



Planning and Development Services and Utilities Kingston

# ***BACKGROUND DOCUMENT***

***For the***

***City of Kingston***  
***URBAN GROWTH STRATEGY***

# ***TERMS OF REFERENCE***

*To be used in conjunction  
with the Urban Growth Strategy Terms of Reference*

**Prepared by Planning and Development Services  
Planning Division**

**January 15, 2002  
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*Background Document for the  
City of Kingston Urban Growth Strategy*  
**TERMS OF REFERENCE**

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BACKGROUND DOCUMENT FOR  
THE CITY OF KINGSTON  
Urban Growth Strategy  
**Terms of Reference**

**PART I: BACKGROUND**

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**A. Purpose of the Background Document**

The purpose of the Background Document is to provide supporting information to *the Terms of Reference for the Urban Growth Strategy for the City of Kingston*. The Background Document is to be used in concert with the *Terms of Reference for the Urban Growth Strategy* which has been prepared as a separate document.

**B. Council Endorsement**

City Council initially approved a year 2000 Capital Budget allocation for the undertaking of a planning oriented Urban Growth Study. However, the project has evolved into a joint study to be undertaken by Planning and Development Services and Utilities Kingston. The present Urban Growth Strategy project (formerly referred to as Growth Management Study) will integrate both initiatives identified as components of the "Official Plan" and the "Long-Range Infrastructure Plan" initiatives from the Community Strategic Plan, adopted by Council on October 24, 2000. The Community Strategic Plan initiatives read as follows:

"Official Plan

*The new City inherited several Official Plans. The community believes that these plans remain fundamentally sound and that their policies should be enforced. Nonetheless, a single updated and integrated Official Plan should be developed within a reasonable time frame, which includes:*

- *a Heritage Strategy featuring design guidelines for heritage buildings/districts and the downtown;*
- *Environmental Policies;*
- *a Growth Management Plan;*
- *a Waterfront Strategy;*
- *an Open Space Plan; and*
- *Policies appropriate to rural and urban needs.*

*The Official Plan will allow the community to build upon its strengths while protecting these assets for future generations.*

Long-Range Infrastructure Plan

The well-being of residents and the economic prosperity of the community are directly affected by the ability of the community to plan for and develop its infrastructure.

The municipality is already working on this initiative. The community believes that the focus of this work should be:

- *development and maintenance of an ongoing 10 year Capital Budget Forecast;*
- *demonstrated fiscal responsibility;*

**B. Council Endorsement (Cont'd)**

- *a focus on water & sewers;*
- *adoption and use of appropriate environmental standards; and*
- *appropriate balance in budgeting between maintenance of existing infrastructure and extension of new infrastructure.”*

The Terms of Reference for this Urban Growth Strategy study, which has become a joint study of Utilities Kingston and Planning and Development Services, was adopted by City Council on **February 5, 2002**. The Urban Growth Strategy also links to the Transportation Master Plan initiative, the Culture, Heritage, Parks and Recreation Strategy, as well as the Economic Prosperity initiative.

## A. City of Kingston Growth Facts

At this stage in the evolution of the new City of Kingston there has not been enough time to view the City as a comprehensive unit. There are three Official Plans representing the former Township of Pittsburgh (approved 1997, awaiting Ministry approval), the former Township of Kingston (approved 1997), and the former City of Kingston (approved 1991). Therefore, in 1998, the City of Kingston inherited three planned approaches to growth that were prepared in separate jurisdictional contexts. It further inherited hard and soft infrastructure that primarily was developed within the separate jurisdictional contexts.

The amalgamated municipality:

- is 453 sq. km in size with the urban area comprising 12% of the City's land base and 78% of the City's 1996 population of 112,785;
- has an existing urban growth pattern that is defined by natural features/greenspaces, topography, the St. Lawrence River, Lake Ontario, and the Great Cataraqui River and manmade features such as the Highway No. 401 corridor;
- contains a significant amount of vacant land south of Highway No. 401 designated in the Official Plans for development;
- has three Official Plans which provide a current framework for accommodating future growth for the next 10 to 20 years;
- contains the former City of Kingston which is a maturing inner urban area with a substantially built up core. Development is to occur primarily through intensification and infilling which respect the other policies of the Official Plan;
- contains the two former Townships that have lands designated in their Official Plans for "Greenfield" development;
- has servicing requirements for development which are not consistent across the three former municipalities;
- had an urban service area with two separate municipal water and two separate sanitary sewer systems;
- has development within the urban area that is primarily on full municipal services, however, some areas are only partially serviced with municipal water;
- contains the inner City area which requires infrastructure upgrading and repair requirements for servicing;
- has a significant heritage resources designated under the *Ontario Heritage Act*;
- has an important agricultural industry. (Fifteen point one million dollars in farm gate sales is generated from 230 farms having a land base of 49,977 acres);
- has a number of significant natural greenspaces;
- has a population forecast model that identifies the population of the City at:
  - 134,731 persons by the year 2011
  - 169,711 persons by 2026
- has 44,405 dwelling units in the new City of which 49% are single detached houses and 34% are in apartment buildings and 16% are semi-detached or row housing (1996 Census Canada).
- had 9.5 million square feet of commercial space in 1998.

## B. Studies

Approximately seventy studies, reports and/or files have been identified as being important background information for the Urban Growth Strategy. These are listed in **Appendix "A"**, entitled "*Catalogue of Information*" which forms part of this Background Document for the Terms of Reference.

### 1. Previous Studies

The *Catalogue of Information* identifies completed studies in the following topic areas:

- Official Plans
- Secondary Plans
- Other Analysis
- Hydrogeological Studies
- Engineering Studies and Reports
- Models

The Greater Kingston Area, 2041 Population Projection Model, to be utilized in the Urban Growth Strategy project was developed as part of the *Greater Kingston Area Growth Trends Study* listed in **Appendix "A"**.

### 2. Ongoing Studies

**Appendix "A"**, the *Catalogue of Information*, identifies a number of ongoing studies which are important considerations in the Urban Growth Strategy. A brief description is given below of only three ongoing studies. The Growth Management Strategy must be integrated and co-ordinated with these three critical studies as well as all ongoing studies identified in **Appendix "A"**.

The City is undertaking a City wide **Storm Water Management Master Plan Study**. The purpose of this study is to provide a consistent, cost-effective approach to storm water management for new development that recognizes the unique characteristics of the various drainage basins. This project is following the Master Planning approach as outlined in the *Environmental Assessment Act* process. This project is expected to be completed in the spring of 2002.

A **Transportation Master Plan** commenced in May 2001 with a completion date of March 2003. This study will be an integrated strategy for multimodal transportation. The Transportation Master Plan will allow the City to plan effectively to enhance the existing transportation system and to create a viable long-term mobility plan. The Kingston Transportation Master Plan will address the infrastructure needs for all modes of transportation, and also provide the strategic direction to encourage the use of non-auto modes.

**B. Studies (Cont'd)****2. Ongoing Studies (Cont'd)**

*The Utilities Kingston, Water and Sanitary Sewer Model Development & Kingston West Treated Water Storage Project* commenced in the fall of 2001. The purpose of this study is to determine the actual status of the two existing sewer and two existing water systems as well to resolve a existing water pressure problem in a current serviced area of the City. The following models to be produced from this study are anticipated to be available in early winter 2002:

- An up-to-date working model of the City's existing water distribution system;
- An up-to-date working model of the City's existing sanitary sewer network.

**C. Current Analysis****1. Planning**

There are three Official Plans in effect for the new City of Kingston.

The **former City of Kingston's Official Plan** identifies that a comprehensive and ongoing land use planning study and research program is regarded as an essential element of the Official Plan implementation. The Urban Growth Strategy is such a study.

The Official Plan of the former City requires that all new development be on full municipal services. Within the Residential land use designation of the Official Plan low, medium and high density provisions are established for the residential categories.

The Central Business System designation within the Official plan encourages growth in the residential population within this system and peripheral areas. Residential growth is permitted through higher density new development and redevelopment, allowing the residential use of existing upper storeys in commercial buildings and the conversion of upper floor of existing buildings. There are a number of vacant properties located within the Central Business System designation.

The former **Township of Kingston Official Plan** includes Urban Growth Management policies which are intended to guide and efficiently manage urban development within the Township. The Official Plan identified three Development Areas within the Urban Service Area. The Plan specifies the phasing of development sequentially into three development areas, the conditions upon which development can proceed in each of the areas as well as the conditions under which development phasing is allowed. Piped municipal water, storm and sanitary sewer services must serve development.

## C. Current Analysis (Cont'd)

### 1. Planning (Cont'd)

The former **Township of Pittsburgh Official Plan** has identified that development is to occur in the Rideau and the St. Lawrence Planning Districts, which are located in the south-western portion of the former Township. Development within the Rideau Planning District is primarily to occur on full municipal services. The Official Plan identifies staging of development in the Rideau Community.

There are a number of areas where there is partial servicing with the largest being the St. Lawrence Planning District. The St. Lawrence Planning District currently has some development serviced by piped municipal water and by private septic systems as municipal sewage is not available. The official plan identifies that future development south of Highway No. 2 is to occur on the basis of piped municipal water. The Plan identifies that further development north of Highway No. 2 is to proceed largely on the basis of private well and septic systems with accompanying large lot sizes. However, a hydrogeological study undertaken by the Township identified a large portion of the St. Lawrence Community north of Highway No. 2 as having constraints to the groundwater supply. The hydrogeological study offered three potential servicing scenarios that included:

- Long-term municipal water and sewer services;
- Municipal piped water and private sewage system;
- Status quo

The Provincial Policy Statement discourages partial services of sewage and water systems except where necessary to address failed systems. The former Pittsburgh Official Plan identifies that the extension or expansion of the municipal sewer or water service areas shall only occur upon the completion and approval of a Growth Management Study, a Secondary Plan, and an amendment to the Official Plan.

### 2. Water Distribution System

The water distribution systems are generally described as follows:

- The water treatment plant located on King Street provides water to 70,000 residents of the former City of Kingston and parts of Pittsburgh Township:
  - There is a network of 250 km of pipes;
  - There is one elevated water tower and one ground storage reservoir in the former City of Kingston;
  - Water is provided to the former Pittsburgh Township by a main under the Cataraqui River. There are 3 water storage towers in the former Pittsburgh Township.
- The water treatment plant in the former Township of Kingston serves about 35,000 residents:
  - There is a network of 180 km of piping and 4 booster stations;
  - There is one elevated storage tower and a ground storage reservoir.

## C. Current Analysis (Cont'd)

### 3. Sanitary Sewer System

The Sanitary Sewer systems are generally described as follows:

- The Ravensview Sewage Treatment Plant serves 70,000 residents of the former City of Kingston and parts of Pittsburgh Township:
  - The plant is located in the former Pittsburgh Township with a connecting pipe under the Cataraqui River;
  - In the former City of Kingston there are a number of combined sanitary and storm sewers;
  - This is a primary treatment plant.
- The sanitary sewer system for the former Kingston Township serves about 35,000 residents from its location southeast of Dupont:
  - It has a collection system comprised of 165 km of gravity sewer, 10 sewage pumping stations and 12 km of forcemain;
  - This is a secondary treatment plant

### 4. Hard & Soft Infrastructure

Some of the hard and soft infrastructure within the City of Kingston includes:

- hydroelectric services provided by Utilities Kingston, in the former City of Kingston, CFB Kingston and Barriefield, as well as Hydro One and Granite Power & Electric;
- natural gas services to 11,000 customers are provided by Utilities Kingston, in the former City of Kingston, and to 14,000 customers by Union Gas;
- the Kingston Frontenac Public Library system which has five urban branches and twelve rural branches;
- full time and volunteer firefighters who provide fire protection services from ten firehalls;
- policing by the Kingston Police currently housed in the police station in the former City of Kingston;
- municipal transit services, a municipal airport, a municipal road network consisting of 803 kilometers of centerline road and a number of municipally owned parking areas, lots and structures, as well as pedestrian and cycling pathways;
- 16,000 acres of municipal parkland consisting of 184 parks and other public open spaces, 13 outdoor rinks, 53 baseball diamonds, 36 soccer fields, 29 tennis courts, and 80 locations with play structures;
- municipally owned industrial parks and lots;
- a number of municipally owned community facilities and buildings, including arenas, marinas, museum, Grand Theatre, Rideaucrest Home for the Aged;
- administration of social housing programs for 2,700 not-for-profit units;
- schools fall under the jurisdiction of the Limestone District School Board and the Algonquin and Lakeshore Catholic District School Board;
- post-secondary education facilities include Queen's University, St. Lawrence College and the Royal Military College.

## A. Sewer and Water Infrastructure Considerations

As part of the Scenario Development phase a review of the sewer and water infrastructure will be undertaken. Further detail to be considered during this phase of the project are identified in Appendix “B”, *Sewer and Water Infrastructure Considerations*. Appendix “B” is not intended to be an exhaustive list.

## B. The Study Products

The Urban Growth Strategy will result in the formulation of five study products, namely the:

- i. Urban Growth Strategy Report
- ii. Official Plan Amendments (text and maps)
- iii. Water Servicing Concept Plan
- iv. Sanitary Servicing Concept Plan
- v. Financial Plan

The discussion in No.’s 1 to 5 below is not intended to be an exhaustive list of consideration nor is it intended to limit the approach that may be taken. It has been provided as a guide to the issues that the City feels need to be addressed. It is anticipated that the invited consultants’ submissions will further address the contents of the study products. Modifications, additions and/or deletions may be made provided an appropriate explanation is provided.

1. The **Urban Growth Strategy Report** and any appended documents more specifically shall include:
  - (a) A discussion of the integrated and comprehensive approach to the study which includes land use planning, environmental, hard and soft services, sewer and water infrastructure, and financial considerations as they relate to the study area.
  - (b) A map identifying the limits of the area studied.
  - (c) A detailed record of the study including its purpose, rationale, process, components, approach, analysis, considerations, consultation (including public participation program) and Council consideration. Such record shall include a detailed inventory of all documents, files, data, models, reports, studies considered throughout the course of the study.
  - (d) Identification and description on how the study met the requirements of the *Planning Act*, the *Environmental Assessment Act* and the *Development Charges Act*.
  - (e) Discussion on how the study will improve the quality of life of the citizens of Kingston; how it will balance growth with the need to create liveable communities that are financially efficient and environmentally responsible; how it will protect rural and agricultural lands, the environment and the City’s natural resources.
  - (f) Identification and description of existing capacities and constraints of the municipal infrastructure.
  - (g) Identification and description of the existing infrastructure capacities and constraints within the areas designated for development in the land use planning documents.

**B. The Study Products (Cont'd)**

- (h) A discussion of the criteria utilized to select and evaluate the growth scenario locations and the rationale for selecting the preferred development concept including a description of how the common criteria was applied to each of the alternate growth locations and the preferred development concept.
  - (i) Identification and recommendation with respect to confirmation of the general urban service areas as identified in each of the Official Plans.
  - (j) Identification and recommendation with respect to the development areas presently identified in the three Official Plans.
  - (k) Discussion and recommendation linking the relevant land use policies of the three former municipalities in a single integrated and co-ordinated manner based on the approach that full municipal services will be available.
  - (l) Review and recommendations on the role of the Central Business District in the context of this study and its linkage with respect to other land use systems.
  - (m) Discussion and considerations of the land use mix and their linkages utilized in the recommendations in defining the urban limits and the character of the new urban area developed with regard to the recommendations of the Kingston Regional Commercial Study.
  - (n) Review existing density policies with recommendations as to appropriate density targets.
  - (o) Discussion and recommendations on infilling and redevelopment.
  - (p) Discussion and recommendations of the infrastructure required to support new development identifying the plants and systems that will service it.
  - (q) Discussion and recommendation of the phasing of urban development within the new City.
  - (r) A recommended approach to capacity allocation using such tools as: Official Plan policy, phasing, secondary planning, zoning, programs including city-wide and sub-city management strategies.
  - (s) Identify and recommend other policy issues that need to be addressed to implement the Urban Growth Study.
  - (t) Detailed information and content suitable to serve as a background document in support of the Amendments to the three Official Plans, the Sanitary Sewer Concept Plan, the Water Distribution Concept Plan and the Financial Plan.
  - (u) An implementation and monitoring plan.
2. The **Official Plan Amendment** documents and any appended materials more specifically shall include:
- (a) Text and schedules (mapping) for each of the three Official Plans which implements the recommendations of the Urban Growth Strategy report in a form suitable for adoption by Council.
  - (b) Schedules to the Official Plan Amendment documents which clearly identify the limits of the urban area and the urban service areas.
  - (c) A single schedule shall be utilized which shows all of the three former municipalities and identifies limits of the urban area, the urban service area, timing and phasing.

**B. The Study Products (Cont'd)**

- (d) A discussion on how the policies and schedules were developed utilizing a comprehensive approach which examined the linkages, developed overall standards and pulled together the land use systems of the three former municipalities which amalgamated in 1998 to form the City of Kingston.
  - (e) Policies which identify the sequence for urban development.
  - (f) Policies identifying land use mixes, densities, intensification, infill, redevelopment, services and utilities, Secondary Planning Areas, etc.
  - (g) An implementation and monitoring plan.
  - (h) Other appropriate policy and Schedule modifications, as required to implement the Urban Growth Strategy Report.
3. The **Water Servicing Concept Plan** document and any appended documents more specifically shall:
- (a) Determine servicing requirement for water supply.
  - (b) Identify treatment plant site locations and processes.
  - (c) Determine ultimate site capacities and identification of potential locations for new facilities, or booster pumping stations or storage facilities, expansions of existing facilities.
  - (d) Determine Zone pressure boundaries.
  - (e) Make recommendations to improve efficiencies in the existing system and phasing of such improvements.
  - (f) Identify appropriate routing and sizing for primary transmission pipelines.
  - (g) Identify upgrading required to the existing system to accommodate future growth.
  - (h) Identification of upgrades required to meet any changes in provincial legislation or policy implementation that occur throughout the course of the study.
  - (i) Identify constraints in the System.
  - (j) Be linked to the Financial Study and detail a ten year works plan with costs, location, size and description for the water works required for the preferred growth scenario. Of particular importance is the division of cost between normal maintenance (rate based) and new growth (impost funded).
  - (k) Review preliminary plans of known approved developments to arrive at possible watermain routes through these developments. Is there opportunity for combining new mains with future municipal road reconstruction or extension while still satisfying the need, justification, and alternative analysis provisions and all other provisions of the *Environmental Assessment Act*.
  - (l) Provide recommendations on phasing of works beyond the ten year work plan.
  - (m) Include an implementation and monitoring plan.
4. The **Sanitary Servicing Concept Plan** document and any appended documents more specifically shall:
- (a) Determine servicing requirements for wastewater.
  - (b) Identify the long-term locations for treatment plants, improvements or expansion requirements.

**B. The Study Products (Cont'd)**

- (c) Determine ultimate site capacities.
  - (d) Identify major trunk routing and sewage lift stations and/or forcemains.
  - (e) Identify major sub-trunk systems.
  - (f) Identify upgrades required to the existing sanitary system to improve efficiencies (such as separation of combined storm and sanitary sewer system).
  - (g) Identify upgrades required to the existing system to accommodate future growth as well as to meet new Provincial standards.
  - (h) Be linked to the Financial Study and detail a ten year works plan with costs, location, size and description for the works required for the preferred growth scenario. Of particular importance is the division of cost between normal maintenance (rate based) and new growth (impost funded). It shall satisfy the need, justification, and alternative analysis provisions and all other provisions of the *Environmental Assessment Act*.
  - (i) Provide recommendations on phasing of works beyond the ten year work plan.
  - (j) Include an implementation and monitoring plan.
5. The **Financial Plan** document and any appended documents shall include:
- (a) A detailed estimate of the capital costs for new hard and soft infrastructure required to accommodate new growth.
  - (b) A detailed estimate of the costs required to upgrade existing infrastructure to accommodate new growth.
  - (c) Timing requirements.
  - (d) Recommendations of how and by whom infrastructure will be financed.
  - (e) Recommendations on the City's Development Charges By-law passed pursuant to the *Development Charges Act*.
  - (f) Address impost fees charges or other appropriate charges or rates.
  - (g) Recommendations on potential funding sources such as Provincial programs eligibility.
  - (h) Recommendations for inclusion in the capital budgeting program.
  - (i) An implementation and monitoring plan.

The foregoing list of matters to be addressed by the Urban Growth Strategy are neither intended as an exhaustive outline nor is it intended to limit the approach that may be taken. It has been provided as a guide to the issues that the City feels need to be addressed. Modifications, deletions and/or additions may be made provided an appropriate explanation is given. It is anticipated that the invited consultants' submissions will further address the contents of the study products.

**CATALOGUE OF INFORMATION**  
**(PLEASE NOTE THAT STUDIES IN BOLD ARE NOT IN THE URBAN GROWTH STRATEGY LIBRARY)**

**OFFICIAL PLANS**

- *Basis of the Official Plan, City of Kingston, City of Kingston Planning Dept., 1989*
- *Official Plan, City of Kingston Planning Area, City of Kingston Planning Dept., July 1991*
- *Focus 2020, Planning Study, Township of Kingston Planning Department, 1993*
- *Official Plan for the Township of Kingston Planning Area. Township of Kingston Planning Department, Nov. 6, 1997*
- *Official Plan for the Township of Pittsburgh Planning Area, 1971*
- *Township of Pittsburgh, Official Plan Review Background Reports, Township of Pittsburgh Planning and Development Department, 1996*
- *Official Plan Amendment No. 59, Township of Pittsburgh, (pending MMA Approval), 1997*

**SECONDARY PLANS**

- *Alcan District Area Study, Totten, Sims, Hubicki Associates, September, 1992*
- *Cataraqui North Kingston Township, Alternative Secondary Plan, Weinstein Leeming & Associates, January 1993*
- *Westbrook Community Plan, Township of Pittsburgh Planning Department, Feb. 1997*
- *Rideau Community Plan, Township of Pittsburgh, Appendix I to OPA #55, Tasi Wood & Associates, March 1991*
- ***St. Lawrence Secondary Plan, (preliminary information in Planning files D25/SL)***
- *The Barriefield Heritage Conservation District Plan, Part I and Part II, A. Scheinmane Heritage Preservation Consultant et al, May 1992*

**OTHER ANALYSIS**

- *Kingston Community Strategic Plan, prepared by the Community-Based Steering Committee, Adopted by Council October 24, 2000*
- *Community Strategic Plan, Situation Analysis Reference Workbook, Compiled by Strategic & Long-Range Planning, Endorsed by Community-Based Steering Committee, June 12, 2000*
- *City Facts, Planning and Development Services, City of Kingston, November 2000*
- *Greater Kingston Area Growth Trends Study, Paterson Planning and Research Limited & M.M. Dillon Limited, 1994*
- *Kingston Regional Commercial System Study, Dillon Consulting, March 1998*
- *Kingston Regional Commercial Study, Kingston 2041 Model Users' Manual, Patterson Planning & Research Ltd & Steven Associates September 14, 1998*
- *City of Kingston Development Charge Background Study, C.N. Watson & Associates Ltd., August 25, 1999*
- ***Corporation of the City of Kingston, By-Law 99-328 (Development Charges) September 28, 1999***

OTHER ANALYSIS (Cont'd)

- *Corporation of the City of Kingston, By-Law No. 2000-303 (Impost Fees)*
- ***Pending & Committed Residential Development, Urban Area Map, July 16, 2001***
- *Municipal Housing Statement*
- *Township of Pittsburgh Greenspace Master Plan, April 1993*
- *Norman Rogers Airport, Airport Master Plan, Airplane Aviation Technical Services Inc., January 1997*
- *City of Kingston Fire Services Review, Final Report, Dillon Consulting Ltd., Donal Baird Associates, October 20, 2000*
- *2001 Operating and Capital Budgets, Finance Division, City of Kingston, June 2001*
- *The Economic Impacts of Agriculture on the Economy of Frontenac, Lennox & Addington and the United Counties of Leeds and Grenville, Final Report, Human Resources Development Canada, June 2000*
- *Township of Pittsburgh, Rideau Community Plan, Zoning Report, Haigis/MacNabb/De Leuw Ltd., January 1989, 2<sup>nd</sup> edition*
- *Mile Square Master Plan, Johnson & Associates Ltd., Weinstein & Associates Ltd., Millar Engineering Incorporated, December 18, 1989*
- *Mile Square Municipal Servicing Study, Archibald Peterson Engineering Inc., March 4, 1999*
- *Mile Square, Conceptual Master Plan Study, Summary Report, The Planning Partnership, April 2000*
- *Collins Bay Penitentiary Farm, Planning Recommendations, 1996-1997 Project Class, Queen's University, School of Urban and Regional Planning*
- *Collins Bay Penitentiary Farm, Planning Recommendations for the Redevelopment of the Collins Bay Penitentiary Farm, Prepared for the Treasury Board Secretariat Government of Canada, Land Use Project Course, School of Urban & Regional Planning, Queen's University, 1996*
- *Queen's University at Kingston, 1994 Campus Plan, du Toit Allsopp Hillier, 1994*
- ***401 Development Files, Former City of Kingston, Planning Files D25/PR***
- *An Area Plan (North Division Street & Highway 401), The Proctor & Redfern Group, Prepared for 401 Holdings Ltd., February 1990*
- ***Cataraqui Mills Subdivision Files D12-37-00 & P433-97-17 (Steve Jew, Planner)***
- ***Official Plan Amendment No. 60, Planning Files D08/KB, Former Pittsburgh Township***
- *KEDCO Kingston Economic Development Corporation, 2001-2003 Business Plan, June 18, 2001*
- *Collins Watershed Study Report, Phase 1, M.M. Dillon Ltd., May 1993*
- *Collins Watershed, Phase 2, Implementation Report, M.M. Dillon Ltd., January 1994*
- *Additional City of Kingston planning files*

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Updated to February 25, 2002 (Update is Ongoing on Addendum)

## HYDROGEOLOGICAL STUDIES

- *Township of Kingston, Hydrogeological Study*, Golder Associates, March 1990
- *Township of Pittsburgh, Hydrogeological Study*, Oliver, Mangione, McCalla & Associates, December, 1995

## ENGINEERING STUDIES AND REPORTS

### 1. Former City of Kingston

- ***Feasibility Study of Water Supply System*, Gore & Storrie Limited, 1967**
- *Water Pollution Control Feasibility Study*, Canviro Consultants, March 1988
- ***Kingston Water Treatment Plant Optimization Study*, MOE, 1990**
- ***Pollution Control Plan*, Canviro, 1992**
- *City of Kingston and Township of Pittsburgh, Wastewater Treatment Environmental Study Report*, March, 1992
- *City of Kingston Pollution Control Planning Study*, CH2M Hill Engineering Ltd., 1992
- ***Water Purification Plant Needs Study*, Gore & Storrie Limited, 1993**
- ***Water Distribution Study*, TSH Associates, 1994**
- *Great Cataraqui River, Sewage Forcemain and Watermain Crossings, Condition Assessment Work*, The City and Public Utilities Commission of the City of Kingston, J.L. Richards & Associates Limited in association with Acres and Associated Environmental Limited, July 1997
- *City of Kingston Pollution Control Plan Update*, XCG Consultants, Project Report, November 2000
- ***First Engineer's Report, O. Reg. 459/00*, KMK Consultants Ltd., 2001**

### 2. Former Township of Kingston

- ***Township of Kingston, Water & Sewer Study*, 1976**
- *Report on the Water Distribution System for the Township of Kingston*, Gore & Storrie, Limited, 1976
- *Township of Kingston, Update to Impost Fee Calculation Study*, Millar Engineering Incorporated, Sept. 1994
- *Township of Kingston, Sewage Capacity Management Plan*, 1995
- *Water Needs Study, Township of Kingston*, Totten, Sims, Hubicki Associates, July 1997
- ***Report on the Sanitary Sewage System (KT)*, Gore & Storrie Limited, 1975**
- *Water and Sewer Study (KT)*, Gore & Storrie Limited, 1985
- ***Sanitary Sewer Needs Study Report (KT)*, Proctor and Redfern Limited, 1995**
- ***Water Treatment Plant Optimization Study*, XCG Consultants, 1998**
- ***Wastewater Treatment Plant Expansion Report*, Gore & Storrie Limited, 1992**
- ***Proposed Connection to City of Kingston Water Distribution System*, Gore & Storrie Limited, 1975**

June 13, 2002

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## ENGINEERING STUDIES AND REPORTS (Cont'd)

### 2. Former Township of Kingston (Cont'd)

- ***First Engineer's Report, O. Reg. 459/00, KMK Consultants, 2001***
- *Update Master Drainage Plan Study for the Upper Highgate Creek Watershed, Miller Engineering Inc., January 1991*
- *Hydrologic Assessment of Drainage Alternatives for the Upper Highgate Creek Subwatershed, Final Report, Gore & Storrie, May 1994*

### 3. Former Township of Pittsburgh

- *Servicing Study, Sanitary Sewer & Water Distribution, Township of Pittsburgh, J.L. Richards & Associates Ltd., November 1979*
- *Report on Implications of Proposed Development of the Rideau Community on the Existing Sanitary Sewer System, J.L. Richards & Associates Ltd., Feb. 7, 1990*
- *Supplementary Report on Implications of Proposed Development on the Rideau Community on the Existing Sanitary Sewer System, J.L. Richards & Associates Ltd., Feb. 7, 1990*
- *Report on Rideau Community Sewage Pumping Station Capacities, J.L. Richards & Associates Limited, June, 1985*
- *CFB Kingston, Permanent Married Quarters, Infrastructure Needs Study, Proctor & Redfern Limited, May, 1994*
- ***Rideau Community Sanitary Sewer System and Water Distribution Master Plan, J.L. Richards and Associates, 1992***
- ***Sanitary Sewer Flow Monitoring Program, J.L. Richards and Associates, 1992***

### 4. New City

- ***Plant Replacement Value Evaluation of Water and Wastewater Facilities, CG&S, 2000***
- *Screening of Water and Wastewater Alternatives, Great Cataraqui River Utilities Crossing, Environmental Assessment Project, Final Report, R.V. Anderson Associates Limited in association with Josselyn Engineering, February 2001*
- ***Schedule B, File Report, Great Cataraqui River Utilities Crossing Project, R.V. Anderson in association with Josselyn Engineering Inc., July 10, 2001***
- *Press Release, Sept. 26, 2001, Update on Sanitary Waste Being Diverted to Storm Water*

## ONGOING STUDIES

- *Stormwater Master Plan*, Totten, Sims, Hubicki Associates, projected completion Fall 2001
- *Utilities Kingston, Water & Sanitary Sewer Model Development & Kingston West Treated Water Storage Environmental Assessment*, R.V. Anderson Associates Ltd., model development complete early 2002
- *Transportation Master Plan*, Dillon Consulting Ltd. et al, projected completion 2003
- *Communications Needs Study, Police, Fire, Utilities*, completion scheduled 2002
- *Kingston Police Buildings Needs Assessment*, scheduled completion Fall 2001
- *Kingston West Water Treatment Plant Upgrades*, KMK, Fall 2001
- *Kingston West Sewage Treatment Plant, Detailed Design Capacity Restoration*, J.L. Richards, design complete Winter 2002
- *North End Pumping Station design*, J.L. Richards, XCG, completion Spring 2002
- *River Street Pumping Station Design*, R.V. Anderson, completion Spring 2002
- *Cataraqi River Utilities Project capacity increase - preliminary design*, R.V. Anderson
- *Kingston West/East Sewer Infiltration Investigations \$260,000*, Utilities Kingston, ongoing
- *Highway 401 Crossing co-ordination, water, sewer, gas , electric \$350,000*, Utilities Kingston, City of Kingston and Bell Canada, ongoing
- *Harbourfront Trunk Sewer, Overflow Control Environmental Assessment, Design and Construction Administration*, Utilities Kingston, XCG, CH2M Hill, 2002-2005
- *Combined Sewer Overflow Control and Water Pollution Plant Waster Water Treatment Design and Construction Administration*, Spring 2002 to Fall 2003
- *Biosolids Management Plan, Development and Implementation Strategy*, Winter 2002 to 2003

### *Infrastructure Upgrade*

- Water Treatment Plant upgrade, Kingston Central, \$4 million, Simcoe Engineering Design underway, Phase 2 to be completed by Spring 2002
- Sewage Treatment Plan upgrade, Kingston West, \$600,000, in future
- Initiation of Cataraqi River Utility Crossing – water and wastewater, \$12 million, in future

## MODELS

- *GKA 2041 Model*, Paterson Planning Associates, 1998
- *Utilities Kingston, Water & Sanitary Sewer Model Development & Kingston West Treated Water Storage*, commencing Fall 2001. Two models being developed are:
  - *Water Distribution Model*
  - *Sanitary Sewer System Model*

## SEWER AND WATER INFRASTRUCTURE CONSIDERATIONS

CONSIDERATIONS	DETAIL
<b>Identification of existing water, sanitary sewer flows and future requirements</b>	<ul style="list-style-type: none"> <li>➤ Determine per capita flows by checking water consumption and sanitary sewer flow data</li> <li>➤ use data to arrive at per capita water and sanitary sewage flows to be used for population growth</li> <li>➤ calculate future flows to the areas served by each of the two water and sewage treatment plants</li> <li>➤ calculate future water and sanitary sewer flows for each area identified in the scenario development phase</li> <li>➤ calculate future water and sanitary sewer flows for infilling and areas of redevelopment</li> </ul>
<b>Run Water Distribution Model</b>	<ul style="list-style-type: none"> <li>➤ Run water distribution model to determine future trunk watermains, booster stations and storage needs for all growth scenarios including infilling and redevelopment. (Water storage needs shall be to Ministry of the Environment guidelines)</li> <li>➤ Provide plans showing the location of improvements and tables showing the size, length and cost estimates for each growth area</li> </ul>
<b>Water Treatment Plants Capacities</b>	<ul style="list-style-type: none"> <li>➤ Determine if any water plant expansions or larger pumps are required to serve the identified growth areas</li> <li>➤ Provide cost estimates and description of any works required along with the year in which they are required</li> </ul>
<b>Run Sanitary Sewer (Wastewater) Model</b>	<ul style="list-style-type: none"> <li>➤ Run sanitary sewer model to determine future trunk mains, pumping stations and impact on the sewage treatment plants</li> </ul>
<b>Sanitary Sewer Requirements</b>	<ul style="list-style-type: none"> <li>➤ Prepare catchment area maps and design calculations to size new trunk sewers and new or enlarged sewage pumping stations</li> <li>➤ Provide plans showing location of these improvements and tables showing the size, length and cost estimates for works for each growth area</li> </ul>
<b>Sewage Treatment Plants Improvements and Expansions</b>	<ul style="list-style-type: none"> <li>➤ Determine what sewage treatment plant expansions are required for the various development scenarios</li> <li>➤ Determine if there is sufficient property available at the two existing treatment plants to accommodate the identified growth areas</li> <li>➤ Determine if a new sewage treatment plant would best serve any of the growth areas</li> </ul>
<b>Storm Water Impact on Combined Sewer System</b>	<ul style="list-style-type: none"> <li>➤ Ensure that the impact storm water has on the sewage treatment plant requirements for improvements and expansions has been considered</li> <li>➤ Ensure that the impact of storm water on the sanitary sewer model and improvements in the combined sanitary and storm sewer system have been considered</li> </ul>
<b>Further Considerations of the Water and Sanitary Sewer Systems</b>	<ul style="list-style-type: none"> <li>➤ Identify any restrictions or limitations within the existing sewer and water distributions systems (pipes, storage capacities, etc.) that would impact on any of the proposed growth areas</li> <li>➤ Identify the works required to upgrade the systems, their associated costs as well as implications of undertaking any downstream works</li> <li>➤ Review and assess the capacity of the systems to satisfy further growth on a broad technical basis</li> <li>➤ Examine topographic contours</li> <li>➤ Examine re-rating opportunities</li> <li>➤ Shall meet the Ministry of the Environment standards with regards to infrastructure</li> </ul>