



**INTERIM REPORT NO. 2
EVALUATING THE GROWTH ALTERNATIVES**

**CITY OF KINGSTON
URBAN GROWTH STRATEGY**

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Submitted to:

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EXECUTIVE SUMMARY

“Revised Draft Interim Report No. 2, Evaluating the Growth Alternatives,” was originally prepared in April, 2003. It was revised in April 2004 to reflect the additional analysis conducted as a result of the Public Consultation which occurred in the spring of 2003.

This Report examined the historical growth of the City of Kingston using a variety of data sources, growth projections prepared by Stevens Associates to the year 2026 (used as the basis for the Transportation Master Plan as well), and projected the amount of land needed to accommodate that anticipated growth. It examined the development yield that would result from the Committed Development Area and determined that it was insufficient to meet the projected growth to 2026.

Screening Criteria were applied to the lands in and surrounding the urban area to arrive at a set of Candidate Areas for potential development. Candidate Areas were further narrowed to a series of five (5) Growth Alternatives in the central, west, north and east parts of the amalgamated City. The Evaluation Criteria were applied to the Growth Alternatives and preliminary conclusions were reached on a preferred alternative. This information was presented at a Public Open House in April, 2003.

Interest was expressed in separately analysing the potential for development on vacant lands at Collins Bay Penitentiary and underdeveloped lands at CFB Kingston. This became known as Growth Alternative 1A. Extensive additional work was done to ensure coordination with the Transportation Master Plan and the Development Charges Study. The revised conclusions indicated that Growth Alternatives 1A and 2 both ranked very high, followed by GA 5 and GA 4, with GA 3 ranking the least preferred.

1.0 PURPOSE OF REPORT

The purposes of this Report are:

- to provide additional information on the Urban Growth Strategy compiled since the completion of Interim Report No. 1;
- to describe the process used to generate the Growth Alternatives considered in the City of Kingston Urban Growth Strategy. It identifies the sources of information used, summarizes historical growth issues, projects future land requirements and identifies several alternatives for meeting the City’s projected needs; and
- to report on the application of the Screening and Evaluation Criteria to the Growth Alternatives using the input received from City departments, Utilities Kingston, affected service providers and agencies, the relevant portions of the Provincial Policy Statement and the analysis conducted by the Study Team.

The preparation and evaluation of Growth Alternatives was a major milestone in the completion of the Urban Growth Strategy. The previous major steps were:

- to consult with all City departments, Utilities Kingston, service providers and agencies to determine potential growth issues. Interim Report No. 1 documented this process, including the input received; and
- to develop Criteria which would be used to evaluate the Growth Alternatives. The Evaluation Criteria were presented to the public on November 13, 2002, input was received and the Criteria were subsequently revised (Table 1). One significant revision was the addition of Screening Criteria (sometimes referred to as “GO, NO GO” criteria) at the top of the Criteria list. These have been used to clearly identify land that is considered to be unavailable for development purposes, in accordance with the Provincial Policy Statement.

The final steps were:

- the presentation of Interim Report No. 2 to the Technical Resource Group, Executive Management Team, Council and the public;
- obtain input from these groups and from the Transportation Master Plan Study Team;
- refine the preferred Growth Alternative and present it to Council; and
- complete the study deliverables (Urban Growth Strategy Report, Draft Official Plan Amendments, Sanitary Servicing Concept Plan, Water Servicing Concept Plan, Financial Plan).

**TABLE 1
 SCREENING AND EVALUATION CRITERIA**

#	Criteria	Rationale	Indicators
Screening Criteria: The following criteria were applied prior to development of Growth Alternatives. Land identified by the screening criteria was excluded from consideration for growth and development purposes.			
A	Strategy prevents encroachment onto areas of recognized natural significance.	<ul style="list-style-type: none"> the PPS requires natural heritage features and areas to be protected from incompatible development. 	<ul style="list-style-type: none"> exclusion of Areas of Natural & Scientific Interest (ANSIs), significant wetlands and identified Environmentally Sensitive Areas.
B	Strategy addresses natural and human hazards.	<ul style="list-style-type: none"> the PPS requires development to be generally directed to areas outside of hazardous lands adjacent to river and stream systems impacted by flooding and/or erosion hazards. 	<ul style="list-style-type: none"> exclusion of known hazard lands.
C	Strategy prevents encroachment onto prime agricultural land.	<ul style="list-style-type: none"> the PPS requires protection of prime agricultural land for agricultural purposes. 	<ul style="list-style-type: none"> exclusion of Classes 1, 2 and 3 agricultural land or lands designated agricultural in an Official Plan.
Evaluation Criteria: The following criteria were applied to the Growth Alternatives which were developed following the screening of non-development land using the above criteria.			
1.	Strategy facilitates enhanced use of the downtown	<ul style="list-style-type: none"> PPS and CSP stress the importance of the downtown area; proposed Downtown Action Plan and North Block CBD Study further emphasize this importance. 	<ul style="list-style-type: none"> increased opportunity for redevelopment, intensification, and revitalization of the area within a two kilometre radius of lower Princess Street.
2.	Strategy enables enhanced use of existing and planned water and sanitary sewer infrastructure	<ul style="list-style-type: none"> PPS stresses the importance of optimizing the use of existing infrastructure; infrastructure investment is costly and public dollars need to be spent wisely. 	<ul style="list-style-type: none"> opportunities for new development to use existing trunk and pumping facilities; opportunities for new development where trunk and pumping facility improvements are imminent; opportunities for new development where sewage treatment plant capacity exists or is planned by the City; opportunities for new development where water treatment plant capacity exists or is planned by the City.
3.	Strategy enables enhanced service delivery, public safety, and operational efficiencies	<ul style="list-style-type: none"> the public has emphasized the importance of core services; equates to better, more cost effective services to the benefit of the community. 	<ul style="list-style-type: none"> opportunities for new development within 1 km of major parks, recreation centres, schools, and libraries; opportunities for development that result in improved operational efficiencies for services such as waste collection, snow removal, and road maintenance; increased development in locations more accessible to fire protection and ambulance services.
4.	Strategy enables enhanced use of existing and planned roads	<ul style="list-style-type: none"> stresses the importance of optimizing the use of existing and planned infrastructure. 	<ul style="list-style-type: none"> increased opportunities for development where roadway capacity exists or is planned by the City.
5.	Strategy enables increased use of alternative modes of transportation	<ul style="list-style-type: none"> reflects values expressed in PPS, CSP and during the TMP consultations. 	<ul style="list-style-type: none"> opportunities for higher residential density near jobs, transit nodes, and major transit routes.
6.	Strategy provides improved housing affordability and choice	<ul style="list-style-type: none"> reflects values expressed in the PPS and CSP. 	<ul style="list-style-type: none"> increased number of dwelling units near jobs and transit nodes; increased number of locations where housing can be built.
7.	Cost	<ul style="list-style-type: none"> cost must be reasonable; emphasis will be placed on the most cost effective alternative for the City. 	<ul style="list-style-type: none"> present value analyses of cost to implement the proposed strategy over 25 years, in 2003 dollars; present value analyses of incremental cost associated with growth.

PPS = Provincial Policy Statement

CSP = City of Kingston Community Strategic Plan

Note: Evaluation Criteria 1 to 7 are not listed in order of importance.

CBD = Central Business District

TMP = Transportation Master Plan

2.0 APPLYING THE SCREENING CRITERIA

The Screening and Evaluation Criteria (Table 1) are two separate groups of criteria which were used in two different ways. The Screening Criteria were applied to the vacant land within the City of Kingston urban area and to the abutting lands in order to identify those lands which would not be available for development purposes. The result of this analysis led to the identification of Candidate Areas for future urban growth. Candidate Areas were then reviewed to determine a realistic set of Growth Alternatives which were subjected to a detailed assessment using the Evaluation Criteria.

2.1 Information Sources

The first task in the development of the Candidate Areas and Growth Alternatives was to complete the compilation of the mapping of natural heritage areas, natural hazards and agricultural lands to facilitate the application of the Screening Criteria, which consider these lands unavailable for development.

The base map was prepared using digital mapping provided by the City of Kingston through its Geographic Information System (GIS) group. The study area for the Urban Growth Strategy study was established in the City's Terms of Reference and included the urban area and adjacent lands. Other information was provided by Provincial agencies, Cataraqui Region Conservation Authority (CRCA), Utilities Kingston and other City departments.

2.2 Provincial Policy Statement

The Screening Criteria were derived from the policies contained within the Provincial Policy Statement (PPS). This document must be given regard by municipalities when undertaking planning projects and requires that land with natural heritage values (wetlands, areas of natural and scientific interest (ANSIs)), land posing natural hazards (flood plains, erosion areas) and agricultural land be protected.

Significant wetlands were identified using digital mapping provided by the CRCA and Ontario Ministry of Natural Resources (OMNR).

Areas of Natural and Scientific Interest (ANSIs) were derived from three different sources.

- Digital data provided by the CRCA;
- Digital data provided the OMNR; and
- The 1996 Pittsburgh Township Environmentally Sensitive Areas Study (prepared by Environmental Advisory Services Limited, October 1996 as part of the Pittsburgh Township Official Plan Amendment No. 59 Background Report).

Flood prone areas were identified by combining the CRCA flood plain and fill line mapping. These two categories combine to create a contiguous and complete delineation of flood prone areas.

Agricultural areas were taken from the approved Official Plans of the former municipalities.

- Schedule 'E' to the Official Plan for the former Township of Kingston identifies High Agricultural Capability areas and was used to identify agricultural lands in the westerly part of the City.
- Agricultural lands for the former Township of Pittsburgh were taken from the existing approved Agriculture designation contained in the Official Plan. This designation was based upon previous Provincial Policy which encouraged the protection of Classes 1, 2, 3 and 4 soil capability lands. Official Plan Amendment (OPA) # 59 was adopted by Council of the former Township of Pittsburgh on July 25, 1997. It proposed a new, reduced Agricultural designation but, as of April 2004, was not yet approved by the Ministry of Municipal Affairs. Official Plan Review Background Report # 7, July 17, 1996, described the rationale for the new designation:

After consultation with staff from Ministry of Agriculture and Food, new agricultural boundaries were identified (see Schedule 'A'). The following factors were considered when defining these new boundaries:

- *maintaining prime agricultural areas of 250 ha or more*
- *residential development patterns*
- *fragmented ownership*
- *boundaries following natural landmarks, lot lines, roads etc.*
- *presence of class I, II and III soils*

Lands which would be removed from the Agricultural designation as a result of OPA #59 and which are within the Urban Growth Strategy study area are located on the east side of Highway 15, north of the business park in the Rideau Community. Until OPA #59 comes into force, the existing, approved designation will be used. It is noted, however, that Section 2(3)(c) of the existing Pittsburgh Official Plan permits the consideration of this land for urban development, in spite of its agricultural capability.

Figure 1 shows the location of the features identified through the application of the Screening Criteria. This land was removed from further consideration for urban development.

Figure 1 also identifies the location of parks, open space, community facilities, institutional uses, utilities and other features which help to provide a context for the consideration of Urban Growth issues.

3.0 CANDIDATE AREAS

After the Screening Criteria were applied, Candidate Areas for potential development were prepared using the Municipal Property Assessment Corporation (MPAC) database (CD-OASYS). When this data was analysed, several omissions were discovered. To help overcome this problem, air photo interpretation using 1998 and 2000 air photos was undertaken, supplemented with site visits. City development approval records, Official Plans and Zoning By-laws were also consulted. The results were reviewed with City staff who conducted a detailed review of building permit and occupancy permit records to determine the status of development on June 1, 2001 (Census day). Further

revisions were completed. The resulting maps (Figures 2 and 3) were used as the basis for calculating development potential:

- Figure 2 identifies generally vacant parcels of land within the existing urban area and within the designated Phase 1/Stage 1 areas in the existing Official Plans and is referred to as Growth Alternative 1; and
- Figure 3 identifies the other Candidate Areas and Growth Alternatives 1A, 2, 3, 4 and 5.

The next step was to estimate population densities and employment factors to be used in estimating future land requirements.

4.0 HISTORICAL GROWTH

The fundamental basis for the Urban Growth Strategy was the growth projections developed by Stevens Associates, demographic consultants for the City of Kingston. These projections utilize the 2001 census data and the Greater Kingston Area (GKA) 2041 population model. In order to provide a context for these growth projections, the following analyses were carried out using available data sources.

4.1 Census Data

Canada census data (Table 2) provides an historic record of growth that occurred in the City of Kingston over the past 25 years. These figures are compiled from Statistics Canada data for the former municipalities for 1976 to 1996 and include both urban and rural growth within the current City boundaries. About 12% of Kingston's population is rural.

Table 2
Census Population

Year	Population
1976	90,741
1981	90,388
1986	96,475
1991	107,835
1996	112,605
2001	114,195

Source: Statistics Canada

This population growth averaged a fairly low 1.3% per year (not compounded) over the 25 year period. The known reduction in family size, as identified by Statistics Canada, has resulted in a need for more dwelling units than this low population growth rate would imply.

4.2 Residential Building Permit Records

City records for the 24 year period from 1980 to 2003, inclusive, show that an average of 745 dwelling units were constructed each year. Classified by unit type, the total is broken down as follows:

Single detached	340/yr.
Semi-detached	98/yr.
Multiple (including Townhouses)	<u>307/yr.</u>
Total	745/yr.

The rate of dwelling unit construction varied over this time period as shown in Table 3:

Table 3
Residential Building Permits

Year	East	West	Central	Total
1980	22	140	150	312
1981	17	226	350	593
1982	21	188	298	507
1983	61	261	451	773
1984	198	347	355	900
1985	101	563	595	1259
1986	126	584	174	884
1987	106	846	495	1,447
1988	105	880	785	1,770
1989	178	911	263	1,352
1990	229	660	151	1,040
1991	84	443	272	799
1992	41	292	142	475
1993	24	347	79	450
1994	15	284	25	324
1995	34	172	29	235
1996	68	265	275	608
1997	109	285	50	444
1998 *				529
1999				590
2000				444
2001				644
2002				607
2003				886

* Year that amalgamation took effect
 Source: City of Kingston

It is evident from these figures that the City has experienced periods of very low as well as high growth. This volatility should be considered when projecting land needs, to ensure a healthy, competitive supply of building sites.

4.3 Employment Growth

According to Statistics Canada Annual Labour Force Survey data, Kingston’s employment growth over the 1989-2001 time period only increased from 55,000 to 56,000 jobs. When interpreting this data, it should be noted that sample sizes were relatively small, the area covered is not identical to the City’s boundaries and the definition of employment is different from that used in the Census. During that period, the data indicate that the number of jobs varied between 50,000 and 56,000, declining in the late 1990s before rebounding.

A different perspective emerges when 20 years of Census data is examined. On February 11, 2003, Statistics Canada released new employment data from the 2001 Census. It shows that approximately 3,500 jobs were created in the Kingston area between 1996 and 2001, averaging 700 jobs per year. This is in contrast to the previous five year period when an average of 300 jobs per year were lost. Over the 20 year period from 1981 to 2001, which includes a high growth period in the 1980s, an average of about 775 jobs per year were created.

Unlike residential building permit records, industrial, commercial and institutional (ICI) building data is not as readily available, is considered much less reliable and may not include all building activity (some Federal agencies refuse to obtain building permits). Statistics Canada provided data on the total value of building permits for the years 1981 to 2001, categorized by industrial, commercial and institutional use. The Construction Price Index (CPI) for each year was obtained for each category from Statistics Canada.

The total annual value of construction divided by the CPI results in the average annual floor area constructed in the City of Kingston, as shown in Table 4.

Table 4
Floor Area Based on Construction Value

TYPE OF CONSTRUCTION	1981-2001 AVERAGE BASED ON PERMIT VALUE	1998-2001 AVERAGE BASED ON PERMIT VALUE
Industrial	3,649 m ²	27,089 m ²
Commercial	14,269 m ²	23,137 m ²
Institutional	21,738 m ²	18,184 m ²

Source: Statistics Canada

More reliable data on new construction (including additions) was provided by City staff but covers only the four years from 1998 to 2001, as summarized in Table 5:

Table 5
Floor Area for New Construction and Additions (m²)

	1998	1999	2000	2001	Average
Industrial	5,828	11,770	13,706	170	7,869
Commercial	28,999	24,044	13,378	12,200	19,655
Institutional	3,442	810	14,162	5,037	5,863

Source: City of Kingston

Comparing the right hand columns in Tables 4 and 5 reveals wide discrepancies in the results for the same four year time period using the different data sources. Given the discrepancies in the data and the absence of comparable information on demolitions, it is not appropriate to use this information in any significant way.

In the past few years, industrial land sales by KEDCO have substantially increased, reducing the City’s inventory of vacant, serviced industrial land.

Given the uncertainties associated with the data on past building activity and land consumption in Kingston, the best available information is the growth projections prepared by Stevens Associates based on Census data.

5.0 GROWTH PROJECTIONS TO 2026

Stevens Associates, demographic consultants, were retained by the City of Kingston under a separate contract to update the GKA 2041 population model. This model was used by Stevens Associates to develop the population projections.

5.1 Employment (Low/Medium/High Projections)

Population growth is determined partly by the community’s “natural” growth rate and partly by the number of available jobs. Aggressive economic development initiatives can increase job creation. The number of available jobs can also decrease if major employers close or other negative aspects discourage employment. The types of jobs created also affect the resulting residential growth. For example, a low paying job will not attract a family to relocate into the Kingston community.

Low, medium and high growth projections have been prepared by Stevens Associates (revised March 20, 2003) based on assumed **job creation rates of 200, 600 and 1,000 jobs a year**, respectively, for the Kingston Census Metropolitan Area (CMA). Growth forecasts prepared during the 1990s had been based on 1,000, 1,300 and 1,600 jobs per year for the low, medium and high projections. The CMA includes Loyalist Township, the Township of South Frontenac and the Township of Frontenac Islands. Some jobs are population related (schools, local commercial, home based businesses) and will be integrated with the population served. The vast majority of the projected jobs would be located in urban Kingston.

Tables 6, 7 and 8 present detailed population and dwelling unit forecasts based on the 200, 600 and 1,000 jobs per year growth assumptions, in five year increments. For each projection, the Census Metropolitan Area (CMA) is presented, as well as the projected City of Kingston share. The City of Kingston figures combine urban and rural growth.

Table 6
Low Projection (200 Jobs/Year)

Kingston CMA	2001	2006	2011	2016	2021	2026
Population	146,838	149,062	151,823	156,767	163,676	169,759
Institutional Population	5,598	5,683	5,788	5,977	6,240	6,472
Non-institutional Population	141,240	143,379	146,035	150,790	157,436	163,287
Occupied Dwellings	58,335	60,991	63,918	67,589	71,838	75,756
Singles	32,930	34,643	36,508	38,623	41,197	43,844
Attached	9,645	9,849	10,136	10,640	11,292	11,700
Apartments	15,520	16,235	16,980	18,000	18,992	19,827
Moveable	240	264	294	326	357	385

City of Kingston

Population	114,195	115,491	117,238	120,699	125,672	129,903
Institutional Population	4,615	4,685	4,772	4,927	5,144	5,335
Non-institutional Population	109,580	110,806	112,467	115,772	120,528	124,568
Occupied Dwellings	46,610	48,547	50,684	53,451	56,607	59,418
Singles	22,810	23,838	24,957	26,226	27,770	29,358
Attached	8,725	8,919	9,192	9,670	10,290	10,677
Apartments	14,860	15,575	16,320	17,340	18,332	19,167
Moveable	215	215	215	215	215	215

Source: Stevens Associates, March 20, 2003

Table 7
Medium Projection (600 Jobs/Year)

Kingston CMA	2001	2006	2011	2016	2021	2026
Population	146,838	153,943	161,082	170,297	181,535	192,454
Institutional Population	5,598	5,869	6,141	6,492	6,921	7,337
Non-institutional Population	141,240	148,074	154,941	163,804	174,614	185,117
Occupied Dwellings	58,335	62,709	67,186	72,365	78,101	83,664
Singles	32,930	35,529	38,269	41,262	44,672	48,257
Attached	9,645	10,204	10,779	11,516	12,398	13,076
Apartments	15,520	16,707	17,836	19,248	20,655	21,921
Moveable	240	269	303	339	376	411

City of Kingston

Population	114,195	119,153	124,158	130,758	138,916	146,712
Institutional Population	4,615	4,838	5,063	5,352	5,705	6,049
Non-institutional Population	109,580	114,315	119,095	125,406	133,211	140,663
Occupied Dwellings	46,610	49,888	53,206	57,114	61,406	65,466
Singles	22,810	24,369	26,013	27,809	29,855	32,006
Attached	8,725	9,256	9,802	10,502	11,340	11,984
Apartments	14,860	16,047	17,176	18,588	19,995	21,261
Moveable	215	215	215	215	215	215

Source: Stevens Associates, March 20, 2003

Table 8
High Projection (1,000 Jobs/Year)

Kingston CMA	2001	2006	2011	2016	2021	2026
Population	146,838	158,876	170,462	184,109	199,904	215,959
Institutional Population	5,598	6,057	6,499	7,019	7,621	8,233
Non-institutional Population	141,240	152,819	163,964	177,090	192,283	207,726
Occupied Dwellings	58,335	64,445	70,507	77,227	84,450	91,638
Singles	32,930	36,424	40,064	43,959	48,207	52,719
Attached	9,645	10,563	11,431	12,404	13,516	14,459
Apartments	15,520	17,185	18,701	20,511	22,331	24,024
Moveable	240	273	312	353	394	437

City of Kingston

Population	114,195	122,852	131,162	141,016	152,520	164,092
Institutional Population	4,615	4,993	5,357	5,786	6,283	6,787
Non-institutional Population	109,580	117,859	125,804	135,230	146,237	157,304
Occupied Dwellings	46,610	51,243	55,767	60,839	66,266	71,560
Singles	22,810	24,906	27,090	29,427	31,976	34,683
Attached	8,725	9,597	10,421	11,347	12,403	13,298
Apartments	14,860	16,525	18,041	19,851	21,671	23,364
Moveable	215	215	215	215	215	215

Source: Stevens Associates, March 20, 2003

5.2 Population

Table 9 summarizes the population growth and dwelling unit (by type) projections prepared by Stevens Associates for the 25 year study period using the low, medium and high employment growth assumptions. Stevens Associates cautions that, given the history of Kingston’s sporadic growth, future growth projections are uncertain. Retaining the flexibility to react to different conditions is an important consideration in the Urban Growth Strategy.

**Table 9
 Growth Projections for the City of Kingston**

	2001	2026	2026	2026
	Census	Low	Medium	High
Population (Urban and Rural)	114,195	129,903	146,712	164,092
Institutional Population	4,615	5,335	6,049	6,787
Non-institutional Population	109,580	124,568	140,663	157,304
Occupied Dwellings	46,615	59,418	65,466	71,560
Singles	22,810	29,358	32,006	34,683
Attached	8,725	10,677	11,984	13,298
Apartments	14,860	19,167	21,261	23,364
Moveable	215	215	216	216

Source: GKA 2041 population model update, Stevens Associates, March 20, 2003

Population figures are for the entire City, including the rural area. The population currently connected to the central sanitary sewer systems is estimated to be 99,934 as of June 1, 2001. The total number of connected dwelling units is estimated to be 41,811. This was determined by examining the actual population levels by Census Tracts and by individual dissemination areas (smallest geographical unit for reporting Census data). Each of the 949 applicable dissemination areas was plotted on a map prepared by the Study Team which identified 36 City sanitary “sewersheds”. Total dwellings and population by sewersheds were determined. The sewershed map (Figure 4) and a corresponding table of projected dwellings, population and employment are found in Appendix 1.

The 2001 Census institutional population of 4,615 persons includes inmates, nursing home occupants and some students. Most post-secondary students would not have been present at the time of the Census (June, 2001). Post secondary students are estimated to total about 18,000 and, according to Queen’s University representatives, this figure is not expected to increase significantly.

Job growth for the past 20 years has averaged about 775 jobs per year, the mid range between the medium and high projections of 600 and 1,000. **The appropriate projection to use in further analysis should not be less than the medium projection but does not need to be more than the high projection.** The medium and high projections would result in the total increases for the 2001 – 2026 period shown in Table 10.

Table 10
Dwellings, Population and Job Growth, City of Kingston

2001 – 2026 Growth	Medium	High
Dwelling Units	18,856	24,950
Population (non-institutional)	31,083	47,724
Jobs	15,000	25,000

Source: GKA 2041 Growth Model, March 20, 2003

6.0 LAND NEEDED TO ACCOMMODATE PROJECTED GROWTH

The Provincial Policy Statement (Section 1.1.2(a)) requires municipalities to accommodate the growth projected for a time horizon of up to 20 years and also requires (Section 1.2.2) a 10 year supply of residential land to be designated and available at all times.

6.1 Residential Density

The three existing Official Plans were reviewed to determine potential urban residential development densities. A wide range is provided for. The number of dwelling units per net hectare (u/net ha) is summarized as follows:

Pittsburgh Township Official Plan

Low Density: 10 to 30 u/net ha.
Medium Density: 31 to 45 u/net ha.
High Density: up to 50 u/net ha.
Kingston Township Official Plan

Low Density: 30 to 56 u/net ha.
Medium Density: 60 to 75 u/net ha.
High Density: maximum of 175 u/net ha.

City of Kingston Official Plan

Low Density: up to 27 u/net ha.
Medium Density: up to 69 u/net ha.
High Density: over 69 u/net ha

The MPAC database was examined and supplemented with additional information to determine existing overall residential densities for the City's urban area. A total of 1895 ha is classified as residential. With 41,811 urban dwelling units, the overall density would be about 22 units per net hectare. This includes both high density areas and extensive areas of low density suburban development.

The difference between net and gross density is an important consideration in projecting future land needs. Net density refers to the actual lots used for development after road allowances, parkland and other non-development lands have been removed. Typically, at least 33% of raw land is devoted to these uses. A gross residential density of 25 units/hectare would be roughly equivalent to a net density of 37.5 units/hectare, as the following example illustrates.

<u>Gross Density</u>	<u>Net Density</u>
100 ha x 25 units/ha	100 ha (gross) – 33% = 66.7 ha (net)
= 2,500 units	66.7 ha x 37.5 units/ha
	= 2,500 units

For the past decade, much has been written about the costs of urban sprawl and the need to consider new strategies for urban growth. Smart Growth is a term frequently used, an element of which includes increased densities. Some examples of publications which document and/or promote increased densities include:

- “Transit-Supportive Land Use Planning Guidelines” (MTO and MMAH, 1992), which suggests a net density of 37 units/ha adjacent to the route, is needed to support frequent bus service;
- “Breaking Ground”, a Ministry of Municipal Affairs publication in the late 1990s, examined how alternative development standards were being applied in 13 areas of the province. Gross densities ranged from 7 to 46 units/ha (net densities: 11 to 69 units/ha); and
- “Infrastructure Costs Associated With Conventional And Alternative Development Patterns” (CMHC/RMOC, 1995) demonstrated significant cost savings for a mixed residential development at an average density of 43.3 units per net hectare.

In Kingston, a wide range of densities is found, both in old and new areas. Two examples in the mid range include:

- A 4 to 5 block area north of Raglan Road, between Division Street and Rideau Street which contains a mix of single-detached, semi detached, row and small apartments at a net density of about 36 units per hectare; and
- In the Cataraqui North neighbourhood (north of Princess Street behind Chapters book store), single detached dwellings have averaged about 22 units per net hectare but row houses average 42 units per net hectare.

As the City continues to address the financial challenges associated with maintaining an extensive and deteriorating infrastructure network, it becomes apparent that decisions about new growth must take these long-term infrastructure cost implications into account.

As a result of Kingston’s greenhouse gas emission reduction commitments (Partners for Climate Protection), it is necessary to pursue planning approaches which strive to reduce the municipality’s “footprint” and encourage greater use of public transit by increasing densities and land use mix. This approach is consistent with Section 1.2 of the Provincial Policy Statement and the Transportation Master Plan study’s emphasis on promoting non-automobile transportation modes and supportive development forms.

Increased densities will require cooperation between the City and the development community to consider greater use of alternative development standards and other innovations.

By evaluating the infrastructure implications of higher densities in this study, the City is able to better determine where capacity use can be optimized. Conversely, where capacities cannot be provided economically, adjustments to proposed densities may be appropriate.

Overall, it was concluded that a gross residential density of 25 units/hectare (about 37.5 units per net hectare) was a reasonable average to use in Growth Alternatives 1A, 2, 3, 4 and 5. It reflects the high end of the lower density categories and the low end of the medium density categories set out in the existing Official Plans. For the Committed Development Area, a combination of specific unit projections from secondary plans, subdivision plans, site plans and concept plans approved by the City has been used. For the remaining vacant infill parcels, a density of 25 units per net hectare has been applied, which provides for some flexibility to accommodate physical constraints found on many of these properties.

An average family size of 2.3 persons per household (as identified in the 2001 Census) was used for most population calculations. For apartment sites, a lower population of 1.5 persons per household was used. These figures may decline slightly in the future.

6.2 Employment

Several approaches were used to estimate the amount of land required to accommodate projected employment growth.

The Kingston Economic Development Corporation (KEDCO) was contacted for information on industrial land sales, land consumption rates and jobs created in the urban area (refer to Table 11). Unfortunately, the data provided covers only four (4) years, and only includes KEDCO land sales, not sales of privately owned land. The results suggest an average of 64 jobs per net hectare.

Table 11
KEDCO Land Sales

Year	Hectares Sold	Jobs Created
1999/2000	10.5	57+
2001	3.4	1200
2002	12.7	472
Total	26.6	1729
Average/year	6.7	432

Source: KEDCO

A report reviewed by the Study Team referenced an interview with a KAEDC representative who stated that 30 acres (about 12 hectares) were being developed annually in the mid 1990s. A request was made for data compiled in previous years by KAEDC, the predecessor organization to KEDCO. The only information available in City archives was a file containing copies of annual reports for most of the years between 1984 and 1997. No consistent reporting of employment lands consumed or jobs created was found, although occasional descriptions of specific developments were included. To overcome this problem, additional analyses were undertaken.

The Kingston Chamber of Commerce lists about 750 member businesses, of which a sample of 89 was analysed. Using location and employee numbers from the Chamber of Commerce data, the corresponding property area was extracted from City of Kingston data. Discrepancies were investigated to help improve accuracy. This resulted in an average of 31.5 employees per net hectare.

MPAC data was analysed and evaluated to determine the total area of all employment lands (industrial, commercial, institutional). Adjustments were made to address anomalies such as the Collins Bay Penitentiary site and CFB Kingston. The total area was 1456 ha. With approximately 56,000 jobs in the study area, this results in about 38.5 jobs per net hectare. Issues such as part-time employees and home-based businesses have not been investigated.

Figures used in other municipalities in similar analyses were compared with Kingston figures as part of the verification process. Traditional manufacturing uses yield fewer jobs per hectare but high tech and call centres, for example, can yield substantially more. As a result of these analyses, it was concluded that, on average, a ratio of 40 employees per gross hectare was a reasonable figure for projection purposes. This would equate to about 60 employees per net hectare and reflects a mix of traditional employment uses and the type of employment which has recently been locating in Kingston.

7.0 ADDITIONAL LANDS REQUIRED

Based on the medium growth scenario discussed in Section 5 (a residential growth rate similar to actual growth over the past 22 years), the following land areas would theoretically be needed to meet the 2026 requirement:

15,000 jobs at 40 jobs/ha = 375 ha.

18,856 dwelling units at 25 d.u./ha = 754 ha.

Some land may remain vacant for many years and not be available in the 25 year period (for example, the Alcan site was projected to accommodate 5,790 more jobs by 2001). **In addition, a healthy competitive market is needed to provide residents and businesses with choice and to encourage affordability.** An arbitrary allowance of 50% (or some other number) could be added to the targets to achieve this competition and compensate for land which is not developed. Another choice is to determine the City's land requirements if the high growth rate was to occur. This results in the following land area requirements to satisfy the 2026 projection. **This high projection is carried forward in the balance of this analysis.**

25,000 jobs at 40 jobs/ha = 625 ha.

24,950 dwellings at 25 d.u./ha = 998 ha.

8.0 COORDINATION WITH TRANSPORTATION MASTER PLAN

A Transportation Master Plan is being undertaken by Dillon Consulting Limited as a separate but concurrent project. The initial Transportation Master Plan (TMP) analysis used a job projection of 1000 jobs per year as a “maximum development scenario”. It also projected that suburban growth would be primarily residential. The result of this analysis was presented at the November 13, 2002 Public Open House and concluded that substantial new lane capacity would be needed. With substantial suburban residential growth and substantial downtown employment growth, it concluded that at least one new lane of capacity would be required across each of the six east-west screenlines and across each of the three north-south screenlines (A “screenline” is a device used by transportation planners to measure traffic movements through a part of the community).

Building upon the knowledge gained from these results, it is apparent that the physical separation of substantial areas of residential and employment lands exacerbates traffic problems at peak hours. When considering the employment and residential development that can be accommodated in any of the Urban Growth Strategy's Growth Alternatives, a mix of uses should be considered where appropriate, especially on the larger blocks of land.

9.0 COMMITTED DEVELOPMENT AREA

The Committed Development Area (CDA) consists of land located in the built-up areas of the City and in the existing Development Area 1/Stage 1 area, as designated in the existing Official Plans for the former municipalities. It is shown on Figure 2. The CDA was originally referred to as Growth Alternative 1 in Draft Interim Report No. 2. This caused confusion during the review process because it was perceived as an independent alternative that could satisfy the City’s growth needs on its own. The analysis indicates that it cannot. Additional land is needed. The CDA includes several important features:

- It includes numerous small blocks of vacant land in the Princess Street corridor, which are shown in red within the area circled in blue on Figure 2. It is assumed that infill development will occur on these properties, in accordance with Provincial and City policy;
- It assumes that sites like the Davis Tannery will be redeveloped, perhaps as the result of incentives developed through the City’s Brownfields Initiative; and
- It includes development initiatives in areas that have been planned and/or committed (subdivisions and site plans approved) and where supporting infrastructure is already planned and, in some cases, in place.

Based on a detailed analysis of these vacant lands (Figure 2), this area could accommodate an additional 32,849 jobs and 16,405 dwelling units, resulting in a population increase of 35,965 (summarized in Table 12). It is recognized, however, that not all of these areas will actually develop within the 25 year study period.

These capacities have been calculated using the projected development from previous secondary planning exercises (Catarauqui North, Alcan Lands) and specific subdivision applications on file with the City of Kingston Planning and Development Services Department. For the remaining vacant lands, the projected capacities have been calculated by applying the density and employment factors described in Section 6.

When preparing broad growth projections for a large urban area, there are many uncertainties which need to be considered. Much of the land identified in the CDA is already designated. In many cases, the land is zoned and immediately available for development but the lands remain vacant. The development constraints (i.e. contaminated soil, cost of servicing) on a particular site are possible indicators of why development has not occurred. Landowner intentions are also unpredictable (for example, Alcan’s corporate goals may preclude disposal of unused land). Market demand is the other major factor.

When estimating the “capacity” of the CDA, it is important to note the uncertain aspects associated with the intentions of the owners, many of whom are public institutions. Examples include potential development and redevelopment at the following sites:

- Kingston Psychiatric Hospital/Ontario Realty Corporation site
- Hotel Dieu Hospital

- Kingston General Hospital
- St. Lawrence College
- Kingston Prison for Women
- Queen's University.

Intensification and redevelopment on these sites would be expected to occur gradually over the 25 year study period. When contacted by the Study Team, the owners did not identify any planned changes on these sites. An exception was Queen's University, which, at that time, was completing new student accommodations which would add about 500 beds to the existing 4500 beds. St. Lawrence College also continues to add student accommodation. Recently, a proposal was also made for a residential development at the former Prison for Women site.

10.0 ADEQUACY TO ACCOMMODATE PROJECTED GROWTH

Based on either the medium or the high average growth scenario, CDA has sufficient land to meet the City's theoretical employment needs but not the residential needs. One response to this imbalance would be to transfer lands from the employment category to the residential category. Of these 32,849 jobs projected for the CDA, 20,000 are allocated to the Cataraqui North and Alcan sites, where some flexibility exists to alter the land use mix, if required. Given the recent increase in industrial land sales, the results of the City Owned Industrial Land (COIL) Development Strategy Draft Report, March 2004 and the uncertainties over the actual development of the Alcan lands, it is premature to advocate this transfer. For this reason, additional lands need to be considered. Growth Alternatives 1A, 2, 3, 4 and 5 provide alternative locations for this additional growth, as shown in Figure 3.

It should be noted that, even if the high growth rate does not occur, eventually, additional growth lands would be required beyond the 25 year study period. Extended analysis will help the City to predict its impacts and help to manage that growth whenever the market allows it to occur.

11.0 ESTABLISHING THE OTHER GROWTH ALTERNATIVES

Figure 3 shows the locations of 28 land areas in and adjacent to the City of Kingston Urban Area which comprises the most logical areas to consider for Urban Growth. They are not all required to meet Kingston's Urban Growth needs in the 25 year study period.

The 28 land areas have been delineated by reviewing large, predominantly vacant blocks of land and by using the Screening Criteria to determine their limits. An exception is #25, which is in the Agriculture designation of the Pittsburgh Official Plan, but is also described as a part of the Rideau Community. The policy of Section 2(3)(c) of that document indicates that this land may be considered for development in spite of its agricultural capability.

To assemble a logical group of Growth Alternatives for detailed analysis, it is necessary to examine all of the Candidate Areas for obvious features that make them unsuitable. A number of areas can be eliminated from further consideration:

- Areas 22 and 23 are located north of Highway 401. Both have multiple land ownerships and cannot be developed as efficiently as the other Candidate Areas. Services are further away, would be costly to extend and the land will not yield as much net development as other land.
- Area 24 contains a waste disposal site, aggregate areas, a wrecking yard and numerous low density contractors' yards and other businesses which would not lend themselves to conversion to urban redevelopment during the next 25 years.
- Area 25 contains usable agricultural land and is not essential to meet growth targets.

The remaining lands were combined into five Growth Alternatives, which were subject to detailed analysis. They are based on physical features and are, therefore, variable in size and the amount of development which can be accommodated.

12.0 GROWTH ALTERNATIVE 1A

When the first draft of Interim Report No. 2 was prepared, it reported that the Study Team had contacted Corrections Canada and CFB Kingston to determine whether land at Collins Bay Penitentiary or CFB Kingston should be considered for urban development or redevelopment. Corrections Canada did not indicate any interest but CFB Kingston representatives indicated an interest in totally reconstructing the buried infrastructure in the Private Married Quarters (PMQ) area, with the intention of turning this infrastructure over to the City. If the City accepts ownership of the infrastructure, as well as the road allowances on which the services are located, the net result is the same as other serviced development. This is not a secure area of the base. Civilians have access through this area to housing on Cartwright Point and it is not surrounded by security fencing. With an area of about 100 ha and only 700 dwelling units (90 of these units were to be demolished, according to CFB Kingston personnel), this land has significant potential for infilling and intensification in a very attractive location.

Because of the obvious potential for urban development for these areas, the Study Team undertook an additional analysis of these areas to determine if their potential for urban development warranted a more proactive approach by the City of Kingston to have these agencies reconsider their positions.

13.0 GROWTH ALTERNATIVE NO. 2

Growth Alternative No. 2 incorporates the Official Plans' Phase 2/Stage 2 lands (Parcels 1, 2, 3, 4 and 5 on Figure 3). It includes an easterly component in the Rideau Community and a westerly component west of Bayridge Drive, north of Princess Street, referred to as Cataraqui West.

The north portion of the Stage 2 lands in the Rideau Community (Parcel 5 on Figure 3) would be considered as employment lands with the balance (Parcel 4) used for residential purposes. Employment and residential uses would be well balanced for this portion of Growth Alternative No. 2.

The west part of Growth Alternative No. 2 is the Phase 2 development lands (Catarauqui West) designated in the Official Plan of the former Township of Kingston. While expected to be predominantly residential (no Secondary Plan has been completed yet), this development is in close proximity to a major employment node centered on Gardiners Road, north of Princess Street, achieving substantial balance between employment and residential uses in this part of the City. Consequently, a portion of this land has not been allocated for employment purposes. It is recognized, however, that employment and mixed land use may be particularly appropriate for land near Princess Street.

Using the same densities described in Section 6, Growth Alternative No. 2 could accommodate the following additional development:

Easterly Component

24 ha x 25 d.u./ha = 600 d.u.
600 d.u. x 2.3 p/d.u. = 1,380 persons
19 ha x 40 jobs/ha = 760 jobs

Westerly Component

196 ha x 25 d.u./ha = 4,900 d.u.
4,900 d.u. x 2.3 p/d.u. = 11,270 persons

This results in the following total development potential:

220 ha x 25 d.u./ha = 5,500 dwelling units
5,500 d.u. x 2.3 p/d.u. = 12,650 persons
19 ha x 40 jobs/ha = 760 jobs

14.0 GROWTH ALTERNATIVE NO. 3

Growth Alternative No. 3 has an area of about 515 ha and consists of the Phase 3 lands (Mile Square and Westbrook expansion areas) designated in the Kingston Township Official Plan. Previous concept plans for Mile Square submitted to the municipality have shown a predominantly residential development form, with small areas of retail and service uses along the internal collector roads.

The Westbrook Community Plan prepared by the Township of Kingston Planning Department, February 1997, used a maximum density of 30 units per gross hectare in its calculation of residential development. For planning purposes and consistency, a density of 25 units per gross hectare has been used in this analysis.

Although substantial employment is found to the west in Loyalist Township, in keeping with the principle of encouraging more mixed land use and achieving better balance in the use of municipal infrastructure, it has been assumed that 30% of the land (155 ha) would be used for employment purposes and 70% (360 ha) would be used for residential. This results in the following mix:

360 ha x 25 d.u./ha = 9,000 dwelling units
9,000 d.u. x 2.3 p/d.u. = 20,700 persons
155 ha x 40 jobs/ha = 6,200 jobs

It is recognized that the entire amount of additional employment lands projected may be unnecessary if the employment projected for the CDA is actually achieved. In spite of this, an employment allowance has been included because:

- the transportation impacts of not providing employment opportunities may be significant;
- the provision of employment opportunities in different locations provides flexibility and opportunities for a better balance of land uses; and
- the projected employment in other areas may not materialize.

15.0 GROWTH ALTERNATIVE NO. 4

Growth Alternative No. 4 assumes all new development in the St. Lawrence Community on full piped water and sewer services instead of continuing to allow partial or private services.

Land south of Highway 2 is currently permitted to develop on piped water and private sewage disposal systems. At the resulting low densities (70 ha at 4 units/ha), the area could accommodate a total of 279 dwelling units (population: 642). There are several reasons to consider development on full services. Provincial Policy discourages growth on partial services (one service without the other). The land is close to the Ravensview sewage treatment plant, a facility which is currently planned for expansion. On full services, this land could accommodate 1750 units (70 ha at 25 u/ha), resulting in a population of 4,025.

The land north of Highway 2 is currently permitted to develop on private services at very low, estate residential densities. Hydrogeology studies in the area have reported water quality and quantity problems. The area is close to services (existing water and nearby Ravensview sewage treatment plant), making it a good candidate for development on full services. Good planning and Provincial Policy encourage urban development on full services and discourage privately serviced development in locations which are in the logical path of fully serviced development. The land area is 225 ha. Based on a similar 70/30 split for residential and employment lands, the resulting development capacity is 9,085 persons and 2,680 jobs.:

Northerly Component

158 ha x 25 d.u./ha = 3,950 dwelling units
3,950 d.u x 2.3 p/d.u = 9,085 persons
67 ha x 40 jobs/ha = 2,680 jobs

Southerly Component

70 ha x 25 d.u./ha = 1,750 d.u.
1,750 d.u. x 2.3 p/d.u. = 4,025

Under this fully serviced alternative, the vacant lands in the St. Lawrence Community could accommodate the following total amount of development:

228 ha x 25 d.u./ha = 5,700 dwelling units
5,700 d.u. x 2.3 p/d.u. = 13,110 persons
67 ha x 40 jobs/ ha = 2,680 jobs

16.0 GROWTH ALTERNATIVE NO. 5

Growth Alternative No. 5 consists of 204 ha (Parcel 21) located between Highway 401 and McAdoo’s Lane (between Division Street and Montreal Street) and the 38 ha (Parcel 20) located west of Division Street, immediately north of Highway 401, for a total of 242 ha. Development concepts for this area have been submitted to the municipality in the past, accompanied by an initial servicing analysis. Good visibility, access to arterial roads and proximity to other employment uses suggest that this land has good potential. Easterly portions of the site have the best residential potential. For the purpose of this analysis, a 70/30 split has again been used, with the following result:

$$169 \text{ ha} \times 25 \text{ d.u./ha} = 4,225 \text{ dwelling units}$$

$$4,225 \text{ d.u.} \times 2.3 \text{ p/d.u.} = 9,718 \text{ persons}$$

$$73 \text{ ha} \times 40 \text{ jobs/ha} = 2,920 \text{ jobs}$$

It should be noted that input received from the Operations Division indicated that Parcel 20 of Growth Alternative No. 5 is currently used for the City of Kingston snow dump and is the receiving area for the dredged materials removed from the Cataraqui River. It is also being considered for a municipal composting facility. This land may not be available for urban development for the foreseeable future.

17.0 SUMMARY

Table 12 provides a summary of the medium and high projections and the potential development yields for each of the Growth Alternatives.

Table 12
Summary of Development Yields

	Projected Growth		Committed Development Area (CDA)	Growth Alternatives				
	Medium Projection	High Projection		1A	2	3	4	5
				311 ha	239 ha	515 ha	295 ha	242 ha
Dwelling Units	18,856	24,950	16,405	5,500	5,500	9,000	5,700	4,225
Population	31,083	47,724	35,965	12,650	12,650	20,700	13,110	9,718
Jobs	15,000	25,000	32,849	2,520	7,960	6,200	2,680	2,920

The medium and high projections can be met in numerous ways. For example, the medium projection for dwelling units (18,856) could be met by adding any of the Growth Alternatives to the CDA. Meeting the high dwelling unit projection would require the CDA and one or more of the other Growth Alternatives, in combination.

To meet the high projection for jobs, it appears that the CDA will produce sufficient lands without adding the employment lands from the other Alternatives. However, this assumes that the significant projections for additional jobs at the Cataraqui North (11,000) and Alcan (9,000) sites are achieved. If they are not achieved or if some other factor affects job yield, additional lands may be needed.

For all of these analyses, the CDA is are considered the first priority in meeting the needs of a growth projection. Planning for these areas has been completed, zoning is generally in place and servicing well advanced. It is not realistic or desirable to abandon these commitments unless the servicing analysis reveals significant deficiencies or capacity thresholds that can be better addressed by postponing development in portions of this area. The analysis of the implications of development in the other Growth Alternatives will form important input for use in applying the Evaluation Criteria.

18.0 APPLYING THE EVALUATION CRITERIA

The five additional Growth Alternatives were reviewed by City staff, agencies, service providers and Utilities Kingston for their impacts on long-term programs and infrastructure. Technical information sessions were held during the review period to provide an opportunity for reviewers to meet with Study Team members to ask questions and clarify any relevant issues.

The Study Team, working with Utilities Kingston and City staff, reviewed the input received and undertook the following tasks:

- the Growth Alternatives were analysed using the sanitary sewer and water models previously developed for the City of Kingston;
- a plan of sanitary sewer and water system improvements was prepared for each Growth Alternative;
- cost estimates were prepared for the improvements required for each Growth Alternative;
- water treatment plant and wastewater treatment plant capacities were assessed and cost estimates were prepared for the projected improvements; and
- the Transportation Master Plan Study Team provided an assessment of transportation impacts and estimated costs for improvements required to accommodate the Growth Alternatives.

The total infrastructure costs were compiled, projected on the basis of 5 year phased increments and analysed to develop present value cost estimates for the proposed infrastructure. Appendix 2 summarizes the water and sanitary sewer system analyses. Appendix 3 summarizes the transportation input. Appendix 4 contains the present value analysis.

Using all of the previous input and these technical and financial analyses, the Study Team completed the assessment of Growth Alternatives using the Evaluation Criteria. This analysis is contained in Appendix 4. The result of this evaluation is summarized as follows:

- **Growth Alternatives 1A and 2 are preferred over the other alternatives for most criteria;**
- **Growth Alternative 5 demonstrates the next highest degree of preference, followed by Growth Alternative 4; and**
- **Least preferable is Growth Alternative 3.**

19.0 HOW DEVELOPMENT OCCURS

In the early stages of the Urban Growth Strategy study, the Study Team concluded that the future growth in the City of Kingston was affected by issues associated with **where** growth should occur and **how** it should occur. An early decision was made to have the Evaluation Criteria focus on **where** growth should occur. This approach was conveyed to all participants, interest groups and the public. A multistage analysis was undertaken using the Screening and Evaluation Criteria to determine where growth could be most effectively and economically accommodated. As a result, the Growth Alternatives described previously in this Report were analysed.

At the same time, the Study Team has reviewed numerous other City initiatives, the Provincial Policy Statement and input from affected departments, agencies, interest groups and the public in order to develop a set of draft recommendations on **how** development should occur. Where appropriate, these recommendations will be reflected in the draft Official Plan amendments prepared to implement the Urban Growth Strategy. In other instances, they will be implemented by future work programs undertaken by the City of Kingston and relevant agencies.

The draft recommendations are as follows:

- the average density for future urban development should be increased in order to optimize municipal service efficiency and for the reasons described in Section 6 of this Report. This can be implemented through Official Plan policy, future Secondary Plans and possibly by establishing minimum density provisions in Zoning By-laws;
- a land use mix should be encouraged in new development areas to reduce travel demands and balance infrastructure use. Land use mix refers to residential and employment uses in close proximity to one another;
- policies should encourage greater amounts of infill and intensification in existing developed areas. Flexibility to add units in existing residential buildings (or replacement buildings) and infill lots are examples of creative reuse of underutilized buildings and land;

- alternative development standards should be actively encouraged. These include reduced road allowance widths, where appropriate, and zoning standards which facilitate increased densities;
- policies should permit mixing of entrepreneurial business activity with institutional uses in order to better achieve the goals of the City’s Economic Prosperity initiative;
- increased densities, including infill and intensification, may result in greater pressures on parks and recreational facilities. This should be taken into consideration in the studies planned by the Culture and Recreation Division;
- the City’s Brownfields Redevelopment Strategy should be completed and implemented in order to remove barriers to the infill development which is a necessary part of Growth Alternative No. 1. An effective approach may be to focus on one site, solve the problems and demonstrate the feasibility of extending the concept where needed; and
- the City should participate in the comprehensive Natural Heritage Strategy study proposed by CRCA and supported by KEAF. The analysis would examine rural and urban areas, focusing on significant woodlands, valleylands, wildlife habitat, unevaluated wetlands and connections between them. This work should be completed prior to the preparation of the City’s new Official Plan, planned for 2006;

Numerous other studies and initiatives are currently under way or anticipated in the near future, the results of which will be important contributions to the ongoing “fine tuning” of the Urban Growth Strategy. These include:

- Cycling and Pathways Study
- Transportation Master Plan
- Waterfront Strategy
- Downtown Action Plan
- North Block Urban Design Guidelines
- Stormwater Management Master Plan
- Cultural Services Master Plan
- Arena Capacity and Expansion Study
- Standards For New Culture and Recreation Facilities/Programs
- Multi-Purpose Community Centres Study
- Housing Division’s Service Manager Housing Statement
- Ravensview Wastewater Treatment Plant Study
- Development Charges Study
- MTO Highway 401 Widening Studies
- Industrial Lands Market Analysis

20.0 ADDITIONAL COORDINATION WITH TRANSPORTATION MASTER PLAN

A significant issue for the Urban Growth Strategy (as well as for the Transportation Master Plan) is the need for and the timing of the third crossing of the Great Cataraqui River. Early input from the Transportation Master Plan Study Team suggested that there may have been some uncertainty over the necessity of the Third Crossing for some of the Growth Alternatives. Without it, however, the following problems were anticipated:

- congestion would increase in the vicinity of the LaSalle Causeway and in the downtown area generally;
- additional north/south road capacity (Highway 15, Wellington Street extension, Rideau Street, Montreal Street and Division Street) would be needed on both sides of the river to accommodate drivers using the 401 instead of a new Third Crossing;
- major traffic disruption would occur when the LaSalle Causeway or Highway 401 are closed for any reason;
- emergency services (fire, ambulance, police) would be affected when those closures occur;
- development in the Rideau Community Business Park would continue to be slow; and
- better access to some existing community facilities (library, possible recreation complex) would not be achieved.

Further analysis through the Transportation Master Plan study concluded that the Third Crossing is necessary no matter which Growth Alternative is selected.

A P P E N D I X 1

SANITARY SEWERSHED MAP (FIGURE 4) AND TABLE: DWELLING UNITS, POPULATION AND EMPLOYMENT BY SANITARY SEWERSHEDS

APPENDIX 2

SANITARY SEWAGE AND WATER INFRASTRUCTURE IMPACTS

APPENDIX 3

TRANSPORTATION INPUT

APPENDIX 4
PRESENT VALUE ANALYSIS OF COSTS

APPENDIX 5

APPLICATION OF THE EVALUATION CRITERIA

APPENDIX 6

**SUMMARY OF PUBLIC RESPONSES TO
DRAFT INTERIM REPORT NO. 2**

LIST OF ABBREVIATIONS USED IN APPENDIX 4

PS	Pumping Station (sewage)
PSs	Pumping Stations
WPCP	Water Pollution Control Plant
FM	Forcemain
WM	Watermain
BS	Booster Station (water)
BSs	Booster Stations