CITY OF KINGSTON

CITY OWNED INDUSTRIAL LAND DEVELOPMENT STRATEGY

PHASE 3 – FINANCE & SERVICING STRATEGY

TSH Project No. 14-11889
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1. INTRODUCTION

This is the third of a three phase project reviewing the City-owned industrial lands in the City of Kingston. The purpose of this part of the project is to assess the existing and required infrastructure to service these lands.

This report has been organized to provide a general review of the existing infrastructure in each City-owned Industrial Park. This review provides an assessment of the infrastructure requirements for each Park and an order of magnitude estimate of costs for servicing. The estimated yield in Industrial land from Phase 2 of this project has been used and modified as necessary to reflect further design related site information. On the basis of the cost estimate and yield, a calculation of the servicing cost in each Industrial Park (or portion thereof) is developed. It is important to note that the analysis does not account for any value appreciating to the land itself.

The report concludes with recommendations on a servicing strategy for each Park.
2. AIRPORT

2.1 Introduction

The Airport area is illustrated in Figure 2.

Work on a revised Airport Master Plan is ongoing.

Previous studies for the Airport area have suggested that development could be considered in three areas:

- East Area - an easterly extension of the existing development area along Len Birchall Way;
- Northeast Area - abutting the south edge of West Park subdivision; and
- West Central Area - abutting the east edge of Lemoine Point Conservation Area.

Potential net development areas of 11 hectares, 29.4 hectares, and 10.6 hectares are estimated for the East, Northeast, and West Central Areas respectively. Business Park type uses are envisioned for this area.

Existing roadways in the Airport area have been developed with a semi-urban to urban cross-section.

The City of Kingston Urban Growth Strategy does not identify sanitary and water infrastructure upgrades.

2.2 Infrastructure

2.2.1 Transportation

The Airport is accessed by Front Road. Bayridge Drive extends along the east edge of the airport property terminating at Front Road. At present, there are no traffic capacity problems along Front Road and Bayridge Drive in the vicinity of the Airport.

Kingston Transit currently provides bus service in the vicinity of the Airport area only as close as Bayridge Drive at Roosevelt Drive and Front Road at Welborne Avenue.

Few formal pedestrian and bike paths have been developed around the Airport area. Traditional street lighting exists on adjacent roads.

2.2.2 Water

A 400mm diameter trunk watermain is located along the entire east side of the Airport area along Bayridge Drive. The main Airport area is served by a 200mm diameter watermain extending from this trunk watermain.

Future development within the East Area of the Airport should be completed with an extension of the existing Airport watermain and, ultimately, another connection to the Bayridge Drive trunk watermain. Development of the Northeast Area of the Airport could be readily serviced from the
Bayridge Drive trunk watermain potentially with a second connection to the Barnsley Crescent watermain through an existing storm sewer easement. Water service to the West Central Area of the Airport would require a relatively lengthy watermain extension - likely from the East Area and / or the Northeast Area.

Average daily water demands are expected to be 4.4 L/s, 11.9 L/s, and 4.3 L/s for the East, Northeast, and West Central Areas respectively. It is expected that future development within the Airport area could be accommodated with 250mm or 300mm diameter watermains. Detailed analysis will be required to confirm sizing and adequacy of water supply and pressure.

### 2.2.3 Sanitary Sewer

Until recently, the existing development area of the Airport was served by individual septic systems. The installation of the sanitary sewage pumping station at the corner of Bayridge Drive and Front Road and a 300mm diameter sanitary sewer provides sanitary service to the existing development area and the Airport East Area. A 100mm forcemain conveys sewage to the existing sanitary sewer on Brodie Avenue.

Peak sanitary sewage flows are expected to be 7.1 L/s, 19.1 L/s, and 6.9 L/s for the East, Northeast, and West Central Areas respectively.

The sanitary sewage pump station and sanitary sewer were designed to include the East area - although the forcemain from the pump station may need to be replaced.

It is expected that an existing sanitary sewer at Bayridge Drive and Roosevelt Drive could service the Northeast Area of the Airport by gravity. Detailed analysis will be required to confirm adequacy of downstream sanitary sewage works.

Sanitary sewer service to the West Central area would require an extension of the East or Northeast Area sanitary sewer systems possibly including the development of a sanitary sewage pumping station. Detailed analysis will be required to confirm adequacy of downstream sanitary sewage works.

Future development within the Airport areas could be accommodated with 200mm diameter sanitary sewers.

### 2.2.4 Drainage

There are no formal storm water management facilities in the main Airport area.

Further development of the main Airport area will require site level stormwater management facilities.

Drainage from the East Area is predominately to the south.

Drainage from the Northeast Area is predominately towards Bayridge Drive.

Drainage from the West Central Area is predominately to the west.
Development of any of these new areas would require the design and construction of Stormwater Management Facilities to address stormwater quantity and quality issues.

2.2.5 Electricity

Electricity to the Airport areas is provided by Hydro One. No capacity concerns are expected for future development within the existing and possible future Airport development areas. A substation will be required for the Northeast and West Central areas.

2.2.6 Natural Gas

Natural gas service to the Airport area is provided by Union Gas.

The East Airport Area is served by 50mm medium pressure (30 - 45 psi) gas mains along Hampton Gray Gate and Len Birchall Way. Near the Northeast and West Central areas, 50mm medium pressure mains are located on Barnsley Crescent and Sackville Crescent. A District Regulating Station is located on Bayridge Drive near Acadia Drive (north leg).

There is only limited available capacity in the East area for future development without system upgrades. It is expected that the existing gas network may serve some additional building load (heat & hot water) but could not support significant process load. To provide for additional capacity, a lengthy connection from the Bayridge Drive District Regulating Station along Bayridge Drive to Henderson Boulevard would be required.

It is not expected that there would be any capacity concerns in servicing development in the Northeast and West Central areas. Extensions of the existing gas mains to these areas from the adjacent residential areas would be required.

2.2.7 Communications

Bell provides telephone service to the Airport area. No servicing concerns are expected for future development within the existing and possible future Airport development areas.

2.3 Development

2.3.1 Existing Development

Servicing for the developed portion of the East Area of the Airport is fully constructed.

2.3.2 Future Development

External Work

Future development in the Airport areas will result in the need for external roadway, water, and sanitary infrastructure upgrades. It is not expected that this work would be extensive. The scope and scheduling of development will determine the extent of these upgrades.

Internal Work
Development of the balance of the East Area of the Airport will require full servicing and roadway construction. Average costs to complete this work are estimated at $1,500 per metre of roadway. Approximately 700m of roadway are required. Should the development include an intersection with Bayridge Drive, additional costs of $50,000 will be required for an unsignalized intersection. The estimated total costs for development of the East area are $1.1 million.

Development of the Northeast area will require full servicing and roadway construction. Average costs to complete this work are estimated at $2,000 per metre of roadway. Approximately 1,200m of roadway are required. Additional costs of $150,000 for a signalized intersection, $300,000 for stormwater management facilities, and $300,000 for an electrical sub-station will be required. The estimated total costs for development of the Northeast area are $3.15 million.

Development of the West Central area will require full servicing and roadway construction. Average costs to complete this work are estimated at $2,000 per metre of roadway. Approximately 1,600m of roadway are required. Additional costs of $300,000 for a sanitary pump station, $200,000 for stormwater management facilities, and $300,000 for an electrical sub-station will be required. The estimated total costs for development of the West Central area are $4.0 million.

2.3.3 Estimate of costs (order of magnitude)

Table 1 sets out the results of this calculation for the Airport. It should be noted that the lands in the Airport designation cannot be sold. Development will be on a land lease or building lease basis.

2.3.4 Phasing

Phasing and extent of development on Airport lands is dependent on the Airport Master Plan. It is safe to say that the extension of industrial uses on lands in the vicinity of the existing airport complex can occur in the short term. The Northeast area will require some investment and the West Central should be viewed as a long term option with significant investment implications.

2.3.5 Conclusions

The Airport represents an immediate short term development potential of some 11 net hectares. This development in the East area is somewhat higher than expected because the improvements serve a broader area than just the vacant lands.

Longer term development of up to 40 net hectares is also possible. The North east area involves a higher cost per acre and per square foot of building due to extensive road and servicing connections. The West Central Area represents a very expensive servicing option due to its remoteness.

Subject to the lease arrangements, the limitation on ownership may make this area less attractive to businesses that do not need access to the airport facilities.
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<th>Area</th>
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</table>

Source: Mapping available from the City, Clark Consulting Services and Totten Sims Hubicki
3. CATARAQUI INDUSTRIAL ESTATES

3.1 Introduction

The Cataraqui Industrial Estates area is illustrated in Figure 3.

Existing development within Cataraqui Industrial Estates includes:

- Gardiners Road between Cataraqui Woods Drive and Centennial Drive;
- East side of Midland Avenue between Cataraqui Woods Drive and MacRow Street;
- Cataraqui Woods Drive from west of Gardiners Road to Clyde Court;
- Fortune Crescent;
- MacRow Street between Midland Avenue and Gardiners Road; and
- Centennial Drive from Gardiners Road easterly.

An Environmental Assessment is currently underway for the completion of Cataraqui Woods Drive from Midland Avenue easterly to the current termination west of Gardiners Road. Construction of an extension of Fortune Crescent to the east is ongoing.

Concept plans for the area east of the existing portion of Cataraqui Industrial Estates show the completion of Centennial Drive easterly and then southerly meeting up with the south portion of Centennial Drive now being extended northerly from Princess Street. Concept Plans also show the development of Cataraqui Woods Drive easterly to Sydenham Road just south of Eunice Drive. Much of the area between Gardiners Road and Sydenham Road and between Cataraqui Woods Drive and Highway 401 is considered for industrial development.

Potential net development areas of 17 hectares and 83 hectares are estimated in the existing development and future development areas. Business Park type and General Industrial type uses are envisioned for this area.

Existing roadways in the Cataraqui Industrial Estates have been developed with a semi-urban to urban cross-section (predominately with curb & gutter and roadside ditches).

3.2 Infrastructure

3.2.1 Transportation

The Gardiners Road / Highway 401 interchange is located at the northwest corner of the Cataraqui Industrial Estates area. The Sydenham Road / Highway 401 interchange is located east of the area. MTO is currently widening Highway 401 from 4 to 6 lanes through the Kingston area.

The Kingston Transportation Master Plan (KTMP) envisions and recommends the implementation of a number of transportation network improvements in the area including:

- Widening of Gardiners Road from 4 to 6 lanes from north of Highway 401 to Centennial Drive / Creekford Road to accommodate the Highway 401 / Gardiners Road interchange realignment;
Completion of Cataraqui Woods Drive (2 lanes) connecting from Midland Avenue to Sydenham Road; and
Completion of Centennial Drive (4 lanes) from Gardiners Road to Princess Street.

Kingston Transit currently provides regular bus service to Cataraqui Industrial Estates.

Few pedestrian or bike paths have been developed in the vicinity of Cataraqui Industrial Estates. The Cycling and Pathways Study envisions the development of pathways along the former K&P railway line and along Centennial Drive.

Traditional street lighting is being used within Cataraqui Industrial Estates.

### 3.2.2 Water

Integral components of the water distribution system providing water service to the Cataraqui Industrial Estates Area include the following:

- Gardiners Road booster station; and
- Trunk watermain along Gardiners Road.

Other existing trunk watermains in the area are located on Midland Avenue, Cataraqui Woods Drive, Augusta Drive (in Cataraqui North), and Sydenham Road.

The November 2002 Kingston West Water Storage Environmental Assessment recommends new works to accommodate projected water demands from future growth in the area including:

- Elevated water tank at Creekford Road and Clogg Road;
- Upgrade of the Gardiners Road booster station; as well as
- Various other improvements to interconnect and improve pressure zones.

This work is now underway.

Future development within Cataraqui Industrial Estates will be serviced with trunk watermain connections along Centennial Drive and along Cataraqui Woods Drive as well as watermains along the local roadways. The Urban Growth Strategy projects these works in the 1-5 or 6-10 year range depending on the schedule of development.

Existing development within Cataraqui Industrial Estates has been undertaken with 300mm and 400mm diameter trunk watermains and 200mm and 250mm diameter local watermains. Future development within Cataraqui Industrial Estates is proposed with 300mm diameter trunk watermains on Centennial Drive and Cataraqui Woods Drive and a 400mm diameter trunk watermain on Augusta Drive. The Urban Growth Strategy projects these works in the 1-5 or 6-10 year range depending on the schedule of development. Average daily water demands are expected to be 6.9 L/s and 33.6 L/s for the remaining existing and future development areas respectively. It is expected that local watermains would be 250mm and 300mm in diameter. Detailed analysis will be required to confirm sizing and adequacy of water supply and pressure.

### 3.2.3 Sanitary Sewer
Integral components of the sanitary sewage system serving Cataraqui Industrial Estates include the following:

- Trunk sanitary sewer to the Days Road pumping station;
- Days Road pumping station;
- Days Road pumping station forcemains to the Kingston West Water Pollution Control Plant; and
- Kingston West Water Pollution Control Plant.

A trunk sewer known as the North Central Collector has been extended along the West Branch of the Little Cataraqui Creek. The drainage area of this sewer was originally intended to include much of the area north of Princess Street to Highway 401 including an area east of Sydenham Road just south of Highway 401. A trunk sewer extends along Clyde Court north to Fortune Crescent serving the western portion of the Cataraqui Industrial Estates area. The collector sewer extends north through the Cataraqui North neighbourhood and will serve the east portion of the Cataraqui Industrial Estates area.

Peak sanitary sewage flows are expected to be 11.1 L/s and 54.0 L/s for the remaining existing and future development areas respectively.

No significant downstream sanitary sewer improvements to meet projected sewage flows in the area were identified in the Urban Growth Strategy.

Future development within the Cataraqui Industrial Estates area is proposed with an extension of the North Central Collector to the north with local sanitary sewers. The North Central Collector cannot service the entire Cataraqui Industrial Estates area by gravity. The north east portion of the area near Sydenham Road will require a sanitary pumping station. Upgrades to the Days Road pumping station and the Kingston West Water Pollution Control Plant will be required to meet projected sanitary flows as development proceeds within the western area of the City.

Recent preliminary work on the Cataraqui Mills development suggests that the proposed sanitary sewer system for that area (an extension of the Northeast Collector) could be expanded to include all that area east of Sydenham Road.

Careful consideration needs to be given to determining the sewershed limits in the Sydenham Road area and the limits of the North Central and Northeast Collectors respectively.

### 3.2.4 Drainage

Drainage from much of the Cataraqui Industrial Estates area drains to the West Branch of the Little Cataraqui Creek. Some of the northern portion of this area drains across Highway 401 to the north and to Collins Creek. The northwest portion of the area drains across Sydenham Road to Little Cataraqui Creek.

Roadways within Cataraqui Industrial Estates are constructed primarily with curb and gutter and ditches.

The February 2003 Class Environmental Assessment for Master Drainage Plan for the Outlet B Tributary Area of the Cataraqui North Neighbourhood recommends a number of stormwater...
management improvements including retrofitting of the Lion’s Civic Pond and development of a regional stormwater management facility upstream of Cataraqui Woods Drive (Pond B1S). The latter would be a partial wet pond facility intended primarily for quantity control for the area which includes that portion of Cataraqui Industrial Estates draining to this outlet.

The February 2003 Report recommends that all new developments in the area of Cataraqui Industrial Estates provide on site water quality treatment in accordance with the requirements set out by the Ministry of the Environment for Level 2 protection and reduce their post peak flows by 35% for storm events ranging from 2 year to 100 year return periods. The February 2003 Report recommends the quantity control requirement as a safety factor for flexibility such as in forgoing the quantity control requirement for developments of 1 hectare or less. The February 2003 Report also recommends the use of roadside ditches to convey stormwater runoff.

The February 2003 Report recommends that costs for the retrofitting of the Lion’s Civic Pond be borne by all new developments within the Outlet B tributary area (which includes Cataraqui Industrial Estates). The February 2003 Report recommends that the City front-end costs for development of Pond B1S and recover costs from new developments and from re-development applications. This project could be financed either through area specific development charges or through a joint service agreement.

As some Site Level stormwater management is required for Cataraqui Industrial Estates, depending on what stormwater management measures are used, sites may have to be somewhat larger than comparable sites elsewhere with fully centralized SWM facilities.

Development of the other areas of Cataraqui Industrial Estates will require the design and construction of Stormwater Management Facilities to address stormwater quantity and quality issues.

### 3.2.5 Electricity

Electricity to Cataraqui Industrial Estates is provided by Hydro One.

An overhead 44 KV 3 Phase circuit exists on Gardiners Road and the north portion of Centennial Drive. A 4.8 / 8.32 KV 3 Phase circuit exists on Gardiners Road south of Fortune Crescent, Fortune Crescent, Cataraqui Woods Drive, and Clyde Court. An extension of the 44 KV circuit easterly along the south leg of Fortune Crescent is proposed.

No capacity concerns are expected for future development within the existing and future development areas. Sub-station(s) will be required as development proceeds.

### 3.2.6 Natural Gas

Natural Gas Service to Cataraqui Industrial Estates is provided by Union Gas.

Intermediate pressure (120 - 145 psi) gas mains are located on Midland Avenue, Gardiners Road, Cataraqui Woods Drive, Clyde Court, Fortune Crescent, Centennial Drive (north end), and Sydenham Road.

Plans for future improvements call for the development of a gas main from the Trans Canada facilities north of the City to Centennial Drive (north end), a station in the vicinity of Centennial
Drive and Gardiners Road, and completion of a 150mm intermediate pressure gas main to the existing 200mm gas main on Gardiners Road at Fortune Crescent (south leg). Extension of this service easterly / southerly will ensure adequate capacity for future development phases of Cataraqui Industrial Estates.

No capacity concerns are expected for future development within the existing and adjacent Cataraqui Industrial Estates area for future development building load (heat & hot water) or process load.

3.2.7 Communications

Bell provides telephone service to Cataraqui Industrial Estates. No servicing concerns are expected for future development within the existing and future development areas.

3.3 Development

3.3.1 Existing Development

Servicing for the developed portion of the Cataraqui Industrial Estates area is fully constructed except for the completion of stormwater management facilities and the completion of Centennial Drive. Costs to complete the latter work are estimated at $50,000. The completion of sidewalks on existing streets would cost $100 per metre.

3.3.2 Future Development

External Work

Continued development of Cataraqui Industrial Estates will result in the need for external roadway, water, and sanitary infrastructure upgrades including:
- widening of Gardiners Road, completion of Cataraqui Woods Drive and Centennial Drive; and
- trunk watermains on Centennial Drive, Cataraqui Woods Drive, and Augusta Drive;

The scope and scheduling of development will determine the extent of these upgrades.

Internal Work

The City has completed an environmental assessment considering additional development to the east of Fortune Crescent. Future development will see extensions of Centennial Drive to the east and south, and the extension of Cataraqui Woods Drive to the east.

Development of the balance of Cataraqui Industrial Estates will require full servicing and roadway construction. Average costs to complete this work are estimated at $2,000 per metre of roadway. Approximately 5,000m of roadway are required. Additional costs of $1,000,000 for intersection improvements, $500,000 for a sanitary pump station and forcemain, $1,500,000 for stormwater management facilities, and $1,000,000 for electrical sub-stations are expected. The estimated total costs for development of the Cataraqui Industrial Estates area are $14 million.
The present Development Charges By-law includes a cost of $5,685,000 for the construction of Centennial Drive from Cataraqui Woods Drive to the north with most of this amount recoverable as it benefits new development. The present Impost Study includes much of the required water system improvements necessary to support development in the Cataraqui Industrial Estates including the trunk watermain along Centennial Drive with a total cost of $1,050,000.

3.3.3 Estimate of Costs (order of magnitude)

The extent of costs actually attributable to the Industrial development will depend upon timing of construction and decisions on cost allocations between residential and industrial development and between private and public land holdings. The preliminary calculation illustrated in Table 2 predicts an average cost per net hectare of $5,882 for the existing lots and $168,675 for the future development.

3.3.4 Phasing

The extension of Centennial Drive and its linkage to Cataraqui Woods Drive will complete an important transportation link. Sanitary sewage servicing of the eastern area is dependent on the extension of service from the south. This extension will determine the timing of development. The Strategic Design Plan which has been commissioned for these lands will provide further details about the coordination of service location and extension and the phasing of development.

3.3.5 Conclusions

The allocation of costs and the establishment of sales prices for industrial land will determine the revenue to be obtained from land sales. These issues will assist in encouraging the development of the adjacent and in some cases intervening private lands. The Strategic Design Plan for these lands should enable a more precise prediction of costs and yields.
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Note: Construction of Centennial Drive north of Cataraqui Woods Drive - recoverable from Development Charges.

Water System improvements - recoverable from Impost Fees.

Source: Mapping available from the City, Clark Consulting Services and Totten Sims Hubicki
4. KINGSTON NEW INDUSTRIAL PARK

4.1 Introduction

The Kingston New Industrial Park area is illustrated in Figure 4.

Dalton Avenue was initially developed in the 1960’s. Completion of the Sir John A. Macdonald Boulevard / Highway 401 intersection allowed for the development of the western area of the Kingston New Industrial Park. Development of this area began in the early 1990’s as a westerly extension of the Dalton Avenue industrial area. This area is substantially developed with scattered vacant parcels still available. Development to date includes:

- Dalton Avenue;
- Binnington Court from North of Dalton Avenue to south of Grant Timmins Drive; and
- Grant Timmins Drive from Dalton Avenue to Binnington Court.

Blocks for potential roadway extensions have been retained at the end of Binnington Court and on Binnington Court opposite Dalton Avenue. The adjacent vacant lands are privately owned and of limited area.

Existing roadways in the Kingston New Industrial Park have been developed with an urban cross-section (curb & gutter without roadside ditches).

4.2 Infrastructure

4.2.1 Transportation

Dalton Avenue provides good access to both Sir John A. Macdonald Boulevard and Division Street. The Sir John A. Macdonald Boulevard / Highway 401 interchange is centrally located in the Kingston New Industrial Park. MTO is currently widening Highway 401 from 4 to 6 lanes through the Kingston area.

Counter Street is a two lane arterial extending by the entire north side of the Alcan property. It is expected that the ongoing Counter Street Environmental Assessment will result in improvements to and the widening of Counter Street (from Princess Street to Division Street).

The Kingston Transportation Master Plan recommends the implementation of a number of transportation network improvements in the area including the widening of Counter Street from 2 to 4 lanes from Princess Street to Division Street.

Kingston Transit currently provides regular bus service to the Kingston New Industrial Park.

Few pedestrian and bike paths have been developed around the Kingston New Industrial Park area. The Cycling and Pathways Study envisions the development of pathways along the former K&P railway line, along the Little Cataraqui Creek, and along portions of Dalton Avenue, St. Remy Place, and Binnington Court.

Traditional street lighting has been used.
4.2.2 Water

The Kingston New Industrial Park is served primarily with 300mm diameter watermains. Water services to many of the existing individual lots were installed during initial construction.

As the west end of this area has a single feed west of Sir John A. Macdonald Boulevard, a 300mm diameter watermain connection to Counter Street along the Little Cataraqui Creek is proposed. The Urban Growth Strategy projects these works in the 1-5 or 6-10 year range depending on the schedule of development.

It is expected that water service to the potential development areas to the west would be serviced through the Cataraqui Mills development.

4.2.3 Sanitary Sewer

The Kingston New Industrial Park is served by a gravity sanitary sewer system extending east along Dalton Avenue to the North End Pumping Station. Sewage is then pumped to Division Street where it flows by gravity to the River Street Pumping Station.

The North End Trunk Sewer, North End Pumping Station Environmental Assessment recommends upgrades to the North End Pumping Station and further investigation of sources of extraneous flow into the system. The Urban Growth Strategy projects these works in 5 years.

Development in and around the City and the continued decrease in combined sewer overflows has reduced the available capacity of the Ravensview Water Pollution Control Plant. Upgrades to the Ravensview Water Pollution Control Plant to meet projected sanitary flows from new development and provide secondary treatment are now being planned. The Urban Growth Strategy projects these works in the 1-5 year range.

Sanitary laterals to many of the existing individual lots were installed during initial construction.

It is expected that sanitary service to the potential development areas to the west would be serviced through the Cataraqui Mills development.

4.2.4 Drainage

Drainage from the Kingston New Industrial Park is to either the Little Cataraqui Creek or the East Tributary of the Little Cataraqui Creek. Few existing stormwater management facilities are provided in the Kingston New Industrial Park.

Site level stormwater management facilities for the remaining development areas is recommended.

4.2.5 Electricity

Electricity to the Kingston New Industrial Park is provided by Utilities Kingston. As the area is not serviced by a 44 KV circuit, capacity concerns are possible where a large supply is required. Otherwise, no capacity concerns are expected for future development within the existing development areas.
4.2.6 Natural Gas

Natural Gas Service to the Kingston New Industrial Park is provided by Utilities Kingston.

At present there are capacity and isolation concerns in this area with the existing gas system. The City is considering the development of a gas pipeline to reinforce natural gas supply in the Kingston area. The route being considered is through the Kingston New Industrial Park. As a result, the current gas issues would be addressed.

4.2.7 Communications

Bell provides telephone service to the Kingston New Industrial Park. No servicing concerns are expected for future development within the Kingston New Industrial Park.

4.3 Development

4.3.1 Existing Development

Servicing for the developed portion of the Kingston New Industrial Park is fully constructed.

4.3.2 Future Development

External Work

Continued development of the Kingston New Industrial Park will result in the need for external roadway, water, and sanitary infrastructure upgrades including:

- widening of Counter Street;
- trunk watermain connection to Counter Street; and
- North End Trunk Sewer and Pumping Station upgrades and upgrades to the Ravensview Water Pollution Control Plant

The scope and scheduling of development will determine these upgrades.

Internal Work

As the Kingston New Industrial Park is essentially complete, costs to provide for new development are not significant.

4.3.3 Estimate of Costs (order of magnitude)

Table 3 sets out the costs and yields. The short term development involves very modest costs. No costing has been prepared for the two isolated areas west of the existing developed industrial area as a form and type of development are unknown at this time. Limited access and the proximity to environmentally sensitive areas and natural features may necessitate higher than usual costs or a less efficient development pattern.

4.3.4 Phasing
Limited development opportunities exist in this Park. There is no timing limitation on the development of the existing vacant parcels.

4.3.5 Conclusions

The form and timing of development for the adjacent parcels will be dependent upon their attractions for specialized uses and the redevelopment of adjacent lands. This redevelopment timing is unknown at this time and subject to private initiatives or City acquisition.
<table>
<thead>
<tr>
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<th>Area</th>
<th>Cost Item</th>
<th>Unit Cost</th>
<th>No of Units</th>
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<th>Yield (net ha)</th>
<th>Cost/ha</th>
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Source: Mapping available from the City, Clark Consulting Services and Totten Sims Hubicki
5. **ALCAN BUSINESS PARK**

5.1 **Introduction**

The Alcan area is illustrated in Figure 5.

Development of the Alcan Business Park began in the mid 1990’s. All development to date was completed at that time and includes:

- Lappan’s Lane from Counter Street south to past Hyperion Court;
- Hyperion Court on the east side of Lappan’s Lane; and
- Hyperion Court on the west side of Lappan’s Lane (a short distance).

The 1993 Alcan District Area Study envisioned industrial development along the north end of the Alcan property.

Potential net development areas of 2 hectares and 13 hectares are estimated in the existing development and future development areas. Business Park type and General Industrial type uses are envisioned for this area.

Existing roadways in the Alcan Business Park have been developed with an urban cross-section (curb & gutter without roadside ditches).

5.2 **Infrastructure**

5.2.1 **Transportation**

Counter Street is a two lane arterial extending by the entire north side of the Alcan property.

Sir John A. Macdonald Boulevard and Division Street provide good access from Highway 401 to Counter Street. MTO is currently widening Highway 401 from 4 to 6 lanes through the Kingston area.

The Kingston Transportation Master Plan envisions and recommends the implementation of a number of transportation network improvements in the area including:

- Completion of Leroy Grant Drive from Counter Street to Concession Street, and
- Princess Street traffic operation improvements (transit priority).

It is expected that the ongoing Counter Street Environmental Assessment will result in improvements to and the widening of Counter Street.

Kingston Transit currently provides regular bus service by the Alcan area, but central location is conducive to good pedestrian / cyclist access.

Few pedestrian or bike paths have been developed in the vicinity of the Alcan area.

Traditional street lighting has been used.
5.2.2 Water

The Alcan area is well served by 400 mm diameter watermains along Counter Street, 400 mm diameter watermains along Leroy Grant Drive, and 450 mm diameter watermains along the future extension of Leroy Grant Drive. Watermains within the Business Park are 300 mm and 400 mm in diameter.

The 1991 Kingston PUC Water Distribution System Needs Study recommended upgrading of the Leroy Grant Drive mains. The Urban Growth Strategy recommends a 400 mm diameter watermain connection from the current west end of Hyperion Court south to a future 300 mm / 400 mm diameter east / west watermain near the middle of the Alcan property. The Urban Growth Strategy projects these works in the 1-5 or 6-10 year range depending on the schedule of development. Average daily water demands are expected to be 0.8 L/s and 5.3 L/s for the remaining existing and future development areas respectively. It is expected that future development within the Alcan area would be with 250 mm to 300 mm diameter watermains. Detailed analysis will be required to confirm sizing and adequacy of water supply and pressure.

5.2.3 Sanitary Sewage

The existing development is served by a gravity sanitary sewer system extending north across Counter Street to the North End Pumping Station. Sewage is then pumped to Division Street where it flows by gravity to the River Street Pumping Station.

The North End Trunk Sewer, North End Pumping Station Environmental Assessment recommends upgrades to the North End Pumping Station and further investigation of sources of extraneous flow into the system. The Urban Growth Strategy projects these works in 5 years.

Development in and around the City and the continued decrease in combined sewer overflows has reduced the available capacity of the Ravensview Water Pollution Control Plant. Upgrades to the Ravensview Water Pollution Control Plant to meet projected sanitary flows from new development and provide secondary treatment are now being planned. The Urban Growth Strategy projects these works in the 1-5 year range.

Peak sanitary sewage flows are expected to be 1.3 L/s and 8.5 L/s for the remaining existing and future development areas respectively.

The existing sanitary sewer system includes provisions for future extensions to other parts of the Alcan property. Detailed analysis will be required to confirm adequacy of downstream sanitary sewage works.

5.2.4 Drainage

The developed portion of the Alcan area along Counter Street drains to the Alcan tributary across Counter Street, through an existing stormwater management facility adjacent to Utilities Kingston, and to the Little Cataraqui Creek.

The area along Counter Street to the west is part of the area draining to the Kimco Drain across Counter Street and to the Little Cataraqui Creek. On the Alcan property, the drain extends through a small wetland area.
The 1994 Alcan District Master Drainage Plan recommends some diversion of other watersheds to the Kimco drain, a centralized stormwater management facility near Counter Street. The existing wetland area should be retained.

Further development within the Alcan area will require consideration of the recommendations of the MDP and the design and construction of Stormwater Management Facilities to address stormwater quantity and quality issues.

5.2.5 Electricity

Electricity to the Kingston New Industrial Park is provided by Utilities Kingston. The Alcan area is located near the Hydro One main substation on Counter Street at Division Street. Electrical infrastructure can be serviced off existing overhead lines on Leroy Grant Drive and Counter Street. No capacity concerns are expected for future development within the existing and future development areas. An electrical sub-station will be required.

5.2.6 Natural Gas

Natural Gas service is provided to the Alcan site by Utilities Kingston. Existing gas mains are located on Counter Street, Leroy Grant Drive and within the existing development area. No capacity concerns are expected for future development within the existing and future development area for building load (heat & hot water) or process load.

5.2.7 Communications

Bell provides telephone service to the Alcan area. No servicing concerns are expected for future development within the existing and possible future Alcan development areas.

5.3 Development

5.3.1 Existing Development

Work in the developed portion of the Alcan Business Park is complete.

5.3.2 Future Development

External Work

An extension of the Alcan Industrial Park will result in the need for external roadway, water, and sanitary infrastructure upgrades including:

- widening of Counter Street, completion of Leroy Grant Drive, and Princess Street traffic operation improvements;
- trunk watermain connections through Alcan property; and
- North End Trunk Sewer and Pumping Station upgrades and upgrades to the Ravensview Water Pollution Control Plant

The scope and scheduling of development will determine these upgrades.
Internal Work

Development of the balance of the Alcan Industrial Park will require full servicing and roadway construction. Average costs to complete this work are estimated at $2,000 per metre. Approximately 700m of roadway are required. Additional costs of $100,000 for intersection improvements, $500,000 for stormwater management facilities, and $500,000 for an electrical sub-station will be required. The estimated total costs for development of the Alcan area are $2.5 million.

5.3.3 Estimate of Costs (order of magnitude)

Table 4 sets out the costs and yields. The existing development is already fully serviced. Future development cost will be dependent upon the form of development. Some allocation of costs particularly for road work to serve the adjacent lands may be considered. Thus although the cost per acre of $192,308 is high, the quality of the sites provided may warrant the expenditure.

5.3.4 Phasing

All of this is dependent on the City negotiating either a development plan for private development or purchase of the lands for City-owned development. Phasing should proceed on the basis of a strategic development plan designed to ensure that the significant potential of this site is realized.

5.3.5 Conclusions

The extension of the Alcan Industrial Park should be considered to encourage and maintain the development interest in this area. These lands are privately owned. The City may wish to explore purchase or some form of joint venture development.
### Table 4

**Phase 3 Costing Chart**

<table>
<thead>
<tr>
<th>Area</th>
<th>Cost Item</th>
<th>Unit Cost</th>
<th>No of Units</th>
<th>Cost Estimate</th>
<th>Yield (net ha)</th>
<th>Cost/ha</th>
<th>Building Area (sq. m)</th>
<th>Cost/sq.m</th>
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</table>

Source: Mapping available from the City, Clark Consulting Services and Totten Sims Hubicki
6. **ST. LAWRENCE BUSINESS PARK**

6.1 **Introduction**

The St. Lawrence Business Park area is illustrated in Figure 6.

Development of the St. Lawrence Business Park began in the early 1990’s. All development to date was completed at that time and includes:

- Innovation Drive (south leg) from the former Highway 15 east to just past John Marks Avenue;
- Discovery Avenue from Innovation Drive (south leg) north to Innovation Drive (north leg);
- John Marks Avenue from Innovation Drive (south leg) north to Innovation Drive (north leg);
- Innovation Drive (north leg) from Discovery Avenue east to John Marks Avenue.

Reference plans and engineering drawings have been prepared for the completion of Innovation Drive including the intersection of the north leg with the former Highway 15 as well as a cul-de-sac off the north east corner of Innovation Drive.

Potential net development areas of 31 hectares and 44 hectares are estimated in the existing development and future development areas. Business Park type and, possibly, General Industrial type uses are envisioned for these areas.

Existing roadways in the St. Lawrence Business Park have been developed with an urban cross-section (curb & gutter without roadside ditches).

There is a significant inventory of serviced vacant land in this Industrial Park. Some lands have been used for temporary recreational facilities (soccer pitches). There is pressure to convert some lands from industrial use to community facilities.

6.2 **Infrastructure**

6.2.1 **Transportation**

The former Highway 15 runs along the west side of the St. Lawrence Business Park. The former Highway 15 / Highway 401 interchange is located 2 km to the north. The LaSalle Causeway is located 5 km to the south. MTO is currently widening Highway 401 from 4 to 6 lanes through the Kingston area.

Traffic along the former Highway 15 is approaching capacity. Traffic across the LaSalle Causeway already exceeds capacity.

The Kingston Transportation Master Plan envisions and recommends the implementation of a number of transportation network improvements in the area including:

- A crossing of the Great Cataraqui River in the Gore Road / Elliott Avenue corridor (2 lanes; EA required); and
Operational Capacity improvements along the former Highway 15.

Kingston Transit currently provides regular bus service to the St. Lawrence Business Park.

Segments of pedestrian and bike paths have been developed in the vicinity of the St. Lawrence Business Park. The Cycling and Pathways Study envisions the development of pathways along the former Highway 15 and along Butternut Creek.

Theme street lighting has been used.

### 6.2.2 Water

Integral components of the water distribution system providing water service to the St. Lawrence Business Park include the following:

- Watermain crossing under the Cataraqui River;
- James Street (Barriefield) water booster station;
- Trunk watermain through Barriefield and along former Highway 15 to St. Lawrence Business Park; and
- Gore Road Tower.

The July 1992 Rideau Community Water Distribution System Master Plan recommends new works to accommodate projected water demands from future growth in the area including an additional trunk watermain across Cataraqui River with water booster station, water storage reservoir / tower; and additional trunk distribution watermain.

The watermain crossing under the Cataraqui River to the James Street booster station has been completed. The Urban Growth strategy suggests the construction of an additional watermain across the Cataraqui River at Gore Elliot in the 11-15 year range.

The Water Distribution System Master Plan suggests that an elevated storage reservoir be considered in the northeast corner of the Business Park to meet future water storage requirements. Construction of the trunk watermain from Gore Road to the St. Lawrence Business Park through residential developments has been ongoing.

Existing development within the St. Lawrence Business Park has been undertaken with 300mm diameter watermains. Future development within the St. Lawrence Business Park is proposed with 300mm diameter watermains. Water services to the individual lots are to be constructed at the site development stage.

### 6.2.3 Sanitary Sewer

Integral components of the sanitary sewage system serving the St. Lawrence Business Park include the following:

- Trunk sanitary sewer to the Butternut Creek pumping station;
- Butternut Creek pumping station;
- Forcemain to Barriefield;
- Trunk sanitary sewers to the Ravensview Water Pollution Control Plant; and
• Ravensview Water Pollution Control Plant.

The April 1992 Rideau Community Sanitary Sewer System Master Plan identifies improvements required to meet eventual projected sewage flows in the area including:

• Replacement of the trunk sewer from Gore Road southerly to the Butternut Creek pumping station;
• Upgrade the Butternut Creek pumping station;
• Replace the existing forcemain from the Butternut Creek station;
• Replace the Barriefield trunk sewer; and
• Replace the trunk sewer north of Gore Road

To date little work has been required on the above. Continued monitoring will determine the schedule and scope of these improvements. The Urban Growth Strategy projects these works in the 6-10 or 11-15 year range.

Development in and around the City and the continued decrease in combined sewer overflows has reduced the available capacity of the Ravensview Water Pollution Control Plant. Upgrades to the Ravensview Water Pollution Control Plant to meet projected sanitary flows from new development and provide secondary treatment are now being planned. The Urban Growth Strategy projects these works in the 1-5 year range.

Future development within the St. Lawrence Business Park is proposed with 200mm and 300mm diameter sanitary sewers as per the design drawings. Sanitary laterals to the individual lots are to be constructed at the site development stage.

### 6.2.4 Drainage

The St. Lawrence Business Park area has three main drainage areas. The eastern portion drains to the adjacent Butternut Creek. The northwestern portion drains north to a culvert across the former Highway 15 to the Cataraqui River. The southwestern portion drains south through Greenwood Park Subdivision to a culvert across the former Highway 15 to the Cataraqui River.

Roadways within the St. Lawrence Business Park are constructed with curb and gutter and storm sewers.

Development of the St. Lawrence Business Park has been undertaken with on-site storage to address stormwater management. Individual lot developers are required to provide internal lot grading and storage to control post-development peak flows at predetermined levels.

Although the use of on-site storage results in smaller and less costly storm sewers, a number of disadvantages result including diminished opportunity for stormwater quality control especially from roadways and potentially diminished marketability.

Note that the City has retained small tracts of land near the outlets that could be considered for stormwater management.
Site Level stormwater management is required for the St. Lawrence Business Park. Depending on what stormwater management measures are used, sites may have to be somewhat larger than comparable sites elsewhere with centralized SWM facilities.

### 6.2.5 Electricity

Electricity to the St. Lawrence Business Park is provided by Hydro One.

A 44 KV 3 Phase circuit exists on former Highway 15. A 16 / 27.6 KV 3 Phase circuit exists along the former Highway 15 and in the Business Park.

No capacity concerns are expected for future development within the existing and future development areas.

### 6.2.6 Natural Gas

Natural Gas Service to the St. Lawrence Business Park is provided by Union Gas.

50mm intermediate pressure (100 - 145 psi) gas mains are located within the St. Lawrence Business Park. A District Regulating Station and a Post Regulating Station are located on former Highway 15 just south of Innovation Drive (south leg).

No capacity concerns are expected for future development within the existing and adjacent St. Lawrence Business Park area for future development building load (heat & hot water) or process load.

### 6.2.7 Communications

Bell provides telephone service to the St. Lawrence Business Park. No capacity concerns are expected for future development within the existing and adjacent area.

### 6.3 Development

#### 6.3.1 Existing Development

Work not yet completed in the developed portion of the St. Lawrence Business Park includes surface course asphalt. Costs to complete this work are estimated at $50,000.

#### 6.3.2 Future Development

External Work

Continued development along the former Highway 15 corridor will result in the need for external roadway, water, and sanitary infrastructure upgrades including:

- crossing of the Great Cataraqui River and improvements along the former Highway 15;
- additional trunk watermain across Cataraqui River, water booster station, water storage reservoir / tower; and additional trunk distribution watermain; and
• replacement of portions of the Highway 15 trunk sewer, upgrade to the Butternut Creek pumping station, replacement of the existing forcemain from the Butternut Creek station, replacement of the Barriefield trunk sewer, and upgrades to the Ravensview Water Pollution Control Plant.

The scope and scheduling of development within the larger area will determine these upgrades.

Internal Work

Development of the balance of the St. Lawrence Business Park will require full servicing and roadway construction. Average costs to complete this work are estimated at $2,000 per metre of roadway. Approximately 1,200m of roadway are required. Additional costs of $200,000 for intersection improvements will be required. The estimated total costs for development of the St. Lawrence Business Park are $2.6 million.

6.3.3 Estimate of Costs (order of magnitude)

Table 5 sets out the costs and yields. The existing development is fully serviced. Thus the cost per acre reflects only costs to complete the existing roads. The long term development also reflects some existing road work already in place. External costs for sanitary sewer capacity and water supply capacity have been assumed to be recovered from other services.

6.3.4 Phasing

The extent of development is not expected to require extension of this park in the foreseeable future.

6.3.5 Conclusions

The St. Lawrence Business Park has an inventory of serviced industrial land and represents an immediate development opportunity. Phase 2 suggested that the high development standards for a portion of these lands should be relaxed to encourage more active development. Any modification to the zoning would have to consider the impacts on infrastructure. The Park represents an excellent long term business park which will develop slowly as the immediate area and particularly the transportation linkages are improved.
### Table 5

**Phase 3 Costing Chart**

St. Lawrence Business Park Estimate of Cost per hectare & per sq.m.

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<th>Area</th>
<th>Cost Item</th>
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Source: Mapping available from the City, Clark Consulting Services and Totten Sims Hubicki
7. SUMMARY AND CONCLUSION

7.1 Adequacy of Existing Servicing

This servicing review identifies the need to support the planning conclusions of the Phase 2 Report with an investment in the key lands in the Cataraqui Industrial Estates extension. Other longer term opportunities existing in the Airport and Alcan Business Park will involve expansion onto new land and/or the completion of strategic studies such as the Airport Master Plan. The St. Lawrence Business Park represents an immediate opportunity with low servicing costs. Expansion of permitted uses may stimulate development to use the existing infrastructure.

Other opportunities in the Kingston New Industrial Park are dependent upon other factors. The servicing of the extension of this area can be accommodated but this is not imminent.

7.2 Cost Implications for Servicing Upgrades

The cost estimates provided indicate the magnitude of investment required and assess this investment on a cost per hectare and cost per square foot basis. At current industrial land prices same cost allocation will be required to recover the servicing cost and provide a return on the land. This will discourage private land owners’ participation. The City should explore land acquisition particularly in the Cataraqui Industrial Estates Area.

Cost recovery through land sales and future location/employment benefits of co-ordinated employment area growth should warrant the continued investment in industrial development of these industrial areas.

7.3 Additional Lands Identified for Development

Each Industrial Park includes a review of adjacent lands both City owned and privately owned. The priority for development includes the Airport (subject to the Airport Master Plan), Cataraqui Industrial Estates and the Alcan Business Park.