation, establishment, insurance, facilities, staffing, operation, maintenance, monitoring and record-keeping. The Act is a general water management statute which applies to both groundwater and surface water. This Act specifies the requirements that the community must satisfy in order for the provincial government to grant approval for establishing, altering, extending, or replacing water and wastewater system components.

### **Stormwater System Improvement Projects**

This section summarizes known stormwater system improvement projects either in progress or to be completed, within the City of Kingston, based on the findings of the City's current Pollution Prevention Control Plan (PPCP).

### **CSO Monitoring Program**

CSO monitoring was recommended to continue and be expanded to include CSOs not currently monitored, or those that are currently only monitored to indicate the occurrence of an overflow event. Monitoring systems that permit the source of flow (storm or sanitary), volume, duration, and frequency should be installed or updated to continue to support monitoring system performance. Utilities Kingston (UK) should also continue to use the monitoring program to work towards the goal of "virtual elimination", where overflows only occur during major rainfall events or during unusually long periods of wet-weather as supported by a review of CSO flow monitoring data.

Flow monitoring may be considered to improve future updates to hydraulic models and to support future Master Plans and PPCP updates. To support this, it was recommend by WSP in the PPCP that data be collected, to provide an indication of flow direction, duration, frequency, level, and volume, and be considered for a minimum of two (2) years prior to study updates. In-line flow monitors, SCADA, and remote level monitors may be used in conjunction to support the data collection with monitors to be strategically located around CSOs, SSOs, PSOs, pumping stations and contributing local and trunk sewers within the scope of analysis.



## **Integrated Stormwater Management Strategy**

Currently the City and UK manage storm and sanitary sewers separately however, pollution control is required for all collection system types. Synergies in management (and operations) may be achieved through implementation of an integrated stormwater management strategy. It was recommended by WSP in the PPCP that consideration be given to expanding stormwater guidelines into an overall stormwater strategy that also addresses pollutant loading from existing stormwater discharges. The Stormwater Management Program managed by Engineering Services is a tool utilized by staff to prioritize stormwater-related work and inform the overall strategy for City of Kingston projects. City staff collect samples at stormwater outfalls on an annual basis and produce reports detailing observed pollutant loadings to prioritize locations for further investigation.

## **Dry-Weather Discharges at Storm Outfalls**

In past PPCP updates and studies there was reported dry-weather seepage for isolated cases at storm outfall locations which were suspected to have possible cross-connections with sanitary sewers in separated sewer areas. Dry-weather discharges by storm outfalls are a pollution risk to receiving water bodies as no regular transference to combined sewers or treatment occurs. To date, areas identified under the regular storm water quality surveillance program (SWQSP) were recommended for review and remediation upon the discovery of pollution during dry-weather. Recommendations for the discovery of sewage debris at storm outfalls were recommended to continue and include:

- Inspections to determine if there is any sewage debris at storm outfalls.
- Collection of water samples on two (2) or three (3) occasions at identified outfalls that have significant dry-weather flow (e.g. 5 L/s or more) during summer months, and analysis for indicator bacteria (*E. Coli*).
- If contamination is found, an investigation is triggered. Investigation may include sampling at upstream maintenance holes, and CCTV inspections to find sources of dry-weather flows.

Monthly or more frequent checks of all storm outfalls during the summer season were recommended. Dedicated storm outfalls of priority, identified for review in the past, include:

- Inspections to determine if there is any sewage debris at storm outfalls.
- Storm outfalls at the Portsmouth Olympic Harbour
- Albert Street Storm Outfall
- Kingscourt Storm Outfall
- Lower Princess Street Outfall
- Little Catawaqui Creek from Princess Street Storm Outfall





## **Wet-Weather Discharges At Storm Outfalls**

Wet-weather discharges at storm outfalls include the CSO control structures which occur during major weather events. The recommended strategy for reducing and eliminating wet-weather discharges for storm outfalls related to CSO control structures was to follow the long-term CSO Reduction Strategy.

## **Long Term CSO Reduction Strategy - Sewer Separation Program**

The 2017 Master Plan recommended that the projected sewer separation reduction continue, at a minimum, as the primary strategy for reducing combined sewer overflows. This strategy reduces the scale of major infrastructure conveyance improvements required throughout the systems.

Adjustments to the projected sewer separation program may be made as updated CSO monitoring data is made available and in future PPCP / Master Plan Update Studies which continue to improve the accuracy of projected overflows in the existing system. All source control efforts which work to eliminate direct wet-weather inflow support the goal of 'virtual elimination' of CSOs within the system. Analysis shows that accelerating the program would provide additional reduction of overflows. Reducing the rate of sewer separation has been shown to prolong achievement of the goal of 'virtual elimination' of CSOs.

## **Stormwater Assessment Studies (2018)**

WSP was retained by the City of Kingston to undertake stormwater studies of existing stormwater systems within the City. Three (3) of these stormwater studies are on-going for areas located within the identified Central Kingston Growth Strategy areas as shown on Figure 1. These areas include Fairway Hill Crescent, King Street West from Beverly to Barrie, and Victoria Street. The stormwater assessments are completed with the intent of documenting existing conditions, reviewing existing City-owned conveyance systems, determining potential factors contributing to flooding, and seeking both short-term and long-term improvement opportunities.

The next multi-year infrastructure plan (2019-2022) will consider the short-term improvements and long-term solutions for each study area as outlined in Table 6. The plan is subject to approval by City Council. Candidate projects will be evaluated based on many factors, including Council's Strategic Priorities, long-term infrastructure and master plans, and condition/risk assessments.



Table 6: Central Kingston Stormwater Assessment Studies, Short-Term and Long-Term Opportunities

Study Area	Potential Causes of Flooding	Short-Term Improvements	Long-Term Solutions
Fairway Hill Crescent	<p><b>Overgrown Sideyard Ditches/Swales</b> – Swales between homes are blocking the overland flow route for major storm events.</p>	<p><b>CCTV</b> – Undertake investigative work to confirm existing configuration of sewers, including contributing areas, elevations and overall condition.</p> <p><b>City Maintenance Program</b> – The flood-prone area is now monitored prior to and during significant rainfall events to ensure that the stormwater system is properly maintained and functioning well. Follow up maintenance is scheduled as required and tracked in the City’s database to inform future operational planning. The City has indicated they have increased the clean-out frequency in areas that are within the flood plain.</p> <p><b>Public Awareness</b> – Property owners should be made aware of their responsibilities to maintain the proper operation of drainage systems on their property. These may include overall grading, front or rear-yard catch basins, foundation drains, sump pumps, and backwater valves. Educate and encourage property owners to take an active role in clearing catch basins in between regular maintenance by City personnel. Educate and encourage homeowners located at the low northwest corner of Fairway Hill Crescent to reinstate sideyard ditches/swales between homes to provide an overland flow route to an appropriate outlet during major storm events.</p> <p><b>Roadway Repairs</b> – Locations that have been damaged due to ponding water should be monitored and repaired as required.</p>	<p><b>Upgrade Catch Basins and Laterals</b> – Storm sewer system upgraded with two new double catch basins and laterals at the northwest corner of Fairway Hill Crescent in Summer 2019.</p>
King Street West	<p><b>Location of Lake Ontario 100-year Floodplain</b> – King Street West at Collingwood Street is within the 100-year floodplain for Lake Ontario.</p> <p><b>Pre-Existing High Lake Ontario Water Levels</b> – Due to higher than usual spring rainfall events, the Lake Ontario water levels were at record high levels.</p> <p><b>Lack of Infiltration</b> – Due to significant spring rainfall, the saturated ground could no longer allow for water infiltration which added to the volume of runoff.</p>	<p><b>CCTV and Topographic Work</b> – Investigative work was completed in summer 2019 confirm existing configuration of sewers, including contributing areas, elevations and overall condition. This included confirming the older pipes are still in place and functioning as planned.</p> <p><b>City Maintenance Program</b> – The flood-prone area is now monitored prior to and during significant rainfall events to ensure that the stormwater system is properly maintained and functioning well. Follow up maintenance is scheduled as required and tracked in the City’s database to inform future operational planning.</p>	<p><b>Additional Storage</b> – When sewers are slated for reconstruction, oversizing pipe sewers to provide additional storage in susceptible areas</p> <p><b>Improve Overland Flow Route</b> – Breakwater Park improvements completed in 2018 have provided a suitable overland flow route from the depressed pedestrian crossing at the Lower University/King Street West intersection through Breakwater Park along the concrete multi-use pathway directly to Lake Ontario.</p>



Study Area	Potential Causes of Flooding	Short-Term Improvements	Long-Term Solutions
<b>Victoria Street</b>	<p><b>Grading</b> – During the site visit, it appeared Victoria Street has some grading issues south of the intersection. Water ponds on the roadway causing damage to the asphalt in this location.</p> <p><b>Improve Defined Overland Flow Route</b> – A better defined overland flow route would assist to convey the water to the outlet. Due to the existing road conditions, water is ponding at the lowest elevation in the roadway.</p>	<p><b>CCTV and Topographic Work</b> – Undertake investigative work to confirm existing configuration of sewers, including contributing areas, elevations and overall condition.</p> <p><b>Maintenance</b> – The catch basins at this intersection are monitored and maintained on a scheduled-basis as part of a stormwater system maintenance program, which includes clean-out of the catch basin sumps and any observed blockages.</p> <p><b>Public Works Maintenance Program</b> – Establish a well-defined program to address a routine at which CCTV's are completed, roadside ditches are inspected, catch basins are cleaned and sewers are flushed. Currently, CCTV inspections are only performed as required.</p>	<p><b>Re-Grading</b> – Low elevations in the south-east corner of the intersection are resulting in ponding water that is deteriorating the asphalt. Major road reconstruction will be required for design and re-grading. This will improve the overland flow route to the outlet to reduce ponding on the roadway in this location.</p>

## Conclusions

The system constraints and recommendations from the Kingston Water and Wastewater Master Plan, Pollution Prevention Control Plan and on-going stormwater assessment studies within the identified City of Kingston Growth Strategy study area will be considered in the development of stormwater servicing solutions.

Detailed impacts to stormwater management will be assessed during the identification of specific development nodes within the study area during the next stage of this project.

# Appendix H



## Existing Conditions – Transportation

Revised November 2019



## Memo

**TO:** Andrea Gummo, Sukriti Agarwal, City of Kingston  
**CC:** Chris Tyrrell, Jennifer Sisson, Michael Flowers, Ben Worth, Malcom  
**FROM:** Wallace Adam Howell, P.Eng.  
**SUBJECT:** **Central Kingston Growth Strategy – Review of Existing Transportation Conditions**  
**DATE:** November 20, 2019

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## Project Overview

The Central Kingston Growth Strategy is intended to identify nodes for future infill development and intensification. The study area for this project includes all land parcels with residential zoning in the area of the City generally bounded by Highway 401 to the north, the Little Cataraqui Creek to the west, Lake Ontario to the South and the Cataraqui River to the East, but excludes the Inner Harbour neighbourhood containing the Kingston downtown core. It is noted that the study area includes currently undeveloped portions of the Novelis Campus and Markers Acres neighbourhood adjacent to Highway 401.

The City of Kingston has defined a system of 43 distinct neighbourhoods across the City based on Statistics Canada census dissemination areas for the purpose of developing individual neighbourhood planning profiles as a tool for community planning; the Central Kingston Growth Strategy Study area includes portions of 17 of these neighbourhoods. Figure 1 illustrates the Central Kingston Growth Strategy Study Area as well as the neighbourhoods containing portions of this Study Area.

This report is intended as a planning level review of the existing transportation infrastructure and operations in the project study area, to identify specific portions of the study area that are relatively more or less prone to transportation operational impacts as a result of new infill developments or intensification; a more detailed corridor and intersection level review will be undertaken once potential development nodes have been identified later in the study. This review will also include an assessment of guiding policies and future infrastructure projects proposed in the most recent Kingston Transportation Master Plan (KTMP) and Active Transportation Master Plan (ATMP) Updates.



## Road Network

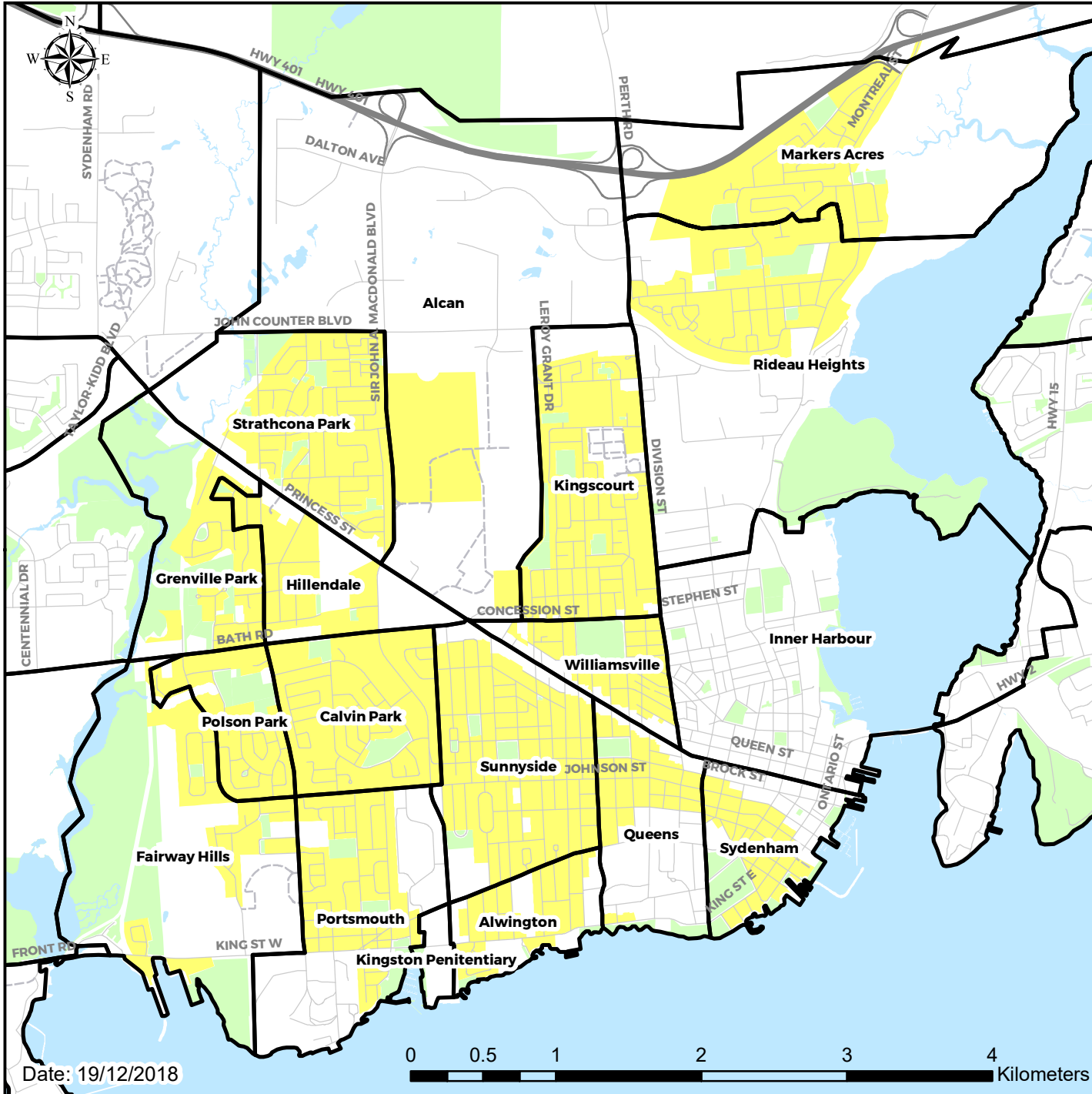
The project study area is generally well served by the existing municipal road network with most neighbourhoods being bounded by arterial and collector roads to facilitate travel to other locations in the City. Figure 2 illustrates the existing municipal road network in the context of the project study area and designated neighbourhoods.

The City of Kingston developed a transportation demand forecasting model as part of the development of the 2004 Kingston Transportation Master Plan (KTMP); this model was updated in 2009 after the completion of the 2008 Household Travel Survey and again in 2015 as part of the updated Transportation Master Plan. This model was developed for the PM peak hour using the TransCAD software platform and applied to evaluate the performance of the existing transportation network and assess the impacts of the planned improvements to transportation infrastructure and services proposed during the development of the KTMP.

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# Central Kingston Growth Strategy



## Legend

- Central Kingston Growth Strategy Study Area
- Parks
- Kingston Neighbourhoods

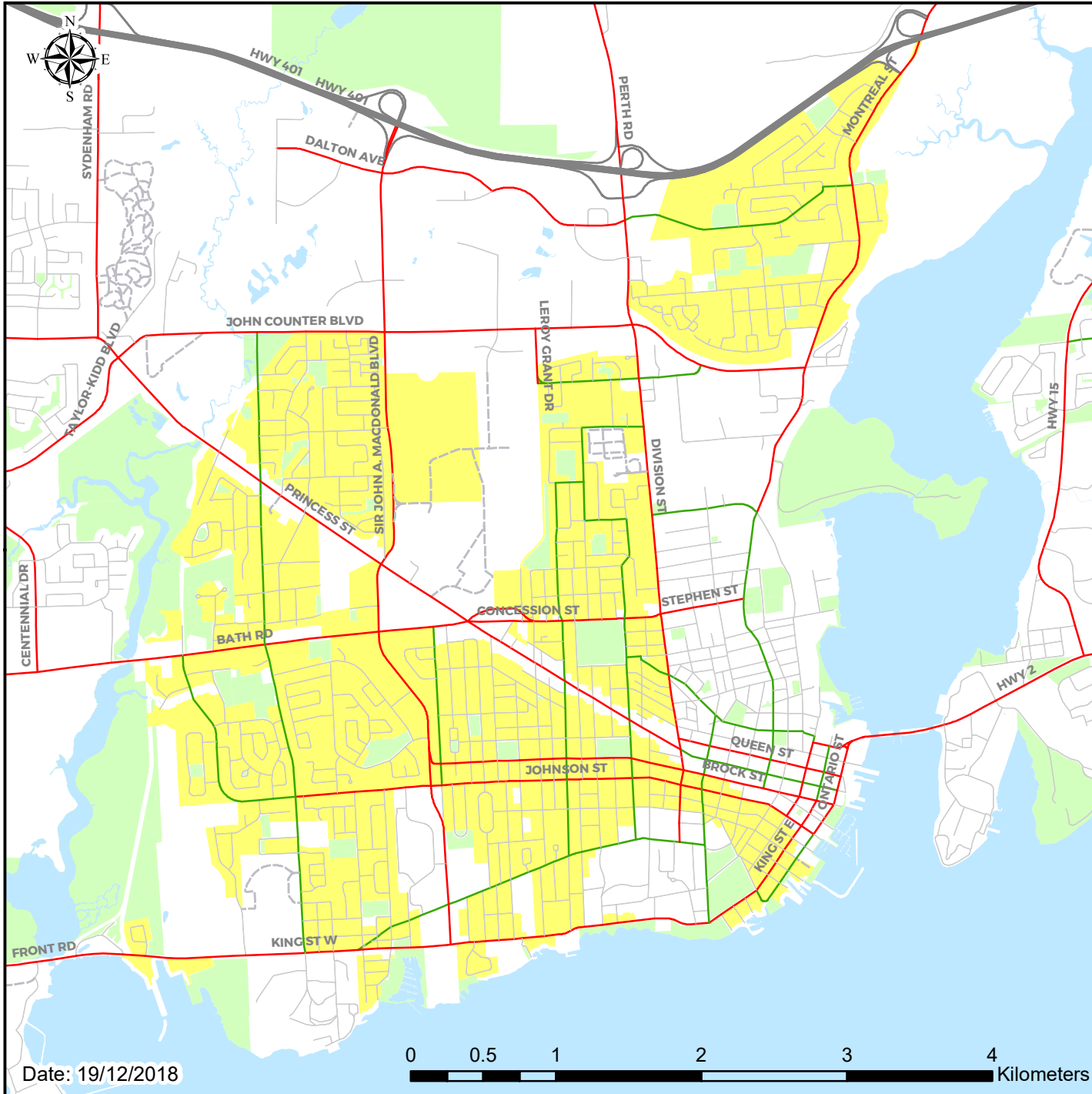
GIS Data obtained from City of Kingston, Kingston Open Data Catalogue and adopted from Kingston Active Transportation Master Plan (June 2018)

### Figure 1

#### Study Area and Kingston Neighbourhoods

Date: 19/12/2018

# Central Kingston Growth Strategy



## Legend

- Central Kingston Growth Strategy Study Area
- Parks
- Existing Road Network**
  - MTO Freeway
  - MTO Freeway Ramps
  - Kingston Arterial Roads
  - Kingston Collector Roads
  - Kingston Local Roads
  - Service/Access Roads

GIS Data obtained from City of Kingston, Kingston Open Data Catalogue and adopted from Kingston Active Transportation Master Plan (June 2018)

## Figure 2

### Kingston Existing Road Network

Date: 19/12/2018

0 0.5 1 2 3 4 Kilometers



The KTMP analysis included the development of a 2014 existing conditions scenario as a baseline for the evaluation of future scenarios. The results of this 2014 existing conditions analysis include volume-to-capacity (V/C) ratios, a measurement of the modeled road volumes compared with the road capacity. Traditionally, a V/C ratio of 0.9 has been used by the City of Kingston as a threshold to determine the need for road improvements; the 2015 KTMP update revised this threshold to 1.0, recognizing the desire to explore opportunities to encourage the use of other modes and defer capital costs for road construction until roads reach capacity. The V/C of 1.0 also recognizes the desire not to design a roadway network that responds to one or two hours of the day.

The 2014 existing conditions PM peak hour V/C ratio plot is included as Figure 3; roads in the Central Kingston Growth Strategy Study Area reaching the 1.0 V/C ratio threshold include the following:



Figure 3: V/C Ratios from 2014 Transportation Forecasting Model (Source: City of Kingston)

- The crossings of the Little Cataraqui Creek on John Counter Boulevard, Princess Street and Bath Road all exceed capacity in the 2014 existing conditions analysis; these capacity deficiencies extend along all of these corridors to the west of Little Cataraqui Creek. These corridors all represent routes between the study area and the west end of the City, which may experience additional congestion due to population growth through development in the study area.



- Princess Street immediately east of Bath Road exceeds capacity in the 2014 existing conditions analysis, and is near capacity for most of the length between Bath Road and Albert Street. This segment of Princess Street represents a major approach towards Kingston's Downtown from the northwest portion of the study area, as well as a primary access to the arterial road network from the Sunnyside and Williamsville neighbourhoods; this corridor could experience additional congestion with additional development in any of these neighbourhoods.
- Brock Street exceeds capacity in the 2014 existing conditions analysis between approximately Victoria Street and Sydenham Street. This westbound one-way corridor represents a major route from downtown into the Sydenham, Queen's and Sunnyside neighbourhoods, as well as a connection to neighbourhoods further to the west. It is noted that Johnson Street, the adjacent eastbound one-way corridor, is not identified as being near capacity for the PM peak hour scenario assessed; it is anticipated that there will be similar capacity constraints on Johnson Street in the morning when eastbound is the peak direction for traffic. Congestion on this one-way pair may be exacerbated with further development in the southern portion of the study area.
- King Street exceeds capacity in the 2014 existing conditions analysis between approximately Union Street and east of Barrie Street. Union Street, representing a parallel route to and from the Kingston downtown area, also exceeds capacity in the model between east of King Street and Ellerbeck Street (east of Sir John A. MacDonald Boulevard). These corridors represent the primary connections between downtown Kingston and the portions of the Queen's, Alwington and Portsmouth neighbourhoods along the Lake Ontario waterfront, as well as areas to the west. Additional development in the southern portion of the study area may exacerbate the existing congestion along these routes.
- Montreal Street exceeds capacity in the 2014 existing conditions analysis from approximately McCauley Street to Raglan Road. This corridor represents a primary route to and from Downtown Kingston from the Rideau Heights and Markers Acres neighbourhoods to the north, as well as Highway 401 and communities to the north. This corridor may experience additional congestion with additional development in these areas, although the construction of the Third Crossing of the Cataraqui River will create an alternative route for traffic from the north and east that will impact volumes on the corridor. Division Street to the west represents an alternate route towards downtown from these neighbourhoods; the model results indicate congestion on this corridor between Elliott Avenue and Railway Street.

Overall, much of the congestion reported in the 2014 evaluation of existing traffic conditions occurs along the primary corridors to and from Downtown Kingston. It is anticipated that additional development in the area surrounding downtown will add additional volumes to these routes. A more detailed analysis of the impacts on specific corridors will be undertaken following the selection of specific development nodes.



## Parking

Kingston's Zoning By-Laws govern the minimum parking supply for developments in the City and required dimensions for standard and accessible parking spaces. The City has established separate zoning By-Laws for different areas of the City; the Central Kingston Growth Strategy Study area falls within the boundaries of Zoning By-Law 8499 for the City of Kingston proper. The parking provisions of this By-Law generally require 1 off-street parking space per residential unit for new developments (1.4 spaces outside of B, B2 and C zones for multiple family dwellings); parking requirements vary for non-residential uses and are a function of floor area, employees or capacity for visitors (hotel units, hospital beds, etc). This by-law specifies a requirement of 4% of the required parking to be accessible spaces, with the exception of 10% for institutional uses.

Parking in Kingston is governed by the City of Kingston By-Law 2010-128, "A By-Law to Regulate Parking," last updated on June 26, 2018, as of the date of this writing (December 19, 2018). This By-Law includes general regulations for parking operations on city streets and municipal lots, as well as specific regulations for accessible, permit and metered parking. Metered parking and municipal lots are generally concentrated in the City's downtown area; metered parking generally allows for maximum stays of 2-3 hours, while the maximum stay in off-street lots varies for each individual lot between 3-4 hours and all day. Monthly parking permits are available for some City garages and surface lots in the downtown area. The Parking By-Law establishes a maximum 12-hour period for on-street parking where not marked otherwise, and a full prohibition of overnight on-street parking between December 1 and March 31. The full list of blocks that are metered or have posted limitations or restrictions to on-street parking is listed in the Schedules of the Parking By-Law.

The City of Kingston's On-Street Parking Program has been implemented as a deterrent to all-day spillover parking in residential neighbourhoods close to major trip generators in order to maintain capacity for parking by residents of these neighbourhoods. While free parking is generally available on neighbourhood streets, the On-Street Parking Program is based on the implementation of one-hour parking prohibition periods on weekday mornings and afternoons in these neighbourhoods, but allows the option for neighbourhood residents to purchase monthly permits to exempt them from these restrictions. These permits also exempt holders from the 12-hour parking maximum stay and allow stays of up to 72 hours; the permits do not exempt holders from the December to March overnight on-street parking prohibition, but allow the use of municipal surface parking lots for overnight stays during this period. In addition to residents, a limited number of commuter permits are available for specific neighbourhoods.

The program and associated permits went into effect on September 1, 2017 for the Inner Harbour Area; the City of Kingston has identified a total of seven areas as candidates for the implementation of this program. These Areas are illustrated in Figure 4; to date, the program has been implemented in Areas A (Sydenham / Hospital), B (Queen's University / Kingston General Hospital / Williamsville), C (Inner Harbour), F (Williamsville North) and a portion of Area E (Napier Street Area).

## Transit Service

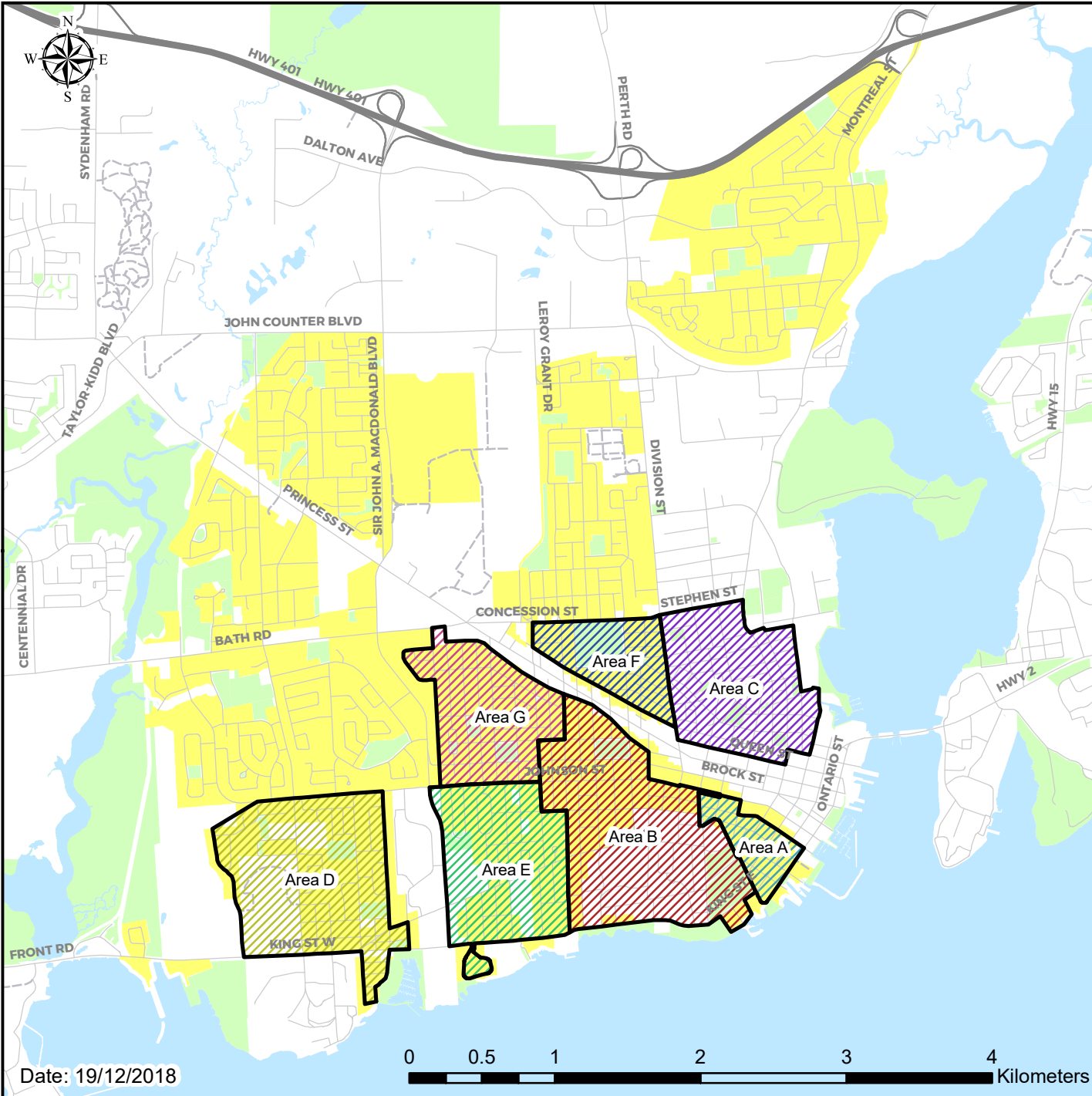
Kingston Transit operates 16 regular routes and 8 express routes across the City. Routes that travel through the study area generally follow the arterial road network to link with the major transfer points at the Bus Terminal on John Counter Boulevard, Kingston Centre, St. Lawrence College and Downtown, although several routes include segments that travel along collector roads to provide service to the residential communities. Kingston Transit provides good coverage of the study area; measured along the road network, approximately 85% of the study area is within a 400m walking distance (approximately a 5-minute walk) of the nearest transit stop.

Kingston Transit generally operates its conventional and express routes at frequencies of 30 minutes and 10-15 minutes respectively during weekday peak periods. In many cases, portions of multiple routes will overlap on arterial and collector corridors to serve key transit hubs, resulting in service frequencies on some of these corridors approaching 5 minutes. Within the Study Area, 5-minute service is available on portions of King Street W, Bath Road, Princess Street, Division Street and Johnson Street / Brock Street, with numerous portions of these and other corridors offering frequencies between 5 and 10 minutes. The increased convenience of these higher frequencies and consequently lower wait times will increase the attractiveness of transit as a mode choice for the neighbourhoods near these corridors.

The Kingston Transit service coverage area and service frequencies based on the current Kingston Transit schedules are illustrated in Figure 5.

Transit ridership data (October 2017) was provided by Kingston Transit, which included boarding counts aggregated at the neighbourhood level. The neighbourhoods used for summary purposes by Kingston Transit represent a further level of aggregation from the City of Kingston's system of 43 neighbourhoods; average weekday boardings and the neighbourhoods reported are illustrated in Figure 6. From the results provided, the highest reported transit use was from the neighbourhoods along the Union Street corridor to and from downtown, with particularly high transit boardings in the Portsmouth Neighbourhood to the west of Sir John A. McDonald Boulevard. Transit boardings for neighbourhoods along the Division Street corridor were also relatively high, while being relatively low for neighbourhoods along the Princess Street corridor. It is noted that the provided data is specific to the Study area and this does not include other areas which may experience high ridership such as the Inner Harbour Area and Queen's University.

# Central Kingston Growth Strategy



## Legend

- Central Kingston Growth Strategy Study Area
- Parks
- Kingston Permit Parking Areas**
  - Area A
  - Area B
  - Area C
  - Area D
  - Area E
  - Area F
  - Area G

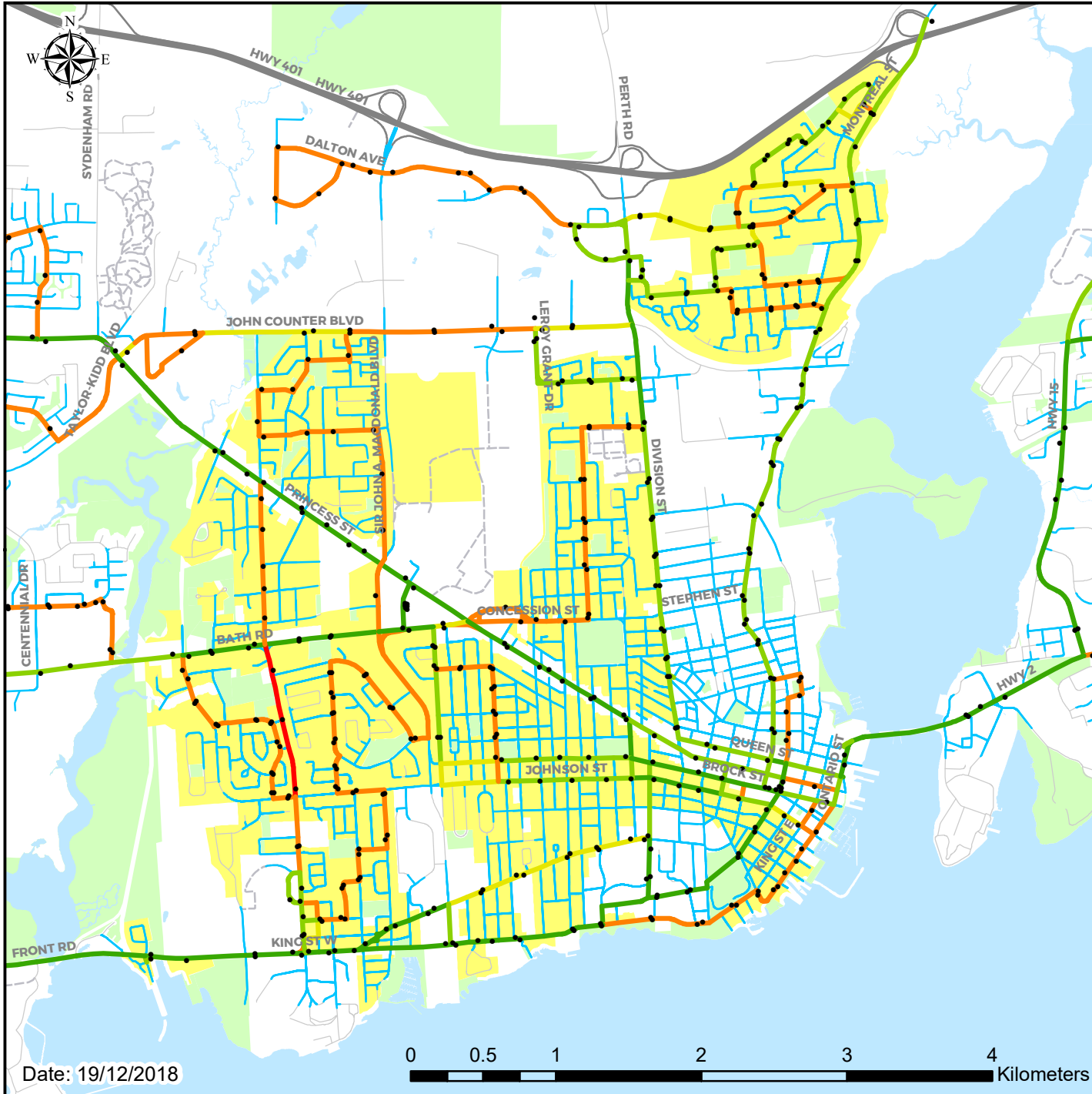
GIS Data obtained from City of Kingston, Kingston Open Data Catalogue and adopted from Kingston Active Transportation Master Plan (June 2018)

### Figure 4 Kingston Permit Parking Areas

Date: 19/12/2018

0 0.5 1 2 3 4 Kilometers

# Central Kingston Growth Strategy



## Legend

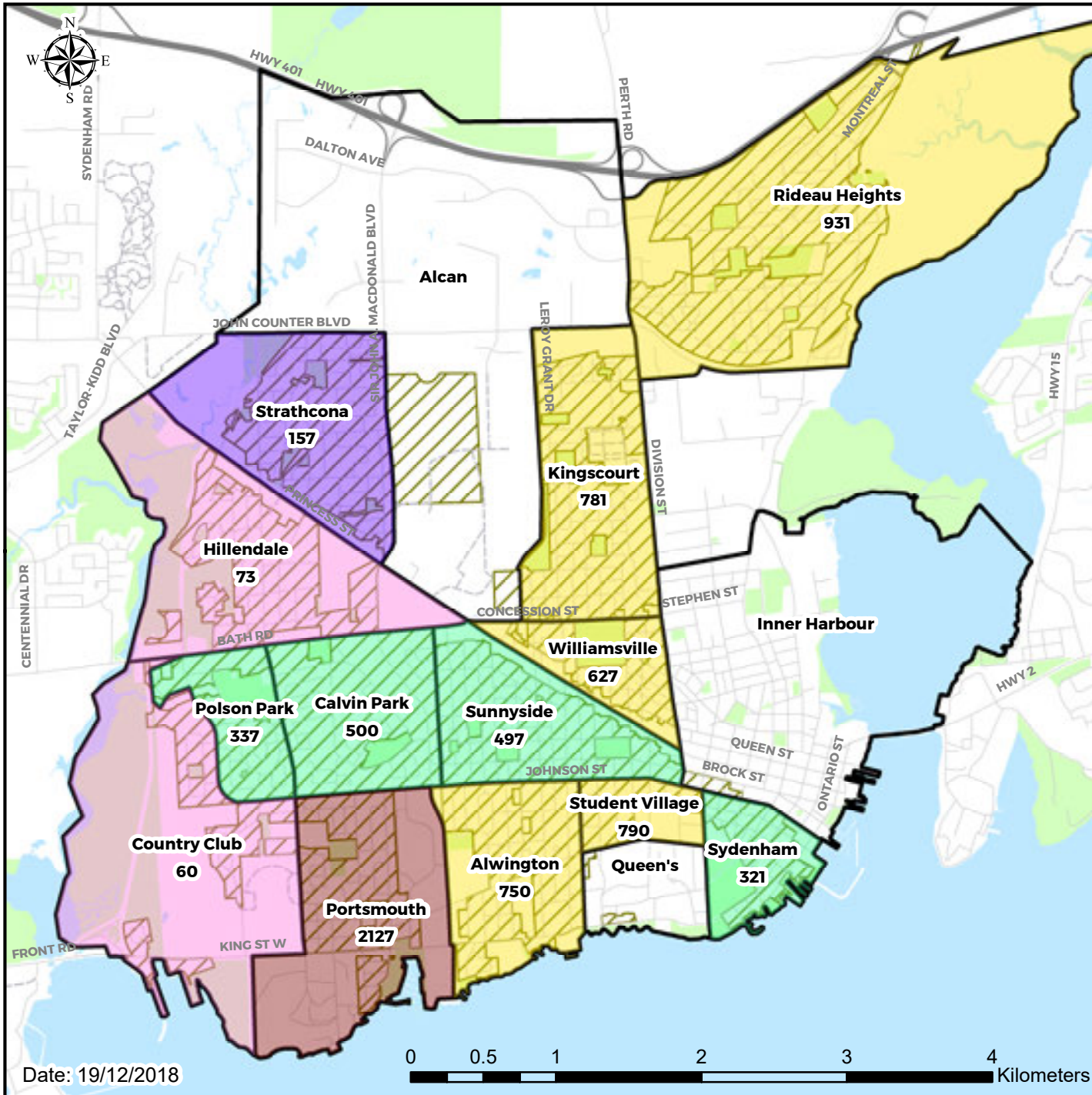
- Central Kingston Growth Strategy Study Area
  - Parks
  - Transit Stops
  - 400m Walking Distance to Transit
- ### Transit Frequency
- 5 Minute Service
  - 5-10 Minute Service
  - 10-15 Minute Service
  - 20-30 Minute Service
  - 60 Minute Service

GIS Data obtained from City of Kingston, Kingston Open Data Catalogue. Transit Frequencies adopted from current Kingston Transit Schedules, as of July 25, 2018.

## Figure 5

### Kingston Existing Transit Coverage

# Central Kingston Growth Strategy



## Legend

- Central Kingston Growth Strategy Study Area
- Parks
- Average Weekday Transit Boardings**
- < 100
- 101 - 250
- 251 - 500
- 501 - 1000
- > 1000
- Transit Neighbourhoods

GIS Data obtained from City of Kingston, Kingston Open Data Catalogue and adopted from Kingston Active Transportation Master Plan (June 2018)

**Figure 6**  
**Kingston Transit Daily Boardings (Oct 2017)**

Date: 19/12/2018

0 0.5 1 2 3 4 Kilometers



## Active Transportation

Observations of active transportation use in Kingston are available from Statistics Canada. Results of the 2016 census for Kingston indicate mode shares for active transportation of 2.4% for cycling and 9.2% for walking (Kingston Active Transportation Master Plan, Final June 2018, p. 21). Figure 7 illustrates the active transportation mode share (walking and cycling combined) from the 2016 Census by dissemination area.

The breakdown of active transportation by dissemination area shows a general trend of increased use of active transportation use towards the downtown core and in many neighbourhoods of the Central Kingston Growth Strategy Study area, given the higher concentration of active transportation infrastructure in these areas and the shorter trips associated with being located closer to the city centre. Active transportation use is particularly high around Queen's University, which reflects the lower tendency for students to own cars and availability of student housing close to campus that contribute to higher active transportation use. It is noted that the majority of neighbourhoods in the study area are reported as having active transportation mode shares significantly higher than the city average, indicating that active transportation use will be a viable commuting option and important consideration for any growth and infill development within the study area.

### Cyclin Facilities

The City of Kingston has a developing cycling network that combines dedicated on-street facilities, off-road trails and signed community routes. Within the project study area, there are existing on-street bike lanes along many arterial roadways including Princess Street, Division Street, Johnson and Brock Streets, John Counter Boulevard and Montreal Street. Existing trails along the Lake Ontario and the Cataraqui River waterfronts provide alternatives to the on-road routes. Connectivity between the existing cycling facilities is limited in many cases, requiring longer cycling trips through the city to travel in mixed traffic between facilities. Many of the existing bike lanes in the study area are oriented to accommodate travel towards Downtown Kingston. In most cases these facilities end as they enter the downtown core to become on-street signed routes. The existing network of cycling facilities in the study area is illustrated in Figure 8.

### Walking Facilities

The existing pedestrian network in the study is relatively comprehensive, with the majority of the arterial and collector roads having sidewalks located on both sides of the street. Sidewalks are available on most local roads in neighbourhoods closer to downtown Kingston. The sidewalk networks are less comprehensive in the neighbourhoods to the west and north of the study area, with a number of local roads lacking sidewalk connections to the surrounding collector and arterial road networks. The existing pedestrian network is illustrated in Figure 9.



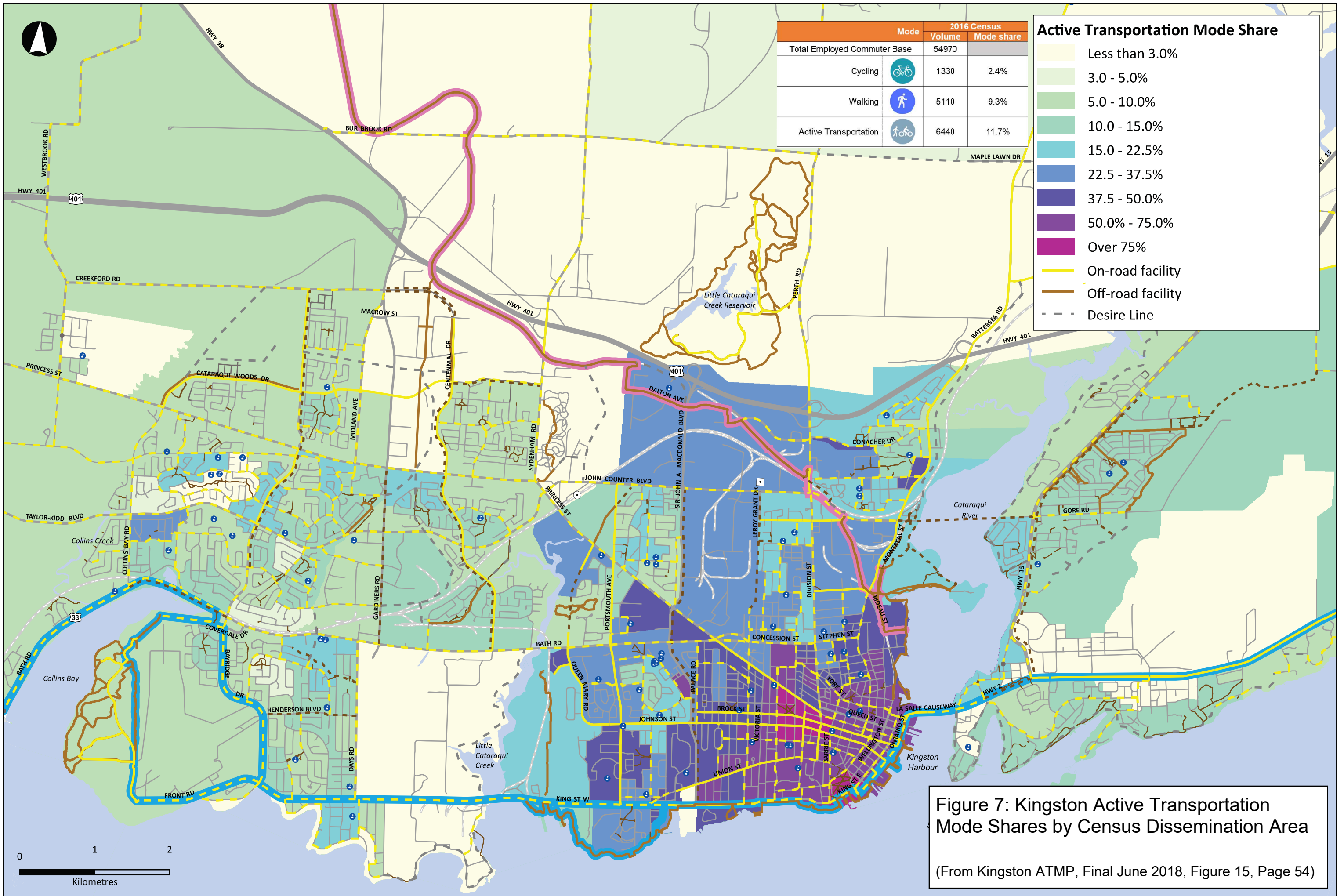
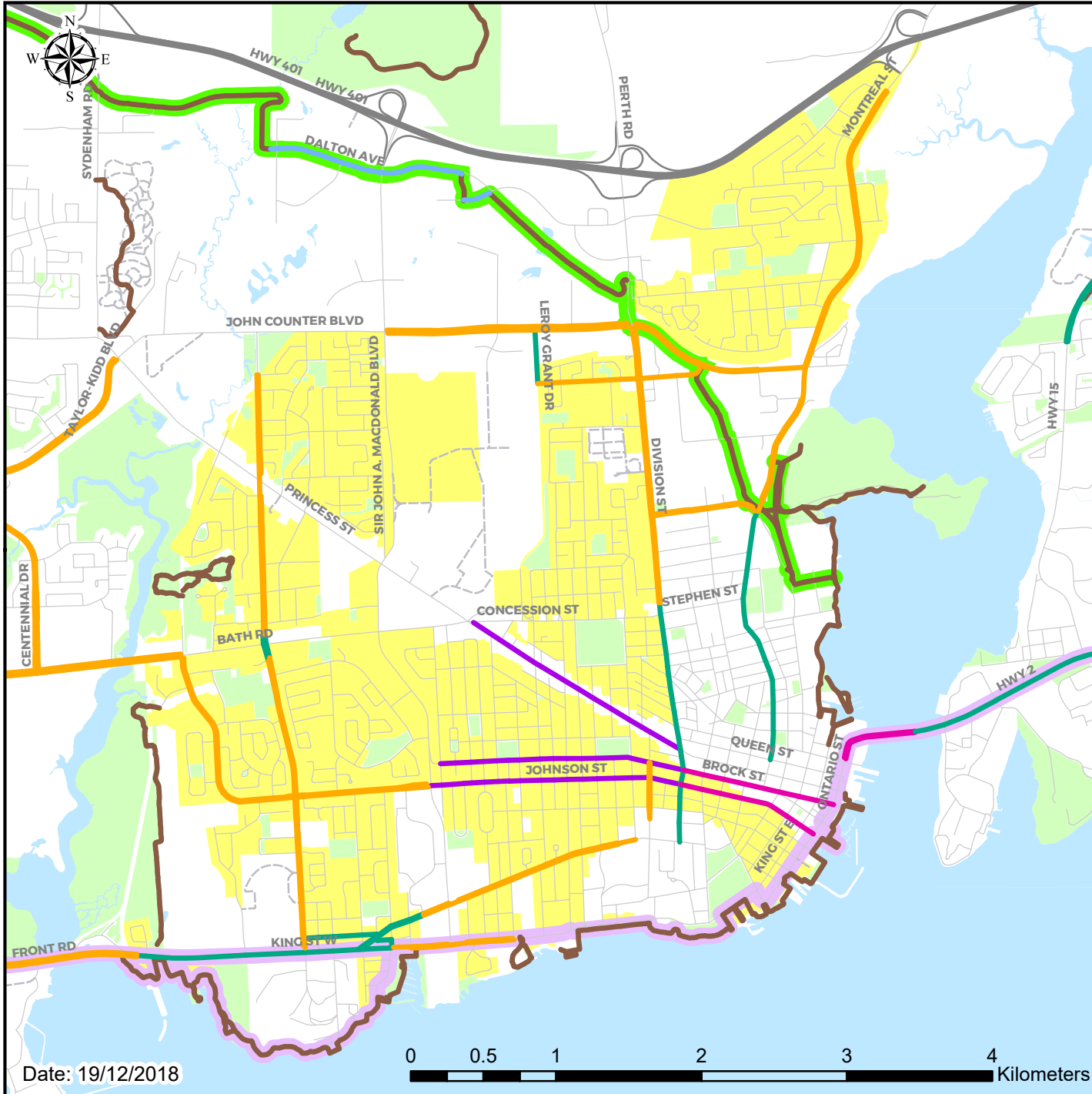


Figure 7: Kingston Active Transportation Mode Shares by Census Dissemination Area  
 (From Kingston ATMP, Final June 2018, Figure 15, Page 54)

# Central Kingston Growth Strategy



**Legend**

- Central Kingston Growth Strategy Study Area
- Parks
- In-Boulevard Trail
- Buffered Bike Lane
- Bicycle Lane
- Paved Shoulder
- Signed Route with Sharrows
- Signed Route
- Off-Road Trail

**Regional Trail Systems**

- K & P Trail
- Waterfront Trail

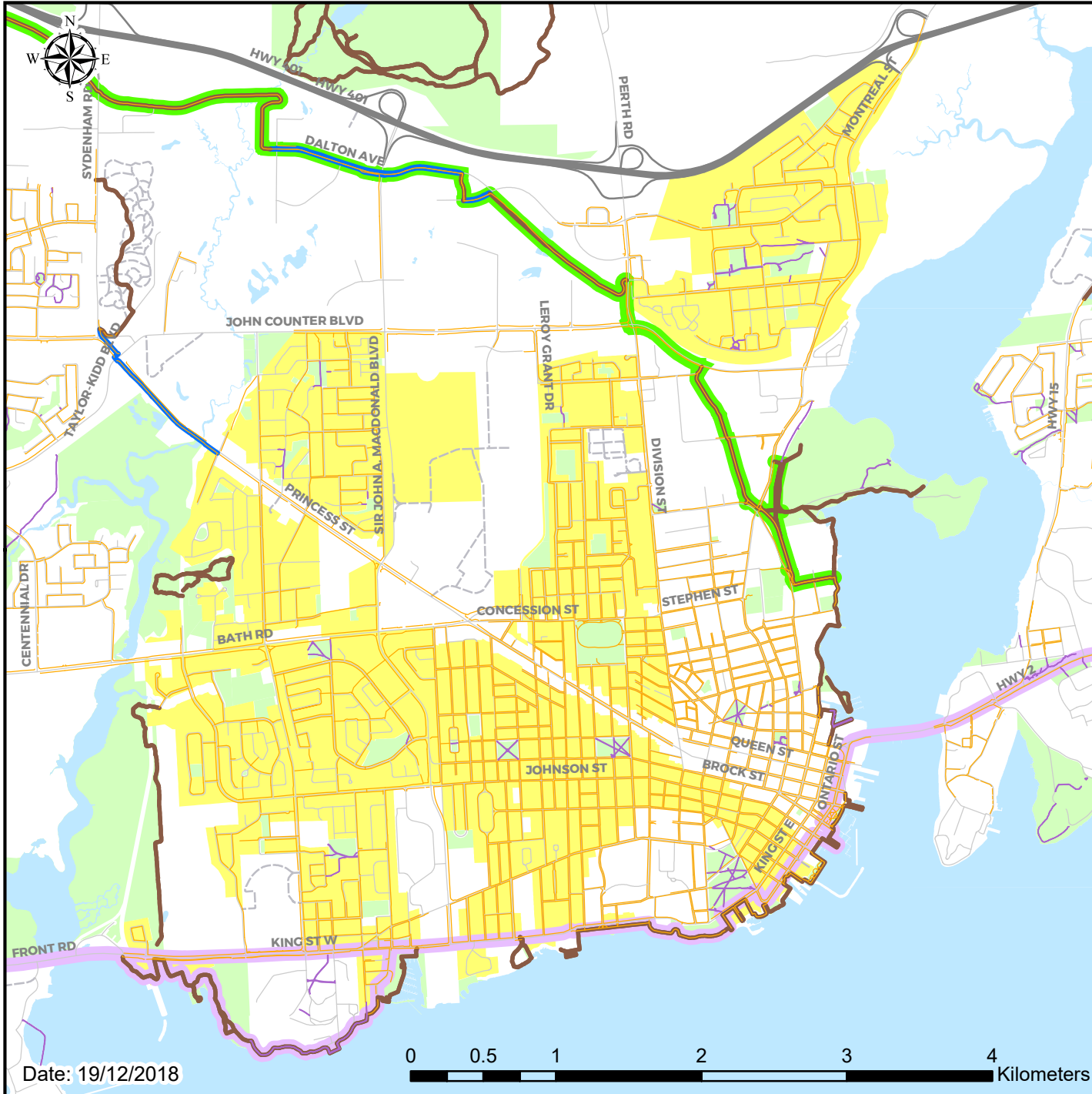
GIS Data obtained from City of Kingston, Kingston Open Data Catalogue and adopted from Kingston Active Transportation Master Plan (June 2018)

**Figure 8**  
**Kingston Existing Cycling Network**

Date: 19/12/2018

0   0.5   1   2   3   4 Kilometers

# Central Kingston Growth Strategy



## Legend

- Central Kingston Growth Strategy Study Area
- Parks
- Existing Walking Network**
  - Sidewalk
  - Off-Road Trail
  - Path
  - In-Boulevard Trail
- Regional Trail Systems**
  - K & P Trail
  - Waterfront Trail

GIS Data obtained from City of Kingston, Kingston Open Data Catalogue and adopted from Kingston Active Transportation Master Plan (June 2018)

## Figure 9

### Kingston Existing Pedestrian Network

Date: 19/12/2018

0 0.5 1 2 3 4 Kilometers



## Policies Guiding Transportation Expansion

### Kingston Transportation Master Plan

The Kingston Transportation Master Plan (KTMP) was most recently updated in 2015; recommendations for improvements to the transportation infrastructure in this plan are based on updated mode share targets for the 2034 horizon year. These targets are intended to increase the use of transit and active transportation as viable modes for commuting and personal trips as a measure to ease the level of future capital expenditures to expand and upgrade the municipal road network. The 2015 KTMP initially set mode share targets of 14% pedestrian trips, 3% cycling trips and 9% transit trips; these targets were increased through a council amendment upon acceptance of the KTMP to 20% for active transportation (walking and cycling) and 15% for transit. The existing mode shares from the 2002 and 2008 Kingston household travel surveys, 2016 Census and the updated KTMP mode share targets are summarized for comparison in Table 1.

Table 1: KTMP Mode Share Targets (KTMP 2015, Table 4-6)

Mode of Travel	2002 Household Survey	2008 Household Survey	2016 Census	2015 KTMP Target (Council Amendment)
Walking	11%	13%	9.2%	20%
Cycling	1%	1%	2.4%	
Public Transit	3%	5%	8.3%	15%
Auto Driver and Passenger	82%	76%	78.7%	65%
Other	3%	5%	1.2%	-
<b>Total</b>	100%	100%	100%	100%

The KTMP proposed a number of directions for transportation improvements aimed at achieving the updated 2015 mode share targets:

- Targeted expansion of the municipal road network to address anticipated vehicle capacity deficiencies;
- Expansion of the Kingston Transit fleet and improvements to transit facilities and marketing; and
- Expansion of the walking and cycling networks.

The improvements to the Kingston municipal road network proposed in the 2015 KTMP are illustrated in Figure 10. The majority of these improvements proposed are in the form of corridor optimizations, which include measures such as signal timing optimization and intersection improvements, primarily in the form of auxiliary turning lanes. Road widenings proposed within the Central Kingston Growth Strategy Study area are on John Counter Boulevard on the segments between Princess Street and Sir John A. MacDonald Boulevard, and between Division Street and the proposed Wellington Street extension; the segment between Sir John A. MacDonald Boulevard and Indian Road is currently under construction and expected to be complete in 2018.

The Central Kingston Growth Strategy Study Area includes three new road facilities recommended by the KTMP:

- The Third Crossing of the Cataraqui River between John Counter Boulevard and Gore Road (approved, construction scheduled to commence in 2019);
- The extension of Wellington Street to John Counter Boulevard; and
- The extension of Leroy Grant Drive to complete the connection between John Counter Boulevard and Concession Street.

The Third Crossing may introduce additional traffic into the study area from east of the river, but will also provide an alternative to vehicles travelling through the study area to access the existing crossings downtown. The latter two facilities will serve the neighbourhoods in the north portion of the Central Kingston Growth Strategy Study Area, providing parallel routes towards the downtown to reduce the traffic burden on Division Street and Montreal Street.



Figure 10: Kingston TMP Recommended Road Improvements (2034)



It is notable that the City of Kingston is currently developing a secondary plan for the North King's Town area, including the Inner Harbour and Old Industrial areas to the north of the downtown core. A Community Visioning and Preliminary Market Analysis Report (hereafter referred to as the Visioning Report) was developed as the first stage of this project and released in June 2017, and includes an assessment of existing conditions and community feedback on mobility in the north King's Town Area. The public feedback documented in the Visioning Report indicates strong community opposition to the proposed Wellington Street extension, a mix of support and opposition for the Third Crossing, and support for better connections within the community, particularly for east-west travel, pedestrian and cycling movements and connections to the waterfront. As the Wellington Street extension will be integral to the future form of the North King's Town area, further development on the North King's Town secondary plan is likely to be a significant factor in influencing how this project is implemented.

### **Kingston Active Transportation Plan (“Walk ‘N’ Roll”)**

Kingston's “Walk ‘n’ Roll” Active Transportation Master Plan (ATMP) was accepted by Council on June 26, 2018. This plan has been developed to provide the City of Kingston a planning framework to achieve the increased KTMP mode share targets and achieve the vision that: “Kingston will be a City that embraces active modes of transportation and where residents and visitors can walk, cycle and wheel using a network of accessible, safe, connected and well-maintained trails, bicycle lanes, sidewalks and pathways which will lead to 20% of all travel occurring via active modes of transportation.” (Kingston ATMP, Final, June 2018, Section 1.4.1, p. 17).

The Plan is developed around the principles of Safety, Connectivity, Equity, Equality, Accessibility and Promotion; the development plan was designed to meet five main objectives, and included extensive community consultation for each step:

- Identify a comprehensive active transportation network;
- Identify corridors to encourage use of walking and cycling;
- Identify a network that encourages and supports multi-model travel;
- Identify facilities to support recreational and tourism trips;
- Identify programs to help achieve the City's active transportation goals. (Kingston ATMP, Final, June 2018, Section 1.4.3, p. 20).

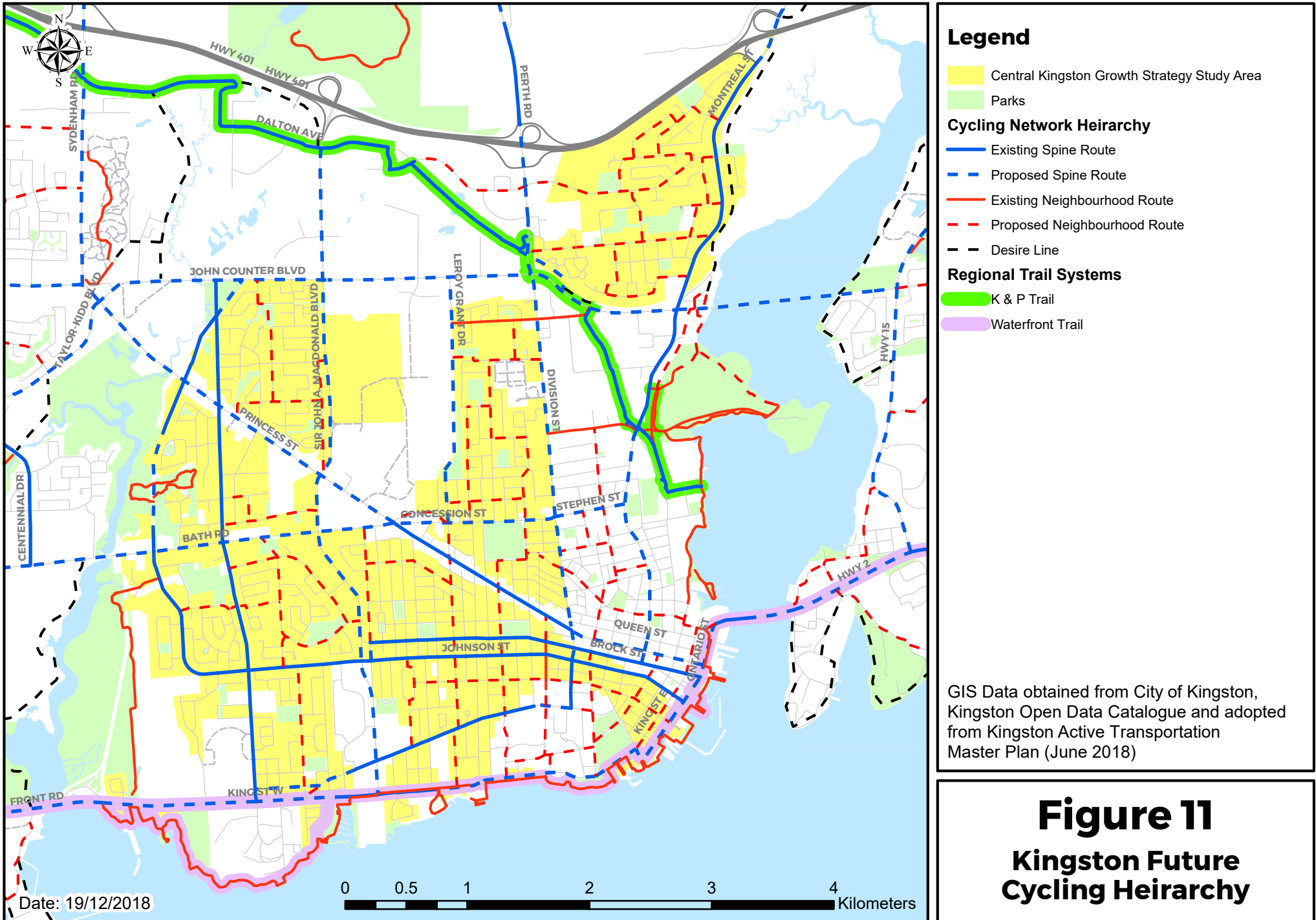
The development of the ATMP network includes facilities to support both local trips on neighbourhood routes and city-wide trips on a network of spine routes. A number of Transportation Focus Areas were identified through the development of the plan as candidates for the future development of more detailed transportation plans to better define the local community routes in consultation with residents. For the city-wide spine routes, the development of the network was based on an evaluation of a number of potential new routes based on a detailed set of evaluation criteria developed for the plan.

The ultimate ATMP network represents a 20+ year plan to guide decision making and planning for funding and construction by the City of Kingston over this time to support the goals and objectives of the plan. In addition to the network, the ATMP includes a number of recommendations for additional programs and strategies to support the ATMP vision, including public outreach and education programs to promote active transportation, enforcement campaigns to influence user behaviour, ongoing data collection to monitor how the active transportation facilities are operating, and a wayfinding strategy to facilitate navigation through the City and to key destinations using the walking and cycling network.

The ultimate cycling network hierarchy proposed in the ATMP is illustrated in Figure 11. The proposed city-wide spine network will generally follow the arterial and collector road network and consist of higher quality facilities including In-Boulevard Trails (Multi-Use Pathways), Cycle Tracks or Buffered Bike Lanes. The network of neighbourhood routes will accommodate recreational trips within neighbourhoods and provide links from these neighbourhoods to the city-wide network; these neighbourhood routes will be subject to further consultation at the neighbourhood level, and will be further refined in terms of the routes and facility types used.

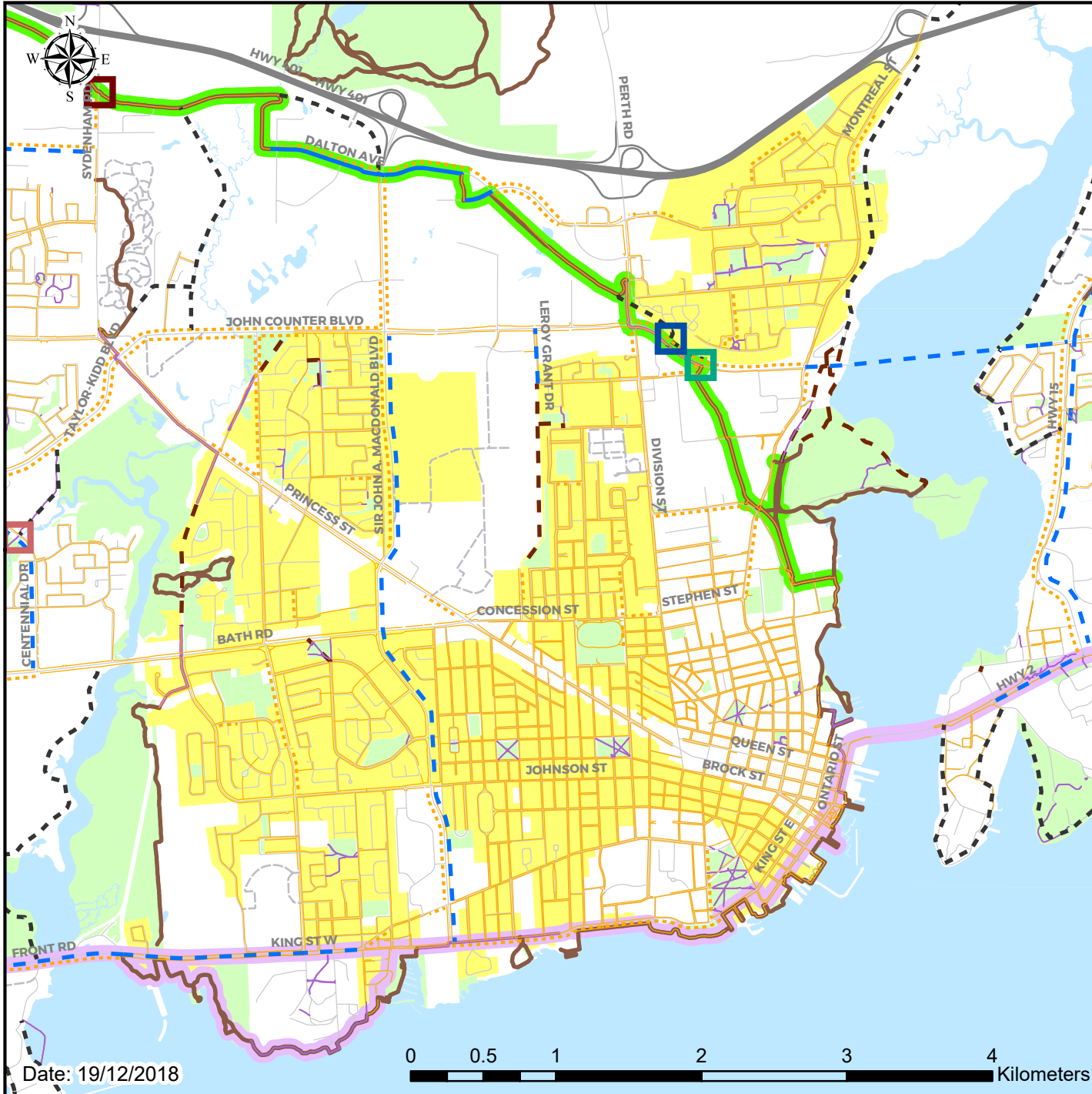
The proposed pedestrian network, illustrated in Figure 12, seeks to provide facilities to fill in the existing network gaps along the arterial road network, most notably with the In-Boulevard Trail along Sir John A. MacDonald Boulevard and new sidewalks along John Counter Boulevard and Princess Street. New sidewalks along local roads within the residential neighbourhoods of the Study area are limited, but have been suggested for a number of streets. The proposed pedestrian network also calls for a number of pedestrian crossings along the K & P Trail, in order to provide some mitigation to the existing barriers to crossing that currently exist in these locations.

# Central Kingston Growth Strategy





# Central Kingston Growth Strategy



## Legend

- Central Kingston Growth Strategy Study Area
  - Parks
- ### Facility Type
- | Existing   | Proposed   |
|--|--|
| <span style="display: inline-block; width: 20px; border-bottom: 2px solid orange; margin-right: 5px;"></span> Sidewalk         | <span style="display: inline-block; width: 20px; border-bottom: 2px dashed orange; margin-right: 5px;"></span> |
| <span style="display: inline-block; width: 20px; border-bottom: 2px solid blue; margin-right: 5px;"></span> In-Boulevard Trail | <span style="display: inline-block; width: 20px; border-bottom: 2px dashed blue; margin-right: 5px;"></span>   |
| <span style="display: inline-block; width: 20px; border-bottom: 2px dashed black; margin-right: 5px;"></span> Desire Line      | <span style="display: inline-block; width: 20px; border-bottom: 2px dashed brown; margin-right: 5px;"></span>  |
| <span style="display: inline-block; width: 20px; border-bottom: 2px solid purple; margin-right: 5px;"></span> Path             |  |
- ### Proposed Pedestrian Crossings
- Stairway Connection
  - Intersection Crossing
  - Mid-Block Crossing
  - Desired Crossing
  - Rail Crossing
- ### Regional Trail Systems
- K & P Trail
  - Waterfront Trail

GIS Data obtained from City of Kingston, Kingston Open Data Catalogue and adopted from Kingston Active Transportation Master Plan (June 2018)

**Figure 12**  
**Kingston Proposed Pedestrian Network**

Date: 19/12/2018





## Conclusions

The Central Kingston Growth Strategy Study Area encompasses the majority of the residential-zoned lands in the City of Kingston South of Highway 401 between the Cataraqui River and Little Cataraqui Creek. A review of the existing transportation network and municipal policies guiding the growth and development of the network indicate the following trends for the Central Kingston Growth Strategy Study Area:

- The City of Kingston's evaluation of the existing conditions documented in the 2015 KTMP highlights a number of network capacity deficiencies that with increased infill development pressures will place additional stress on the arterial roadway network elements. The KTMP recommendations aim to address these network deficiencies through the expansion of the City's transportation network and services to reduce the overall auto mode share, targeted operational improvements along arterial corridors and key road expansion and new construction projects.
- The Central Kingston Growth Strategy Study Area is well served by existing Kingston Transit service. Future transit improvements in the study area will be in the form of both service and facility improvements, which will be effective in attracting ridership growth and in serving future development.
- The existing cycling network has limited coverage with a few isolated facilities along the arterial corridors bounding the neighbourhoods in the study area. The proposed city-wide and neighbourhood cycling networks in the ATMP will provide a much more comprehensive and comfortable cycling network and will increase the viability of cycling as a mode for commuting and personal trips throughout the study area.
- The existing pedestrian network provides relatively comprehensive coverage across most of the study area; future improvements proposed in the ATMP will seek to fill in the few existing gaps that remain, but except for a few cases does not propose new sidewalks along local roads in the study area where they currently do not exist.

More detailed impacts to all modes of transportation, including opportunities and constraints to optimizing the use of the multi modal transportation network will be assessed during the identification of specific development nodes within the Central Kingston Growth Strategy Study Area during the next stage of this project.

# Appendix I



## Summary and Feedback from the Neighbourhood Walks

June 2019



## **Summary of Neighbourhood Walks**

### **June 14 to July 14, 2018**

#### **What we heard**

The Project Team held Neighbourhood Walks as part of Phase 1 of the Study to allow residents to identify the existing character of the various neighbourhoods within the Central Kingston Growth Strategy Study Area. Neighbourhood character is a land use planning and urban design concept that focuses on the size, shape, location and type of buildings, along with their relationship to the size and shape of properties and the public realm. It is often associated with the era of a neighbourhood's development and is subject to change over time as the neighbourhood evolves.

Seven routes were established to capture the study area neighbourhoods. All routes were established as self-guided walks, which were approximately 2 km long. Facilitated walks were held for four of the routes, scheduled between June 14 and July 14, 2018. Paper instructions, maps, and feedback forms (sample attached) were provided for participants to record their findings and provide feedback, with a total of 25 responses submitted. The following provides a summary of the feedback received from these walks. The summary concludes with commentary on overall themes and trends.

## Neighbourhood Walk 1 – Fairway Hills & Portsmouth

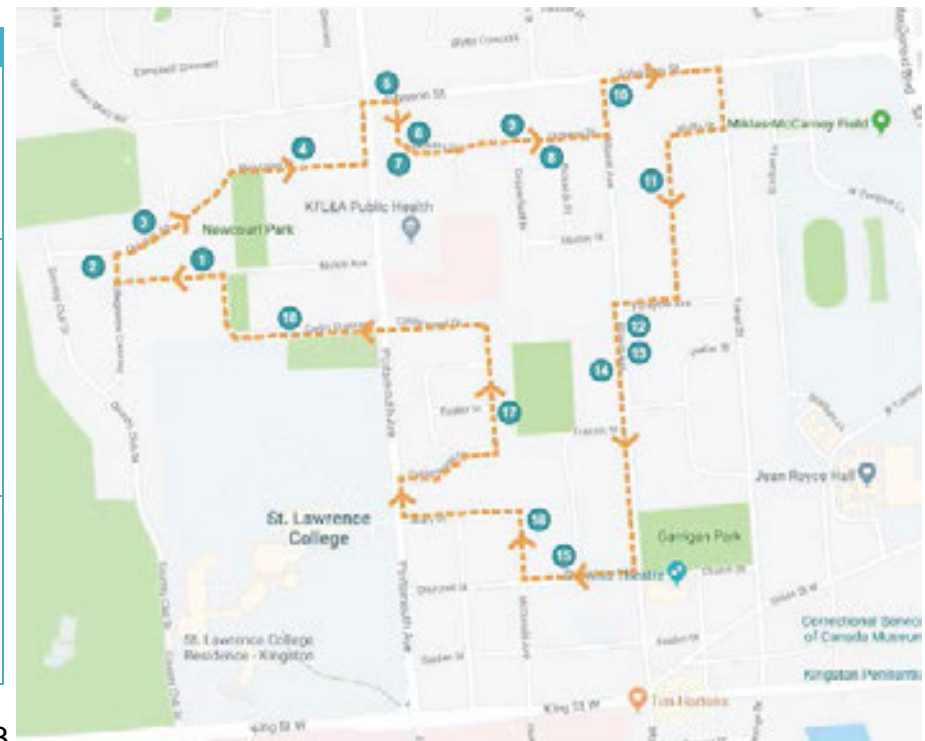
What are your general observations about the neighbourhood character?

Character Defining Element	General Observations
<p><b>Parking</b> Where is parking typically located?</p>	<ul style="list-style-type: none"> <li>– High volume of cars parking on Campbell St., Richardson Dr., Bonneycastle Crt., and Baclay Rd.</li> </ul>
<p><b>Building Types</b> What are the predominant building types (e.g. single detached, duplex, triplex, townhouses, apartments, mixed use)?</p>	<ul style="list-style-type: none"> <li>– Most streets are residential and should stay low density</li> <li>– Portsmouth and King Street – older housing stock, opportunities for growth and student housing</li> <li>– Basement apartments and monster homes on Campbell St., Richardson St., Bonneycastle St., and Baclay St.</li> </ul>
<p><b>Public Realm</b> Note observations about the trees and sidewalks</p>	<ul style="list-style-type: none"> <li>– Trees help blend density shifts, slow traffic, add to beauty and numerous environmental benefits</li> <li>– When trees are planted, the City needs to ensure they are watered in the first couple of years</li> <li>– Walking paths need to be maintained and improved as they are used a lot, especially in the winter</li> </ul>
<p><b>General Comments</b></p>	<ul style="list-style-type: none"> <li>– Did not discuss higher density on Portsmouth or King</li> <li>– Discussed possibility of adding higher density to Johnson St. on the north</li> <li>– Expanding this density to the south may pose challenges due to stable homes and families present there</li> <li>– Polson Park – student housing issues in residential neighbourhoods (i.e. 20 Bonnycastle Crt.)</li> <li>– Overall, the residential streets of Campbell St., Richardson Dr., Bonneycastle Crt., and Baclay Rd. are feeling the demand of student housing – these areas should be maintained for families               <ul style="list-style-type: none"> <li>○ Student rental markets pushing prices up and families won't be able to buy due to higher prices</li> </ul> </li> </ul>

Character Defining Element	General Observations
	<ul style="list-style-type: none"> <li>- We should be able to protect neighbourhoods from higher density and restrict intensification to the main arterial roads such as King Street, Portsmouth Ave., Union etc. as well as the Provincial Campus               <ul style="list-style-type: none"> <li>o These are all around St. Lawrence and Queen's west campus where the need for student housing is the greatest</li> </ul> </li> <li>- Portsmouth has under-developed areas ready for intensification – expanding on these could lead to a win/win for residents, the City, developers and students</li> </ul>

Please identify areas along this route which most strongly represent the neighbourhood character by marking a circle with an associated number on the map.

Item	Comment
1	- Curtis Crescent: narrow multi-use path between two multi-storey apartment buildings allowing people to walk over to another neighbourhood
2	- Collegeview Crescent: Large setbacks with large trees on wide boulevards. Well maintained landscaping. Brown brickwork on houses. Parking is done in individual driveways. Garages are flush with the front of houses. Hydro is located underground.
3	- Old Oak Road: Large setbacks and trees on wide boulevards. Brown brickwork on houses. Multi-storey apartment building with a large setback with grey brick work, opposite houses on this street. In front of the apartment, there



Item	Comment
	there is an aesthetically pleasing flower garden. Yellow flowers line the pathway to the front of the building. Several trees on the property, but unfortunately these trees are marked to be cut down, because of the emerald ash bug, which has done damage to trees in many areas of the city.
4	– Johnson and Newcourt: Setback not as large as on Colleeview crescent. Red brickwork on single level house. Parking on side of house in driveway. Well maintained property with extremely large mature tree on front lawn, which provides shade during hot weather.
5	– Johnson and Dickens Drive: lots are shallower on the north side of Johnson, less setbacks, single level houses could be rented by students, because of the proximity to St. Lawrence college.
6	– Dickens Drive: Architect designed houses near Dickens and Johnson. Large lots and large setbacks with brown brickwork. Some trees on the properties.
7	– Dickens Drive: A house with a large setback, several large mature trees, which add to the attraction of the house, and a large ground level light grey (70s style) verandah, with many rectangular open slots, which covers the whole house front.
8	– 44 Dickens Drive: A two storey house on a large lot with a large set back, with many large mature trees on the side and back lawns. Dark coloured brick work. Aesthetically pleasing to the observer.
9	– Dickens Drive: A single level house with grey brickwork, good setback, but the front lawn was completely covered by bushes or shrubs, not well maintained. This house was in great contrast to the house at the above address.
10	– Johnson and Mowat: A three storey apartment building, brown brickwork, very little set back. No traffic calming devices. Only a crosswalk for pedestrians to cross the busy street to Centennial public school. On the school grounds, there is a rough multi-use path, which allows access from Johnson through the school yard to the subdivision behind the school.
11	– Wolfe Street: good landscaping, large setbacks, big trees. If a developer comes in and tears down one of the older houses, a two storey dwelling can be easily built on the large lot, no sidewalks.
12	– 289 Mowat: Four storey student residence, brown brick work, clean and tidy, a good setback, a bench out on the city sidewalk at the bus stop for students waiting for the bus. There is a need for trees.
13	– Mowat: Day care with pet rabbits, many large mature trees and a large setback, good use of narrow boulevard for use to create a small garden to grow tomatoes and other vegetables.

<b>14</b>	– Mowat: Energy efficient house with no basement, dark siding on house, black metal roof, does not detract from the much older limestone brick house beside it. There is good setback and appropriate space between both houses.
<b>15</b>	– Churchill: Triplex - student residence, grey in colour, well kept, good setback, trees needed. Good space between this building and the single level grey brick house beside it.
<b>16</b>	– 69 McDonald: Frontenac housing, L-shaped, single level, red brickwork, 12 bedrooms, some setback, parking at front in assigned parking spots, no trees, does not detract from the other houses on the street.
<b>17</b>	– Claderwood: narrow boulevards with trees, combination of single level and two storey residences, 2 multi use pathways to other areas. Pressure on this area to become all student housing. St. Lawrence college just up the street.
<b>18</b>	– Curtis Crescent: Housing development, takes up large block of land. Enclosed by Nicole avenue on north side, and Curtis crescent on south side. Parking to the back and side of complex. Brown brickwork, very little setback. One home owner has a wooden fence by the driveway leading into the parking lot. Despite not having much of a setback, they have tried to beautify the front of their property by placing colourful plastic butterflies on the wooden fence.



## Neighbourhood Walk 2 – Williamsville & Kingscourt

What are your general observations about the neighbourhood character?

Character Defining Element	General Observations
<p><b>Parking</b></p> <p>Where is parking typically located? Is it in the front, side, or back yard? On the street?</p>	<ul style="list-style-type: none"> <li>- Front yard – too many</li> <li>- Large apartments have big lots</li> <li>- Seems random</li> <li>- Double parking in front of houses</li> <li>- Sacrifice of greenspace for asphalt parking lots</li> <li>- Lots of side and back yard parking – car ports and detached parking garages behind houses</li> <li>- Front yard setbacks with parking</li> <li>- Mostly on driveways (can be quite long) – sometimes shared</li> <li>- Many houses do not have garages</li> <li>- Some streets have parking behind in an alleyway</li> </ul>
<p><b>Building Setback</b></p> <p>What is the setback between the front of the building and the street? How about between neighbouring buildings?</p>	<ul style="list-style-type: none"> <li>- Varied a lot – some with big setbacks; smaller homes (1<sup>st</sup> Ave.); apartment block – little setback (Stanley St.)</li> <li>- Front line of buildings is irregular – like missing teeth</li> <li>- Many irregular lot sizes and shapes</li> <li>- Nelson – tightly spaced, good setbacks, other streets – good spacing and varied setbacks</li> <li>- Corner houses with 90° lot line not necessary</li> <li>- Many houses at lot line</li> <li>- Generous setbacks between front of houses and street</li> <li>- Houses north of First Ave start to have more space between houses</li> </ul>
<p><b>Building Types</b></p>	<ul style="list-style-type: none"> <li>- Mixed residential</li> <li>- Predominantly single family detached homes</li> <li>- Duplexes (near Concession) and multi-unit houses</li> </ul>

<p>What are the predominant building types (e.g. single detached, duplex, triplex, townhouses, apartments, mixed use)?</p>	<ul style="list-style-type: none"> <li>- Few row houses (Chatham) near Linton / Division</li> <li>- Several smaller apartments – apartment blocks south of Concession on Stanley / Division</li> <li>- Older 2 storey apartment buildings (e.g. Concession and Nelson, Connaught and First Ave.)</li> <li>- Boxy 3 – 4 storey infill apartment buildings</li> <li>- Several homes converted to apartments by backyard additions and squaring third floor peaked roofs to add a storey</li> <li>- Small bungalows beside duplexes and multi-unit dwellings</li> <li>- Low density infill, many additions – decently nice additions</li> <li>- Opportunities for secondary suite infill</li> <li>- 5 churches</li> </ul>
<p><b>Architectural Style</b></p> <p>What is the height (number of storeys)?</p> <p>What are the materials (brick, siding, stone)?</p> <p>What are the roof types? Are there dormers? Are there porches?</p>	<p><b>Height</b></p> <ul style="list-style-type: none"> <li>- 1.5 storeys north of Concession, all other areas were 2 / 2.5 storeys</li> <li>- Some 3.5 storeys</li> <li>- 4 storey block apartment infill</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>- New buildings – mixed, siding, brick</li> <li>- Older apartments were yellow brick</li> <li>- Mostly brick (post-war), siding, some clad</li> <li>- Vinyl/aluminum siding (Kingscourt)</li> <li>- Wartime houses are “Cape Cod” style frame covered with siding</li> </ul> <p><b>Roof Types</b></p> <ul style="list-style-type: none"> <li>- Flat on apartments</li> <li>- Peaked for most houses (usually older ones)</li> <li>- New homes and conversions are flat-topped</li> <li>- Gable to street</li> <li>- Shingled or steel</li> <li>- Some have solar panels attached</li> </ul> <p><b>Dormers</b></p>

- Yes, some

Porches

- Some, but not many that people use
- Usually older ones
- Many porches and verandas, only some use them (Kingscourt)

General note: many homes have been renovated

**Public Realm**

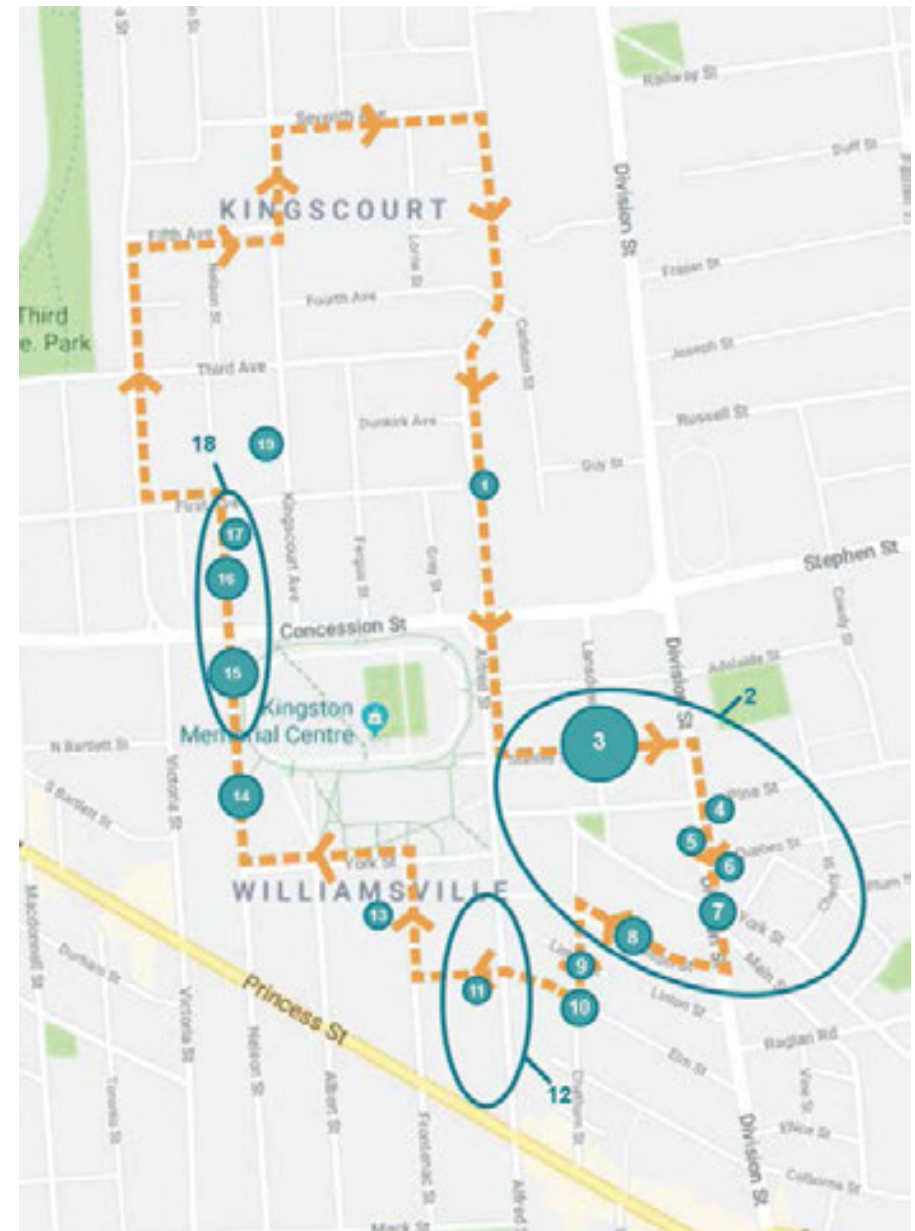
Note observations about the trees and sidewalks

- Few trees on many streets (e.g. Nelson north of Concession, Kingscourt Ave., Kirkpatrick St.)
  - thin and sparse
- Dunkirk St. has beautiful big trees
- One small park (Pine St.)
- One large park in centre
- Some mature trees and green lawns
- No public space other than Memorial Green
- Sidewalk widths seem fine
- Too many trees cut down for power lines
- Streets with sidewalks on both sides lined with boulevards containing large shade trees (Kingscourt)
- Very few shade trees in the parks (Kingscourt)
- Many streets have boulevards (Kingscourt)
- Many parks and active sports facilities (baseball diamonds, soccer fields, tennis courts)
- Short-cut pathways / fire lanes that make walking and biking interesting and efficient
- Many amenity-filled public greenspaces (i.e. Leroy Grant road allowance containing the Oak Street Garden, a baseball diamond, our reservoir sledding hill, a well-trod connective goat path, and the newly re-furbished 3rd Avenue Park; Max Jackson/Ron Lavallee parks containing soccer fields, baseball diamonds, splash-pad, tennis and basketball courts, and children's play structures
- Fourth Ave. Park needs an upgrade
- Need bins for dog feces

<p><b>Landscaping</b></p> <p>How much landscaping does this neighbourhood have?</p>	<ul style="list-style-type: none"> <li>- Public realm in centre nicely landscaped</li> <li>- Not much / not enough</li> <li>- Division is greener than Stanley</li> <li>- Lost to front yard parking</li> <li>- Lots of front yard flower gardens (Kingscourt)</li> <li>- Current trends – front yard vegetable gardens and rain gardens</li> <li>- Some do not tend to their gardens, others invest a lot of time into them (quite a few with “Community in Bloom” awards)</li> </ul>
<p><b>General Comments</b></p>	<ul style="list-style-type: none"> <li>- Presence of several Mom &amp; Pop corner stores for residents’ convenience</li> <li>- Other features of Kingscourt: <ul style="list-style-type: none"> <li>o Garages at the side or rear – unlike typical suburbs where they face the street</li> <li>o Crisis housing (Rise@149, Lily’s House)</li> <li>o Population demographic changing to include young families</li> <li>o Active neighbourhood social media connections</li> <li>o Robust local business community (Concession St., Division St. mini mall, corner stores, independent entrepreneurs – artists/musicians)</li> <li>o Cost of housing is relatively low, making it an attractive place for investment</li> </ul> </li> </ul>

Please identify areas along this route which most strongly represent the neighbourhood character by marking a circle with an associated number on the map.

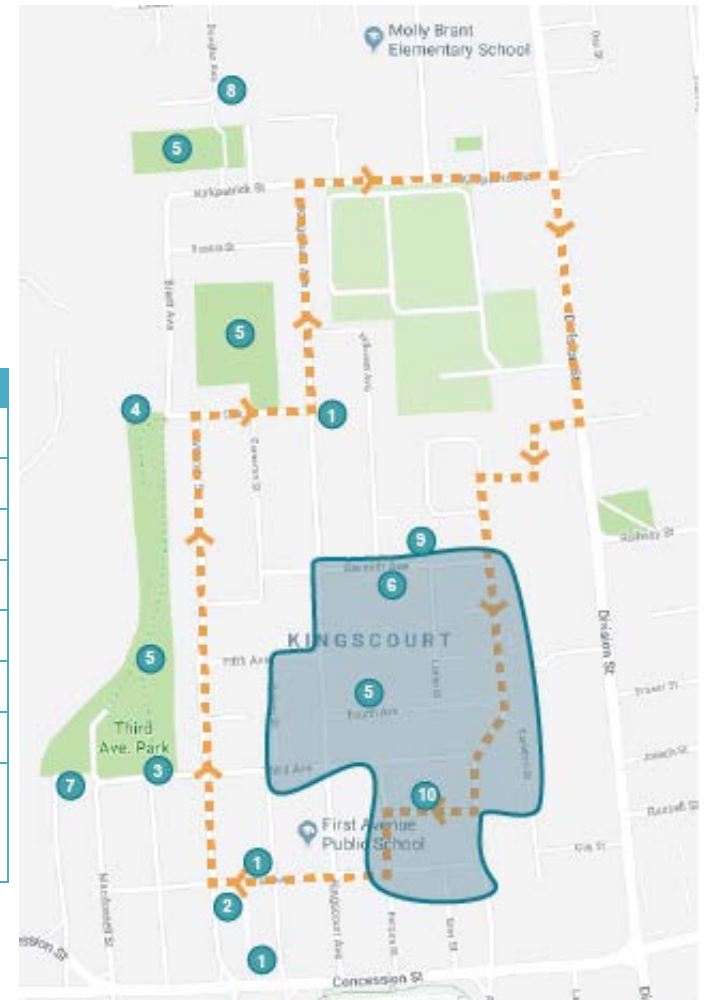
Item	Comment
1	– Smaller homes
2	– Represents neighbourhoods as it pertains to this specific area
3	– Poor apartment infill – Many multi-homes, few trees – Classic farmhouses and small war-time type homes – doors not street facing
4	– Parking in front yard
5	– Poor apartment infill
6	– Commercial – opportunity to build residential above – Some 12 unit places
7	– Opportunity for infill – Terrific mural on wall
8	– Mainly wood/siding, close together, few trees on street, deep lots, close to street
9	– Deep residential lots – a lot of space
10	– New builds seemed overly large for the lots (along Chatham St.)
11	– Bad example, house + street destroyed (10 Jenkins St.) – does not match character – Interesting mix of homes (colour, style – concrete)
12	– Very nice but more reminiscent of Sydenham
13	– Multi-family area (2 – 6) – Bordering 700+ new student apartments – Interesting mix of homes (colour, style – concrete)



Item	Comment
14	<ul style="list-style-type: none"> <li>- 1-2 storey homes, deep lots, some trees, close to street</li> <li>- 16 unit building near Concession St.</li> </ul>
15	<ul style="list-style-type: none"> <li>- Single family homes</li> </ul>
16	<ul style="list-style-type: none"> <li>- Real change in streetscape, no trees on street homes set back more, varied small home design</li> </ul>



Item	Comment
1	<ul style="list-style-type: none"> <li>- Corner stores</li> </ul>
2	<ul style="list-style-type: none"> <li>- Laneways</li> </ul>
3	<ul style="list-style-type: none"> <li>- Playground and toboggan slide at the Reservoir</li> </ul>
4	<ul style="list-style-type: none"> <li>- Community gardens</li> </ul>
5	<ul style="list-style-type: none"> <li>- Parks</li> </ul>
6	<ul style="list-style-type: none"> <li>- Boundary of the 1942 wartime houses</li> </ul>
7	<ul style="list-style-type: none"> <li>- Selby Scout Hut</li> </ul>
8 / 9	<ul style="list-style-type: none"> <li>- Community spaces (churches, little libraries)</li> </ul>
/ 10	<ul style="list-style-type: none"> <li>- Small houses of a distinct style</li> <li>- Stores retrofitted from houses</li> </ul>



In addition to the to the comments above, one participant provided their input through a narrative on history, existing conditions and trends, and development opportunities within the Kingscourt neighbourhood. This narrative has been appended to this summary, as Appendix A.

## Neighbourhood Walk 3 – Sunnyside and Alwington

What are your general observations about the neighbourhood character?

Character Defining Element	General Observations
<p><b>Parking</b></p> <p>Where is parking typically located? Is it in the front, side, or back yard? On the street?</p>	<ul style="list-style-type: none"> <li>– Some front yard parking</li> <li>– Best is back yard</li> <li>– Mostly in side driveways (with and without garages, set back from the street)</li> <li>– Street parking (restricted but not enforced) – would be good</li> <li>– Some backyards have been converted into parking lots               <ul style="list-style-type: none"> <li>○ Would like to see this restricted to one parking space per dwelling unit, maybe even a visitors spot but do not want spots rented to non-residents</li> </ul> </li> <li>– Garage doors on street, sometimes more prominent than front doors (Centre St.) – do not like these</li> <li>– Apartments with paved lots</li> </ul>
<p><b>Building Setback</b></p> <p>What is the setback between the front of the building and the street? Neighbouring buildings?</p>	<ul style="list-style-type: none"> <li>– Post war – approximately 5m setback</li> <li>– Significant south of Union (at least the width of the driveway)               <ul style="list-style-type: none"> <li>○ Allows for greenspace</li> </ul> </li> <li>– Less in older neighbourhoods, but allows room for street trees</li> <li>– Houses fairly close together</li> <li>– Big backyards, small side yards</li> </ul>
<p><b>Building Types</b></p> <p>What are the predominant building types (single detached, duplex, triplex, townhouses,</p>	<ul style="list-style-type: none"> <li>– Mixed – primarily single-family dwellings, some rental properties, apartment blocks, few shops (handful of corner stores)</li> <li>– Good balance between multi-occupancy dwellings and single-family housing</li> <li>– Single detached dwelling – those near campus are converted to multiple bedrooms to accommodate students               <ul style="list-style-type: none"> <li>○ Some of the converted homes will never be lived in by non-students because of the internal divisions and huge dormitory additions</li> </ul> </li> </ul>

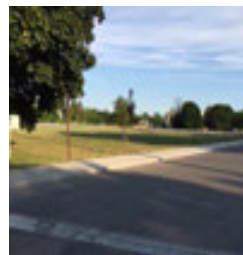
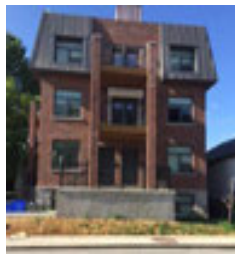


Character Defining Element	General Observations
apartments, mixed use)?	<ul style="list-style-type: none"> <li>- Small walk-up apartments</li> <li>- Homes closer to campus converted to apartments</li> <li>- Single detached with basement apartment – ok</li> <li>- Range from bungalows to older 2.5 storey homes</li> <li>- Many block apartments that are 3 – 4 storeys with flat roofs</li> </ul>
<b>Architectural Style</b>  What is the height (number of storeys)? What are the materials (brick, siding, stone)? What are the roof types? Are there dormers? Are there porches?	<ul style="list-style-type: none"> <li>- Wide range of styles (historic mansions, former farmhouses, modern additions – south of Union), picket fences</li> </ul> <p>Height</p> <ul style="list-style-type: none"> <li>- 1.5 – 3.5 storeys</li> </ul> <p>Materials</p> <ul style="list-style-type: none"> <li>- Limestone, brick (mostly, red), clapboard</li> <li>- Wood or vinyl siding</li> </ul> <p>Roof Types</p> <ul style="list-style-type: none"> <li>- Pitched</li> <li>- Gable at end of street</li> <li>- Flat</li> </ul> <p>Dormers</p> <ul style="list-style-type: none"> <li>- Yes</li> </ul> <p>Porches</p> <ul style="list-style-type: none"> <li>- 50% of homes</li> <li>- Lots, but not always actively used (hold flower pots, students have BBQs and recycling bins there)</li> </ul>
<b>Public Realm</b>  Observations on trees & sidewalks	<ul style="list-style-type: none"> <li>- Streets without trees because of powerlines</li> <li>- Several homes/buildings converted into daycares in the area – play yards are often visible from the street</li> <li>- Sidewalks generally in good repair in the area</li> </ul>

Character Defining Element	General Observations
	<ul style="list-style-type: none"> <li>○ Winter snow clearing from private properties can sometimes be an issue</li> <li>– Would be useful to include recycling storage in new building design to limit garbage storage on the front porch</li> <li>– Need for trees on Princess St. – perhaps planted on all front yard city owned properties, not just at the request of the current owner               <ul style="list-style-type: none"> <li>○ Every new development / building permit should include trees not just those that go through site plan</li> </ul> </li> <li>– Overhead wires above</li> </ul>
<p><b>Landscaping</b></p> <p>How much landscaping does this neighbourhood have?</p>	<ul style="list-style-type: none"> <li>– A lot</li> <li>– South of Union – mature shrubs and gardens</li> <li>– Easy to pick out student homes because of the lack of gardens and good lawn maintenance</li> <li>– Allotment gardens on Macdonnell St. add green to the area</li> <li>– Only a few parks               <ul style="list-style-type: none"> <li>○ Victoria Park has been well landscaped and gets a lot of use</li> <li>○ Compton Park could be greener</li> <li>○ New park on Napier is a welcomed addition</li> </ul> </li> </ul>
<p><b>General Comments</b></p>	<ul style="list-style-type: none"> <li>– I would like to see all main entrances be from the street, not down an alleyway – important for safety, deliveries etc.               <ul style="list-style-type: none"> <li>○ Well designed duplexing includes examples where one front door leads to a foyer that has two interior doors. Other examples have used side doors facing the street as the second front door.</li> <li>○ Poor examples have an entrance not visible from the street with the entrance from a laneway, not the sidewalk.</li> </ul> </li> <li>– Some new buildings are taller because basements are being built above ground, appears like the first floor</li> <li>– Basement Units: I would discourage basement /cellar units in any case. They are really too damp to live in. In the Williamsville neighbourhood there are many underground streams which during</li> </ul>

## Character Defining Element

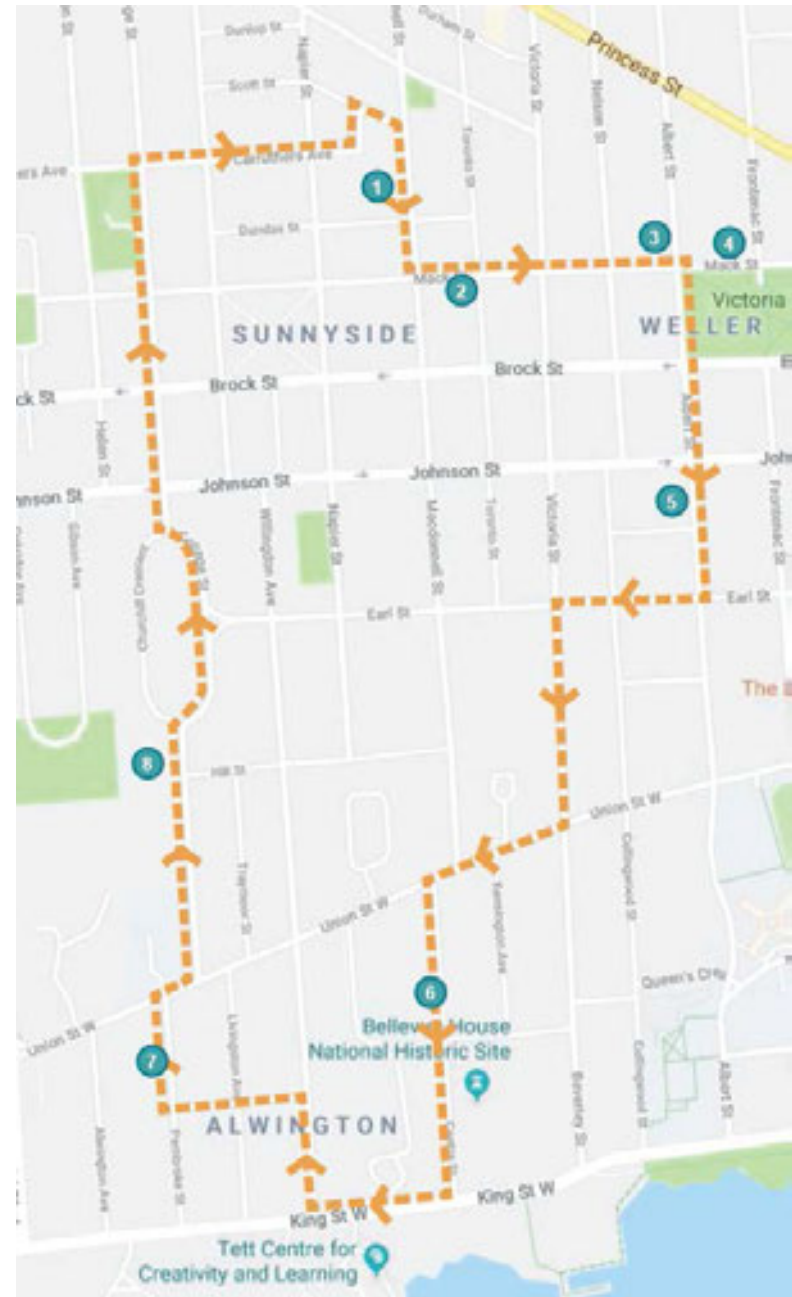
## General Observations



- big storms have flooded out basements despite the city's efforts to separate storm water . As massive apartments are built along Princess St and more pavement is put in place, I can only imagine these episodes will get worse. Another reason for parkettes and trees along Princess. Many springs and winters, water sits in our back yard and in Victoria Park
- Sidewalks: In many places sump pump drainage has become an issue with water and ice on sidewalks. We were forced to remove our sump pump from the regular sewer and were not given the opportunity like some others to attach to the storm sewer. Many have no where else to drain but to the sidewalk which apparently is not allowed but there is no other choice.
  - Housing quality changes the nearer we get to Queen's, especially with respect to building maintenance
  - Opportunities exist for infill without the need to demolish existing housing stock
  - Area should be low density and also stable
  - Medium and high density development could be appropriate:
    - Along portions of Brock and Johnson Street – arterials with transit, closer to the University (Photo 1)
    - Within the border of Alfred Street and Division Street, along Brock Street and Johnson Street
    - "University District" – bounded by Brock St., Earl St., University Ave., and Division St. (Photo 2)
  - "University District" currently extends as far west as Collingwood Street – if this area is ever defined, it should not extend this far west
  - Area between Collingwood, Union, Brock and College should be returned to low-density and stability
  - Available land should be appropriately and transparently developed to deal with intensification
    - Women's Penitentiary
    - St. Mary's Lake Hospital (Photo 3)
    - 752 King Street
    - KCVI High School (Photo 4)

Please identify areas along this route which most strongly represent the neighbourhood character by marking a circle with an associated number on the map.

Item	Comment
1	– Lots are long and narrow – short front yard compared to others
2	– New infill – very tall compared to neighbours because of revised basement
3	– 4 x 3 BR addition, too big (square footage)
4	– Newer apartments – front doors with awnings, parking between two buildings – Fits into existing size and style
5	– Predominantly converted to student apartments – rear additions
6	– Newer homes added – overly paved, not all in keeping with character of the neighbourhood
7	– Nice addition
8	– Separate house built in rear – Area is single dwelling, mature trees and large front yards



## Neighbourhood Walk 4 – Queens and Sydenham

What are your general observations about the neighbourhood character?

Character Defining Element	General Observations
<p><b>Parking</b></p> <p>Where is parking typically located? Is it in the front, side, or back yard? On the street?</p>	<ul style="list-style-type: none"> <li>– Side yard and backyard parking is most common               <ul style="list-style-type: none"> <li>○ Driveways beside the house, sometimes with a garage behind</li> <li>○ Parking in the rear for apartments, triplexes etc.</li> </ul> </li> <li>– Few cases of front yard parking pads</li> <li>– Many examples of front parking as well</li> <li>– Light street parking, except for Johnson / Brock near downtown</li> </ul>
<p><b>Building Setback</b></p> <p>What is the setback between the front of the building and the street? How about between neighbouring buildings?</p>	<ul style="list-style-type: none"> <li>– Inconsistent – varied between buildings, for the most part there was 15+ feet, which presents ample space</li> <li>– 2.5 – 3 metres for many</li> <li>– Smaller front yards could be effective in controlling nuisance behaviour</li> <li>– Most buildings have good setbacks that are fairly consistent with each other</li> </ul>
<p><b>Building Types</b></p> <p>What are the predominant building types (e.g. single detached, duplex, triplex, townhouses, apartments, mixed use)?</p>	<ul style="list-style-type: none"> <li>– Predominantly duplexes, triplexes and townhomes</li> <li>– Mix of Victorian row / townhouses, single detached and small apartment buildings (3-6 stories)</li> <li>– Couple larger apartment buildings that seem out of character (those near Brock and Division)</li> <li>– Largest apartments on Brock St. (between 6 – 12 storeys)</li> <li>– Other apartments are 3 – 4 storeys</li> <li>– Many hidden duplexes and triplexes which are not visible from the street</li> <li>– Mix of detached, semi-detached, and townhomes / row houses</li> <li>– Diversity of styles because it was built over a long period of time</li> <li>– Mostly residential – both family and student rental</li> <li>– Small pockets of elegant homes</li> </ul>

## Architectural Style

What is the height (number of storeys)?  
What are the materials (brick, siding, stone)?  
What are the roof types? Are there dormers? Are there porches?

### Height

- 3 storeys for low and medium density – very few examples of structures greater than 3-storeys
- Apartment buildings tend to be a mix of 3-4, 5-6, and 8-10 storeys
  - Taller buildings seem out of character (8 and above)
  - 5-6 storey buildings fit in while still constituting intensification
- Many are 2.5 storeys

### Materials

- Mostly red brick, with some covered siding (low and medium density)
- “Kingston brick” – brownish-red tone
- Painted concrete or white brick (high density)
  - Exception – building over Jina Sushi is red brick (University and Johnson)
- Mix of materials
- Not much vinyl siding (dislike this)

### Roof Types

- Mostly peaked/pitched
- Gable
- Material: Mainly shingles, some old slate

### Dormers

- Some
- Common

### Porches

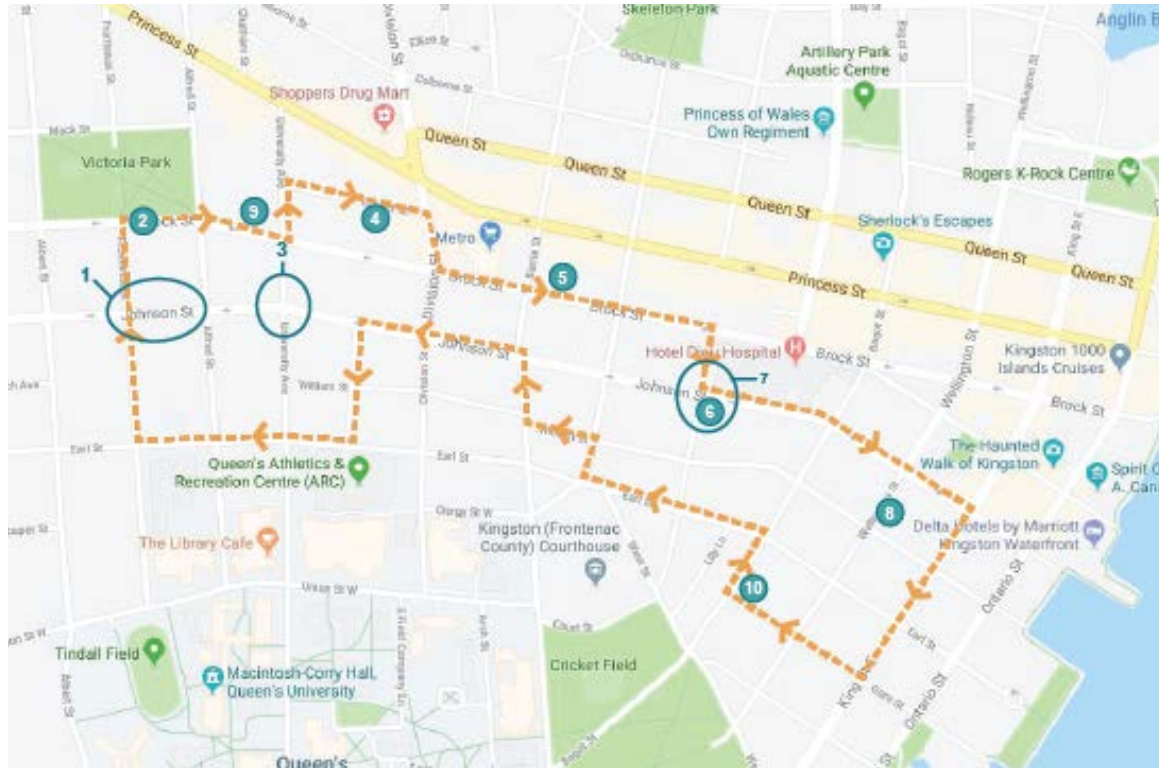
- Many balconies and porches are visible, some are covered
- Some are architecturally nice, others are utilitarian
- Common

## Public Realm

- Sidewalks are narrow, streets are wide
- Sidewalks are present and good
- Few trees in most parts of the neighbourhood
- Some older trees near Sydenham Ward

<p>Note observations about the trees and sidewalks</p>	<ul style="list-style-type: none"> <li>- Many old silver maples approaching end of life</li> <li>- Not enough young trees being added</li> <li>- Well treed with an old canopy</li> </ul>
<p><b>Landscaping</b></p> <p>How much landscaping does this neighbourhood have?</p>	<ul style="list-style-type: none"> <li>- Grass kept well</li> <li>- Minimal gardening in most parts of the University district</li> <li>- Ward has many beautifully maintained gardens and side/backyards</li> <li>- Private landscaping and gardens vary significantly depending on ownership vs. student rental</li> <li>- Principal characteristic is a small greenspace of grass (15 feet x 15 feet)</li> </ul>
<p><b>General Comments</b></p>	<ul style="list-style-type: none"> <li>- Good maintenance is a vital aspect of a building “fitting in” a neighbourhood <ul style="list-style-type: none"> <li>o A dilapidated old building could have great “old bones” that are lost in the poor maintenance of the structure</li> </ul> </li> <li>- Age of area is a defining character element – the walk was around primarily 1930s – 40s buildings</li> <li>- Rooming houses and multi-unit housing does not comprehensively resolve the housing needs in this district that are particularly driven by the University’s growth in enrollment over decades</li> </ul>

Please identify areas along this route which most strongly represent the neighbourhood character by marking a circle with an associated number on the map.



Item	Comment	Item	Comment
1	<ul style="list-style-type: none"> <li>– Typical single detached 3 storey brick houses – common form preferred by students, but lack of variety</li> <li>– Mixed form, allows for a more blended and intensified neighbourhood</li> <li>– Infill opportunity</li> </ul>	6	<ul style="list-style-type: none"> <li>– Historic designated building but large lot could accommodate some compatible and artistic infill or addition (194 Johnson)</li> </ul>



Item	Comment	Item	Comment
2	<ul style="list-style-type: none"> <li>- Well maintained wood-sided houses (2.5 storey-gabled dormers)</li> <li>- Example of typical original townhouses</li> </ul>	7	<ul style="list-style-type: none"> <li>- 5+ storey building and mixed housing</li> <li>- Mixed form, allows for a more blended and intensified neighbourhood</li> </ul>
3	<ul style="list-style-type: none"> <li>- Small apartments with retail space, and towns + detached homes <ul style="list-style-type: none"> <li>o Both buildings are brick, but could be higher</li> </ul> </li> <li>- Mixed form, allows for a more blended and intensified neighbourhood</li> </ul>	8	<ul style="list-style-type: none"> <li>- 1960s apartment blocks – dislike these (William St.)</li> </ul>
4	<ul style="list-style-type: none"> <li>- Rebuilt intensified construction – dislike the execution of this</li> <li>- A street offering infill opportunities</li> </ul>	9	<ul style="list-style-type: none"> <li>- Example of infill townhomes (not brick) – either aluminum or vinyl siding</li> </ul>
5	<ul style="list-style-type: none"> <li>- Limestone buildings fit well with St. Mary's and Hotel Dieu</li> </ul>	10	<ul style="list-style-type: none"> <li>- Example of typical original row townhouses – 3-storey brick</li> </ul>

### Overall Themes

Although each neighbourhood holds a unique character, there appeared to be some consensus regarding existing character elements and community opinions on them. Most observations confirmed the preference for intensification along arterials and within underdeveloped areas and vacant pockets of communities, while keeping majority of the inner neighbourhoods at a lower density. Additionally, there was a value placed on the maintenance of properties and the prevalence of long-standing community establishments (i.e. local businesses, community gardens). In regards to specific character elements, the following similarities were identified:

- **Parking** – most disliked front yard and large lot parking, as it resulted in a loss of greenspace; preference for parking along the side and rear of buildings
- **Building Type** – predominance of single-detached homes was identified, along with duplexes; most existing apartments fell within 2 – 4 storeys; few commercial or mixed use establishments
- **Architectural Style** – dominance of pitched and flat roof types; all neighbourhoods identified a mix of materials; many stated that about half of the housing stock contains porches, but not all of them are used by residents
- **Public Realm** – desire for more trees, both along streets and within parks (especially shade trees); lack of an abundance of public spaces was identified
- **Landscaping** – apparent that some homeowners care for the gardens while others do not maintain them to the same standard

**Next steps**

The Project Team will continue to work with the community to address the goals and priorities through detailed policy and design solutions. The next point of community engagement will be through an urban design public workshop, scheduled for early fall 2018.

Thank you to all who took the time to participate in the neighbourhood walks, we value the detailed input provided by all respondents.

## Central Kingston Growth Strategy

### Neighborhood Character Description

Kingcourt Area (K for short) (also Kingscourt Community Association is KCA in this presentation)

Matthew Gventer

Is K a stable area or an area in transition? Being just north of Concession Street, K is a little far to be highly attractive to students from Queens University. Therefore it doesn't have the same kind of pressure for student housing that more southerly areas do. However there are other pressures bearing on K. The cost of housing in K is relatively low making it an attractive place for investment, Changing traffic patterns and the construction of new schools on Kirkpatrick Street reinforce the natural urban changes and the desirability of living close to downtown.

Historically, K has been a working-class neighborhood. Its emergence as a neighborhood occurred during the Second World War when the Wartime Housing Corporation built prefab housing for workers employed at Alcan and other wartime industries. This link to Alcan is reflected in gates (now chained) in the fence along the Novelis property. That working-class character has continued to the present. Household incomes tend to be somewhat lower than other neighborhoods, and there have been a relatively small proportion of the population with university degrees. On the other hand, K doesn't have the same stigmatization facing Rideau Heights.

Generally, K residents have tended to have an independent spirit with a strong dose of neighbourly cooperation and local help. K has bucked the trends. It was originally built to be gone after the war. The Kingscourt Elementary School was built to be torn down after twenty years (which it was) with an unclear vision for the long term. Instead of the housing being torn down, people adapted it to their needs with add-ons and renovations being made without a clear plan and in an individualistic fashion.

While the central core of K has a long-standing stability to it, the peripheries have a history of their own, along Concession Street, across from the Memorial Center and continuing to MacDonnell Street, small-scale semi-industrial and auto related commercial properties developed. These seem to have a rough character and sometimes are not well maintained. Scattered amongst these are the occasional residential properties, including at least one multi unit property. There is a reasonably large vacant lot just behind the properties along Concession just east of Alfred Street. Clearly this property is calling out for infill and greater density. (1A) On the corners at the intersection Division and Concession there are two small malls which provide some services in the area, especially to the students of Regiopolis Secondary School. These properties have potential and could house multilevel medium rise buildings with commercial space on the ground floors. (1B)

Along Division Street, there are various residential properties, some multiunit, some individual ownership, often with deep setbacks, providing some separation from the heavy traffic along Division Street site. On the one hand, these properties house people with long standing ties in the area or people living in much needed lower cost rental units. On the other hand, these properties would lend themselves to higher density development along a major corridor. It is interesting that some residents living below the 70 Barbara Avenue development site attended the public meeting on that development. They expressed concern about water run off after the development is built. This demonstrates commitment to their properties and civic awareness. (1C)

70 Barbara Avenue (the property wedged between Division Street and Alfred Street) (1D) reflects the opportunity for infilling in this area. Note that it is medium density and is consistent with the nature of

the neighbourhood. Barbara Avenue has a number of low income properties. Some were built by the City. Some are private rental properties. This complex is complemented by the Porto Villa apartment building and the Town Homes Kingston homes along Division Street, both immediately north of Barbara Avenue. The 70 Barabara Avenue development will have about 108 units of one and two bedroom units to be sold as condos. (I am sure this is not new to you, but it is important to understand the tansitional aspects of the periphery of K.) This property stretches from Barbara Avenue to the new Fray Street. In between those two streets is the junction of Railway Street and Division Street. This corner has the potential to hold medium density buildings of 4 to 6 floors. Of course, the properties are currently occupied, so this is a long term vision. To the east of this intersection is light industrial properties in North Kings Town. This area could be served by commercial space at the street level of these developments. Note that there is an underutilized park on the north east corner of the intersection. Higher density residential usage would encourage better utilization of the park.

(There was a farm on this land not so long ago and horses were stabled there.) We arrive at the intersection of Kirkpatrick and Division. North and south on the east side institutional uses predominate (City Works, the Police Sation and Children's Aid.) While not in the Central Kingston area, these uses set the tone for developments on the west side.

At the south east corner is 780 Division Street. (8C) This moderately dense lower income property once was social housing with a CMHC mrotgage. The building was a demonstration project using prefabricated wood. The operators of the building found it to be substandard and needing significant repairs. They applied to CMHC to allow them to replace the building over time with higher density new residences. CMHC refused, so the non-profit corpoartion walked away from it and it was sold to private interests. The proposal to increase the density, improve the standards and provide a significant increase in affordable housing remains an attractive idea. Certainly, with two schools nearby, an epxress bus stop at the coner, this property should be very attractive and commercial opportunities at street level are apparent. The properties on the north west side also under utilize the space, occupied by a single household residence.

Note that the North Kings Town Study group received input suggesting that a bicycle and pedestrian path along Amey's Taxi could link the KP trail with the Kirkpatrick Street, Division Street intersection. This would provide a link to the Kingston Secondary School and Molly Brant Elementary School. This would promote active transportation. It also reinforces the value of the properties on the west side as commercial and residential development. (8B)

Just west of this intersection are a concentration of three story walk up multi unit residential properties. These provide an important contribution of low rental private apartments. Generally, I find them to be well-maintained, having canvassed them over the years. The residents of these homes have not taken part in the KCA, so I cannot offer an opinion on the stability of the population. Rental properties tend to turn over fairly freuqently, but this may be less true in the tight rental market and the low availability of affordable units. The design of these units, airy and open with small number of units per floor tend to produce a more socially integrated community than larger developments with long narrow corridors.

One would think that as these buildings age, there will be growing pressure to redevelop the sites. The energy efficiency of these buildings may present a difficulty as well as the age of the services. Six story buildings might be doable on this land. However, rebuilding them would likely result in higher rental costs, reducing the stock of affordable rental units.

Behind these homes find the Frontenac Mental Health complex of two multi unit four story residences. Theoretically, these newer buildings are open to diverse low income households, but in practice they seem to be mainly serving as transition housing for clients of the Frontenac Mental Health service. The relevance of this point is that this helps define the character of the area.

Continuing down Lyons Street and turning right at Elliott, we find an interesting complex of space. Catarqui Co-operative Homes is located on the south east corner of Lyons and Elliott. (I was secretary of the Board that built this development with Dave Jackson as the Consultant. If I remember correctly, Councillor Jim Neill was also on the original Board. Mixed housing, built along the same model as the Town Homes Kingston housing on Rideau Street near Raglan Road, these are attached units, three stories high, narrow and functional. Two handicap units and four apartments in stacked townhouse mode are also on the site. In total there are about 28 units on this site. Dense, but intimate, it tends to be a neighbourhood on its own. Mutual help is common to such co-operatives, but also there are occasional strains between neighbours. It has proved to be a stable and strong element in K.

Look at the intersection of Division Avenue and Elliott Avenue. Remember that, if the bridge across the Catarqui River is built, Elliott Avenue will be closely connected to it and can be expected to increase in traffic significantly. There is a large empty lot on the north west corner. It can house a building as big as 6 stories, perhaps. Commercial space on the ground level would complement the node. The south west corner has a strip mall. This could house a four story building. Anything larger would overshadow the adjacent co-operative. Parking is a challenge on both sides of the intersection. Could underground parking be included? A car share space would be valuable in this location because of the rental properties nearby.

Traveling farther down Division Street toward John Counter Blvd, we have some interesting observations. This area is a gateway point into Kingston. The large electric switching site on the corner (Hydro One, I think) is ugly and unwelcoming. The one story building on that site is a poor utilization of the space. Across the street in Kings Town is the old bus depot, now a Portugese Cultural Centre. Important as it is to the cultural diversity of Kingston, from a land use point of view, it is underutilized. A larger building at that point would not impose on adjoining uses. However, the quaint cul de sac street of Armadale Place, is a residential sanctuary. It is hard to balance the value to its residents against the potential of that land to house many more people without imposing heavily on adjacent properties (other than Armadale itself.)

I always find it difficult to balance the burden of a very heavily traveled thoroughfare, like Division Street, and the existence of residential properties along that street. Yet all along Division Street single or duplex homes coexist. This is very much the case north of Elliott Avenue along Division Street.

(As an aside, I was indirectly involved in the development of Lois Miller Co-operative Homes. This building is a multiunit apartment building the property of which abuts the 401. It has operated successfully for almost thirty years and people seem pleased to be able to live there. )

I will not spend a great deal of time commenting on the land along John Counter Blvd. It lends itself to multiuse, commercial and residential development, but it just doesn't seem to happen. Probably the owners of the land don't have a vision for that to happen. Being at the bottom of a hill, height would not be so imposing on the properties to the north. It is now near a large shopping complex and two new schools. What a waste strip malls and gas bars represent there.

Let's turn up Leroy Grant Avenue. Industrial property to the west, the east is a vacant lot under development plans by the Springers. It is apparent that this road has a predisposition to being completed. How useful will it be running into Concession just before the traffic circle? Where will the traffic go. How will it be integrated into the existing stream? Nevertheless, the traffic planning engineers have designated it for completion. There are two competing perceptions of this plan. People who live along the right of way are mainly at odds with it. They have become used to having green space on their rear property, sometimes taking over some of the land for personal use. The farmers and gardeners using the right of way for vegetables find this loss of arable land an attack on urban farming and a submission to the auto imperative which they see as at odds with the environmental future of our planet. People living on the interior of K are facing ever increasing traffic speeding through their neighbourhoods as shortcuts. They hope that the Leroy Grant Road will absorb much of this traffic.

In discussions with Staff and Councillors the idea has been raised to move the right of way over ten metres. To do this, the City would need to purchase the land from Nova. Aside from the cost, which has never come up because we never get that far, the argument is that the industrial property is contaminated. This claim is subject to being tested. The industrial operation lies far west of the road. It could well be that the land in question is not contaminated. This would allow the agricultural functions and the recreational function to be maintained and also provide a buffer between the residences and the road.

Where Leroy Grant intersects with Elliott Avenue we turn east. This area is known as Wycliffe Estates. Generally, the housing was directed to the moderate income market. The neighbourhoods along this stretch are insulated from the rest of K. They are physically set apart by the large park and school properties south of them. In fact, the properties south of Elliott Avenue are also enteties unto themselves. Two of the roads have single home dwellings, somewhat higher in value than the rest of K and are cul de sacs. The remainder of the properties along the south of Elliott Avenue also diverge from the properties to the north. There are three story residential buildings. One of them is the Dutch Heritage Villa, built as a social housing project serving older people of Dutch heritage. It is interesting to note that this building has a large vegetable garden that they operate each year.

Crossing Lyons Street lies the Cataraque Co-op housing described earlier

The two private residences have their own character consistent with such walk ups. My observation is that they seem well maintained and don't seem to have many social issues. As far as I know, these

residences are market rental units. They're vintage is about thirty years old, so they are newer than some other such buildings described earlier along Kirkpatrick. We have flyer'd these places inviting residents to participate in the KCA, but there has not been any uptake on it.

So let's turn north and consider the neighbourhoods on the other side of Elliott Avenue. This subdevelopment was built by Dacon Construction about thirty years ago. Dacon had a reputation of building reasonable quality homes. The majority of the homes are semi-detached. The layout of the streets are with crescents and roads that turn in and out surrounding green space behind many of the houses. This gives the neighbourhood a feel to it that it is an area unto itself. There are no commercial properties within this area and active transportation is not exactly promoted. In fact, people drive their kids going to Molly Brant School across the road. (There are pathways that provide pedestrian shortcuts so people don't have to walk round and round to get from one sub-neighbourhood to another.)

It is interesting to note that, when an issue around the school came up a few years ago, some people from this area attended the KCA meeting. They were encouraged to take part in the association. A couple of people complained that we never heard of us. In fact we used to poster the area and have distributed the area on occasion. I have also canvassed in the area. It tends to be a conservative individualistic population. My impression is that it is a lower middle class population often scrambling to keep ahead of life's pressures.

I don't see immediate opportunity to intensify this area, except through secondary suites. It is the kind of area in which residents might use the opportunity to get ahead by capitalizing on its property value. However, others would resist it. One would have to ask how attractive this area would be to tenants. It is off the beaten track, somewhat farther from downtown services than the rest of K and Williamsville. However, with the opening of Leroy Grant Drive and the completion of the new secondary school, the area could become more attractive to secondary suite development.

The homes on the north side of Elliott Avenue are part of the same complex as those not bordering Elliott Avenue. What the impact on them and the potential uses of the properties bordering Elliott Avenue if traffic increases considerably after the third crossing is completed is hard to predict. The people living along Elliott Avenue don't seem concerned with this and can be seen as being integrated into those neighbourhoods not bordering on Elliott Avenue.

One can walk south along Douglas Avenue and reach a path through Champlain Park. Following that path you reach a stub of street called Newton Place with two or three houses on it. It intersects Kirkpatrick Street. Looking east you will see St. Mary's Cemetery on the south side of Kirkpatrick. This is an attractive aspect of the neighbourhood because it provides for green space and buffers us from Division Street. The memorial to Irish victims of the typhoid epidemic is at the corner of Kingscourt Ave and Kirkpatrick. This is an important cultural site with significant historical value. It is not given enough recognition.

This brings us to the neighbourhoods we usually identify as K. We will discuss four main neighbourhoods to discuss.

- There are neighbourhoods that are post war, but earlier than 1960.

- There is a block of housing built around the Max Jackson Park that were developed to finance the park purchase after the closing of Kingscourt Public School. (The public school was a relatively small local school constructed with the idea that it would be short term in nature to serve young families that were going to age in twenty years.)
- There is the war-timers built by Wartime Housing Limited. This housing was supposed to be temporary and was built with pre-fab material in a matter of months. Instead, demand for post-war housing led to it remaining in place and a vibrant community emerged. The housing is located predominantly in the lower half of K.
- The fourth general area is located west of Victoria and below Third Avenue. (Adjacent to this area are the Homestead Apartment buildings in the south west quadrant. We won't comment further on these buildings because they are self contained and as intensified as possible. Mainly, these four buildings don't participate in KCA activities. Interestingly, the renovation of Third Avenue Park was carried out in part in consideration of the population in these buildings.) The neighbourhood in this area is somewhat distinct because it is somewhat set off by Victoria and Third avenues. Traffic spills into this area as a shortcut to the Bath Road, Concession Street, Princess Street intersection. To some extent, this area is a transitional area between Concession Street and the rest of K.

Post war housing. Running along Kirkpatrick and Brant and Victoria, much of the housing is post-war. Kingscourt Avenue north of Fifth Avenue and Hillcrest Avenue and Cameron Avenue and Rusking Street also fit this category as does the pocket of housing on Alfred Crescent. This housing is mainly three bedroom bungalows on sizable properties. It is mainly moderate income households who tend to keep up the appearance. Over time, the population has aged, but is beginning to be repopulated with young families.

Recently we have received reports of speculative buying (or real purchase of properties by property management companies and developers) of these properties. If correct, this phenomenon could see future development of large houses as has occurred in Redendale. We could also see subdividing properties into a number of units or marketing houses as shared properties. If done in a thoughtful way, occasional scattered implementation of such practices would not necessarily harm the character of the neighbourhoods. How can the zoning bylaw mandate thoughtful implementation? How can a zoning bylaw allow such redevelopment on one property and not allow in others? One could imagine the mandating of greater setbacks and side yard and rear yard borders. One could imagine better definitions of shading and putting limits on shading effects on neighbouring properties. This, for example might force redevelopment to have graduated sloping so that added floors would be set back from the previous floor. Somewhat greater height might be allowed to compensate for that limitation. Added residents contribute to the burden on the utilities infrastructure. One could set out a first come, first serve permit system for redevelopment proposals and once a certain number have occurred, further approvals would not be allowed (on the rationale that the maximum burden on the infrastructure has been attained.)



The residential character of the neighbourhood is subjected to strain due to the traffic infiltrating from Elliott Avenue and Division Street and Concession Street often using Lyons Street as a shortcut.

Historically, there were a number of local confectionary stores. They have disappeared over time. It is interesting that pedestrian traffic seems to be increasing, mainly with people exercising or walking their dogs. The main thoroughfares, such as Victoria Avenue and Kirkpatrick Street and Kingscourt Avenue offer some opportunities for local commercial activity. Rezoning to allow some such enterprises would be useful. This applies generally to the K area. What kinds of businesses would be suitable. Of course, little confectionaries come to mind, but there are many other possibilities: bicycle repair shop, day care centre, doctor's offices, hair salon (There are some examples operating as home businesses), a games room, small coffee and tea shop, dressmaking (sewing repair) shop, etc. The main issues about commercial operations are traffic and noise. The examples above usually don't present these concerns. If limited parking is mandated in these enterprises, there will be pressure to minimize traffic. A hidden benefit of commercial businesses on a street is the tendency to reduce speed of traffic since cars will be parked on the street. (Think of some quaint downtowns, like Shelburne or Newmarket or Port Hope.) Such businesses will increase interaction of residents and act to stabilize the area. If moderate increase in density through occasional infilling, or secondary suite implementation occurs, or if some multiunit developments are built at major intersections or on the First Avenue School property, these populations will be absorbed into the life of the community through patronizing local small businesses.

While most of these houses are on long thoroughfares (Kingscourt Ave, Victoria Ave, Brant Ave, There are pockets of streets that are less subject to traffic intrusion. Ruskin, Cameron, and Hillcrest are among these. There are a few streets that are even more protected, There are three small stub streets that have cul de sacs, Alfred Crescent is somewhat different in that it is somewhat off the beaten track, but forms a complete self contained circle that feeds into Alfred Street. A pedestrian path to Hillcrest Avenue provides a shortcut to the school and the local store and Max Jackson Park and Kingscourt Branch Library and to the local churches. Historically, this connection was more significant because the schools were very local (Kingscourt Public School, St Peter Catholic Elementary School), but they no longer exist. The library has also been closed. Access to the park and the churches continue to be improved. The gains in access through the path to the new public schools, however, are somewhat marginal because the distance gain is proportionately less.

The path between Kingscourt Ave and Hillcrest Ave. remains an important asset. While on the topic of pedestrian paths, it should be mentioned that the stairs and walkway from Alfred Street to Division Street is an important pedestrian route that should be better maintained. It is also a connection to the Portuguese Catholic Church, although K does not have as high a concentration of Portuguese ethnic families as in the past. At one time, the grocery on Alfred Street catered to Portuguese cuisine, with such items as Portuguese sausages. Over time, the change in make up of the area reduced the viability of that grocery store and it closed.

While on this tangent, further descriptive characteristics of the K area will benefit from observing that there are a few group homes and a transitional housing operation here. (This is in addition to the Frontenac Mental Health Services building already discussed.) It is a compliment to our community that these uses have been made to feel welcome and operate without a great deal of strain. The Home Base Housing shelter (formerly Bridge House) near the Irish typhoid victims monument is an example. Most notable was the way our association reacted to the conversion of Kinsmen housing at 735 Kingscourt Avenue from seniors units to transitional Housing for Home Base Housing youth. We offered to meet with the senior staff and discuss how we could help make the operation beneficial to all and make the youth feel welcome and part of our neighbourhood

Returning to our main thread, a significant characteristic of K, but especially the post war areas, is the prevalence of drainage issues. While this is not, on the face of it, a zoning issue, it is important to the property values and the livability of the area. It would be useful if planning documents took this issue into consideration. For example, adding outbuildings to sites can seriously disturb the water flow and direct water to adjacent properties. When reconstruction or expansion of buildings is being considered, water management should be expected.

Why would an area at the highest point of the City be subject to flooding? It would depend on the source of the water. There are three sources. 1. Water accumulates during heavy rains and spring and mid winter thaws. 2, Some properties experience underground water springing up from time to time. 3. Because of the high number of residences resorting to feeding storm water into the sanitary sewer system, back flow of sewage reaches the most vulnerable properties (not usually those creating the problem).

How do we explain this phenomenon? The primary two reasons are the hydrology and the historical development of the area. The area has a limestone base near the surface. Often properties were built on limestone blasted out or leveled. Underground springs flow out of these limestone rock structures, but only when the water load is heavy and the water table rises significantly. Once water sits on the surface such as from water runoff the lack of drainage leads some back yards to be like marshes.

In the midst of the post-war housing bordering the east and south boundary of Max Jackson Park are some newer houses. These were built on property sold by the City to pay for the purchase of the school board property on which Kingscourt Public School had been built. It was torn down because of low student numbers and cost of maintenance. In fact, it had originally been built with the idea that it would not be needed as the population aged. It was built on a slab with the idea that it would be easy to remove.

These newer homes are somewhat larger than others in the area and probably less likely to face development pressures. However, they might lend themselves to being subdivided. It is interesting to note that one home built on the corner of Oak and Kingscourt Ave was moved onto this site and has a number of subunits in it. Comments on these properties is limited here. It is not clear how these properties will age and what protection, if any, is needed to protect their nature. Does bordering a park add to how attractive these properties are? Does the prospect of soccer matches taking place at diverse hours detract? The park is not especially well endowed with trees and walking paths, although some trees were planted a few years ago.

It is also interesting to note that there are two significant church properties close to these homes. The parking lot of the Dutch Reform Church (Ruskin and Kingscourt Ave) abuts the start of these homes.

Moving farther south we come to the war timers. Going up Kingscourt Ave toward this area we pass another residence that was converted from a convenience store. We also see a convenience store on Seventh Avenue across from St Peter School. St Peter Catholic Elementary School was decommissioned last year, but has been repurposed for two years as a kindergarten and first grade satellite of Ecole Cathedrale. The French elementary school complex slated to be completed will then absorb Ecole Cathedrale. If St. Peter property comes on the market, the City has expressed interest in acquiring the property. Different visions are being proposed for the property. The City may have the intention to extend and improve the Fourth Avenue Park. However, the property also would allow mixed income housing to be developed.

On the other hand, the KCA sees a great need for a hub of services that the existing school building could meet. We see a drop in centre for Seniors. This centre could be used to provide home care support to seniors with some, but limited mobility. (This is similar to the service set up in a co-operative venture between Homestead Landholdings and the Council on Aging. A room was provided for seniors in the building to drop in for help with meds and medical advice. A Nurse staffed the room at various times.) It also would lend itself to use as a day care. Community meeting spaces are needed in the area. A games room for youth and evening light recreational activities also is needed in our area. The school has a gym that would be valuable in that regard.

Much of the remaining area of K is composed of small houses built during the war. Some of the housing exists along main streets such as Victoria Avenue, Kingscourt Avenue and Alfred Street. Other of this housing is self contained. The neighbourhoods project a strong identity. Older trees line the roads. Sidewalks are not always present on both sides giving a sense of a natural enclave. In these areas, the changes to the houses are usually more subtle than in the case of the main street houses.

Throughout these neighbourhoods it is captivating to see the different ways people have adapted their buildings to their life needs. Remember, these houses were very compact, small and built as pre-fabs without basements. The structures communicated temporary, and pragmatic. People who lived in these houses didn't accept the limitations. They made them permanent and adaptable. Additions have been added to the rear of building, as second stories or half stories, as sun rooms or porches. Some additions were added dormers. Some were additions that sat in front with roofs sloping backwards. In some cases people jacked up their houses to add functional basements.

On the other hand, we come across additions that are out of proportion with the historical character of the war timers neighbourhood. Sometimes, this can be accomplished tastefully, sometimes in a gross way. A prime example of the former is the oversized building on Seventh Ave across from Lorne St. A prime example of the latter is the subdivided house at the north west corner of Third Ave and Victoria. Please refer to the earlier discussion of infilling and construction of large houses where suggestions are made on how to put reasonable constraints on what is built. Perhaps these constraints can be eased for properties that border on the edge of higher traffic roads and properties already showing higher density. Fourth Avenue and Lorne St has such a property. The southern end of K near Concession Street has pockets of such properties. A walk up multiunit building can be found at the

corner of Victoria and Concession. Dense small scale apartments can be seen along Concession St. across from Lansdowne. There is a small complex of such dense housing just south of First Avenue on the east side of Kingscourt Ave. Marginal housing of this sort can also be found on the northwest corner of First Avenue and Connaught.

As we travel from north to south along Victoria and Kingscourt Ave. I have observed a greater frequency of lower affluence. (I have canvassed these streets during various political campaigns and also distributed flyers through the south end of K.) Sometimes, even though the exterior of the properties are manicured, the interiors are sparsely furnished and in rough shape. This may depress property values as one moves south which makes these properties targets for gentrification. We can expect to see younger families moving in to these properties also.

It is worthwhile to look at the development options for the First Avenue School Property in the light of the above discussion. We don't want the development to detract from the historical wartime warm residential character of the area just north of the school property (along Nelson) and to the east of it. (along Kingscourt Ave). However, there is justification for higher density that promotes the transition from Concession Street north. How high should the buildings be? Sloped height (two stories along the edges, three stories one row in and four stories in the middle) would keep the shading low and allow visual lines to accommodate to the greater density. (Perhaps five or six stories would work in the very centre as long as the lines are not starkly horizontal.

Further consideration of the nature of the historical wartime area (and K properties more generally) is the demographics and economics of the area. Can one maintain the character of the area if the make up of the population changes? Look at the Barriefield reality. The residents there like to claim they are maintaining the historical nature of the area. But the new houses are uncharacteristically large. The income levels are totally out of character with the historical working class nature of the area. It's claims to special status are self-serving.

The existence of K as a last holdout for affordability within walking distance of downtown is at risk. What if we set stricter limits on the changes to the area in terms of size and character of houses? Probably one would have to designate the properties rather than just designate the area as a distinct cultural heritage area. But would that be fair (if it were possible)? Why should people living in K. be deprived of the opportunity to maximize the return on their investments in their homes? And what would be the political implications of that? You can now see the dilemma we face in defining what zoning and Official Plan implementations should be for K.

The City Locations Study assessed that K has been defined as having more than its share of low income housing. However, making effort to maintain K as a moderate income community would be valuable. It would be valuable in addressing the housing challenges of the City as property values escalate and it would be valuable in maintaining the character of K. The City has tools to do this. It can use home ownership program money. It can provide incentives to developers and property purchasers in terms of height and density bonusing and in terms of speed of processing applications and development fee easement. Reasonably stricter set back and height standards would help keep speculation within reason and some accommodation could be made for the addition of rental units into the properties. Clearly, the standards in K. need to be a carefully planned balance.

The final area mentioned is the area west of Victoria and south of Third Avenue. This area is an area in which people are desperately trying to maintain its character while there are examples of breakdown in the “stable working class” character of the area. Being close to Concession, it is always on the border of change. What may drive even faster change is the traffic density being experienced. Traffic is shortcutting the route to Concession via Victoria Avenue by using the access via McDonnell now that there is a light at MacDonnell and Concession Street. (This traffic light has been a great improvement for safety of pedestrians and autos, but has had the unintended consequence of increasing traffic in this neighbourhood.)

Special attention is needed to this area. It would be very worthwhile for staff to arrange local coffee and tea events to get a sense of how the residents in this area view their area and its future. Ultimately, we made a mini-secondary plan for this area. Traffic control measures, transitional development close to Concession Street, and a neighbourhood improvement plan might be outcomes. We also need to consider what happens when Leroy Grant Avenue is completed. How will that affect the traffic flow? How will that traffic access this area. If traffic can turn on Third Avenue into the area, the expected gains from traffic not using Victoria Avenue to get to the Kingston Centre area could be lost. Traffic coming from John Counter Blvd south could take short cuts to Concession via Third Avenue. (Some of us will do anything to avoid lights, even if we take many times longer to get to our destinations. That is how my wife interprets my driving habits.)

I will enhance this presentation with photographs as soon as I can, but I didn't want to delay submitting this verbal presentation. I will also add a map with areas numbered. I hope this presentation is helpful.

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