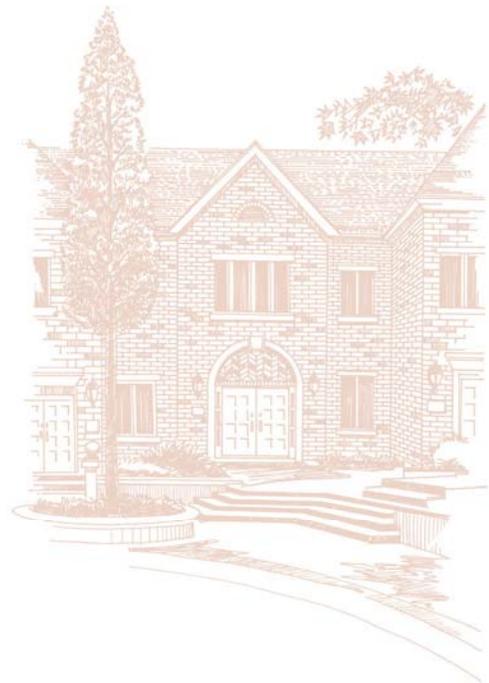


COUNTY OF FRONTENAC

**ROADS MANAGEMENT STUDY –
FISCAL MANAGEMENT PLAN**

Draft – For Discussion Purposes

FEBRUARY 28, 2011



4304 Village Centre Court
Mississauga, Ontario
Canada L4Z 1S2

Phone: (905)272-3600

Fax: (905)272-3602

e-mail: info@watson-econ.ca

 **Planning for growth**

CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY	(i)
1. INTRODUCTION	
1.1 Introduction	1-1
1.2 Fiscal Management Plan Methodology	1-2
2. REGIONAL ROADS NETWORK	
2.1 Regional Roads Network Options	2-1
2.2 Regional Roads Network Options – Asset Replacement Values	2-2
3. LIFECYCLE CAPITAL NEEDS AND CAPITAL FUNDING REQUIREMENTS	
3.1 Overview of Lifecycle Costing	3-1
3.2 2010-2040 Regional Roads Capital Needs	3-7
3.3 2010-2040 Regional Roads Capital Funding Plan	3-14
4. FISCAL IMPACT ASSESSMENT	
4.1 Approach	4-1
4.2 Regional Roads Fiscal Impact	4-2
4.3 Overall Fiscal Impact	4-6
5. CONCLUSIONS	
5.1 Conclusions	5-1

APPENDICES

A	DETAILED FISCAL IMPACT MODEL RESULTS FOR SOUTH FRONTENAC
B	DETAILED FISCAL IMPACT MODEL RESULTS FOR CENTRAL FRONTENAC
C	DETAILED FISCAL IMPACT MODEL RESULTS FOR NORTH FRONTENAC
D	DETAILED FISCAL IMPACT MODEL RESULTS FOR FRONTENAC ISLANDS
E	DETAILED FISCAL IMPACT MODEL RESULTS FOR COUNTY FUNDING OPTIONS

EXECUTIVE SUMMARY

A transportation management plan, to review and assess the merits of a long-term integrated plan for future road development, maintenance and financing in the County of Frontenac was identified as one of the priorities of the County's Integrated Community Sustainability Plan (ICSP). The Fiscal Management Plan, for which Watson & Associates Economists Ltd. (Watson) has been retained, is an important component of the overall transportation management plan, and will provide the County with a lifecycle-based capital plan to assess the sufficiency of existing funding levels and to determine appropriate levels of funding to maintain the defined Regional Roads Network.

The key findings and recommendations of our report are summarized below:

1. The fiscal impact assessment was prepared for three Regional Roads Network options. These options were developed based on consultation with the Project Steering Committee. The three options are summarized below:

Regional Roads Network Options:

- Option 1 - downloaded Provincial Highways and former County Roads;
- Option 2 – Option 1 Regional Roads, plus existing area municipal roads in North Frontenac and Central Frontenac, as identified in Chapter 2; and
- Option 3 – Option 2 Regional Roads, plus existing area municipal roads within the Townships that connect to regional status roads in neighbouring jurisdictions, as identified in Chapter 2.

2. In discussion with the Project Steering Committee, the fiscal impact assessment was prepared for three funding scenarios. The funding scenarios are described below:

Alternative Funding Scenarios:

- Scenario 1 – Status Quo Service Delivery and Funding. Under this scenario the Townships would continue to operate, maintain and fund the regional roads assets independently over the forecast period;
- Scenario 2 – County Regional Roads Funding. Under this scenario, the Regional Roads Network would be funded at the County level. The operation and maintenance of the regional roads would continue under the jurisdiction of the Townships, but would benefit from a broader funding base. Implicit under this scenario is the need to establish a regional roads needs evaluation framework also at the County level (e.g. funding criteria, prioritization of needs, etc.); and
- Scenario 3 - County Regional Roads Funding with Additional Support. This scenario includes the assumptions in Scenario 2, but also identifies additional support for regional roads services from vacated tax room resulting from the

social services upload and gas tax support. Three different alternatives of additional support funding have been evaluated, based on discussions with County staff.

3. The road lengths and network asset replacement values are summarized in the Table 1 below for each of the Regional Roads Network options. The road network assets were provided by each of the Townships from their PSAB regional roads asset inventory. The regional roads assets included road base, road surface and structures. Consistent replacement value assumptions were utilized for all assets, based on industry benchmark data.

Table 1
County of Frontenac
Summary of Regional Roads Network Assets and Replacement Value

Township	Road Lengths (linear kilometres)		
	Option 1	Option 2	Option 3
South Frontenac	192.60	192.60	208.25
Central Frontenac	57.07	89.46	138.81
North Frontenac	73.74	113.99	113.99
Frontenac Islands	58.35	58.35	58.35
TOTAL	381.76	454.40	519.40
	Asset Replacement Values (\$ in millions)		
	Option 1	Option 2	Option 3
South Frontenac	84.6	84.6	90.0
Central Frontenac	54.2	66.8	86.5
North Frontenac	68.0	85.6	85.6
Frontenac Islands	47.3	47.3	47.3
TOTAL	254.1	284.3	309.4

4. Chapter 3, Section 3.2.1 identifies the full lifecycle capital replacement needs for the Regional Roads Network Options. The capital replacement needs were forecast over the 2010-2040 period based on PSAB depreciation assumptions and date of asset emplacement. This assessment quantifies the immediate municipal infrastructure funding requirements at approximately 9% of total regional road capital assets. For each Township the immediate regional roads capital needs are as follows:
- South Frontenac - \$26.7 million;
 - Central Frontenac - \$6.5 million;
 - North Frontenac - \$8.1 million; and
 - Frontenac Islands - \$8.1 million.

In the context of current regional road capital funding levels this represents a significant immediate fiscal impact to the Townships.

5. Recognizing the financial restrictions associated with funding all immediate capital replacement needs in one year, as well as continuing to fund future replacement needs over the next several years, a 30-Year Phase-In Scenario was developed. This approach attempts to smooth out the timing of the immediate capital replacement needs to produce a more financially feasible approach, while attempting to reach a sustainable replacement level within a 30-Year period.
6. The fiscal impact methodology combines the capital-related net levy requirements, identified in Chapter 3, with the forecast annual operating and maintenance costs for regional roads services. This provides a total net levy fiscal impact assessment for regional roads services. The forecast regional roads net levy is projected relative to the overall municipal levy to quantify total fiscal impact per \$100,000 of assessed value.
7. The net tax levy impacts, expressed as dollars per \$100,000 of taxable assessment, for each of the road network options and each of the alternative funding scenarios are summarized in Tables 2 and 3 below. Table 2 summarizes the impacts for the Status Quo Funding Scenario (Scenario 1) and Table 3 summarizes the impacts for the County Funding Scenarios (Scenarios 2 and 3).

Table 2
Status Quo Funding Scenario
Impact per \$100,000 of Taxable Assessment

TOWNSHIP FUNDING SCENARIO	ROADS OPTIONS		
	1 Provincial & County Roads	2 1st Priority Township Roads Added	3 2nd Priority Township Roads Added
	\$	\$	\$
Frontenac Islands			
2010	192	192	192
2015	406	406	406
2030	2,072	2,072	2,072
Annual Increase	94	94	94
2040	6,386	6,386	6,386
Annual Increase	206	206	206
Frontenac South	-	-	-
2010	145	145	149
2015	203	203	209
2030	616	616	640
Annual Increase	24	24	25
2040	1,314	1,314	1,377
Annual Increase	39	39	41
Frontenac Central	-	-	-
2010	54	84	130
2015	98	147	222
2030	667	874	1,196
Annual Increase	31	39	53
2040	2,471	2,960	3,810
Annual Increase	81	96	123
Frontenac North	-	-	-
2010	67	104	104
2015	130	184	184
2030	1,018	1,158	1,158
Annual Increase	48	53	53
2040	4,088	4,101	4,101
Annual Increase	134	133	133

Table 3
County Funding Scenarios
Impact per \$100,000 of Taxable Assessment

	COUNTY FUNDING SCENARIOS			
	1	2	3	4
	No Additional Funding	\$350,000 Social Service upload for 20 Years	\$350,000 Social Service upload for 20 Years with Inflation (2%)	#3 - plus \$110,000 Gas Tax allocation for 20 Years
	\$	\$	\$	\$
OPTION 1				
2010	119	119	119	119
2015	184	174	173	170
2030	769	760	756	754
Annual Increase	33	32	32	38
2040	2,220	2,220	2,220	2,220
Annual Increase	70	70	70	70
OPTION 2				
2010	130	130	130	130
2015	201	191	190	187
2030	824	815	811	808
Annual Increase	35	34	34	40
2040	2,294	2,294	2,294	2,294
Annual Increase	72	72	72	72
OPTION 3				
2010	140	140	140	140
2015	217	207	206	203
2030	888	879	875	873
Annual Increase	37	37	37	37
2040	2,458	2,458	2,458	2,458
Annual Increase	77	77	77	77

8. The fiscal impact analysis provided in Chapter 4 identifies that the current level of regional roads funding is insufficient relative the long-term lifecycle needs for each Township. The following summarizes the fiscal impact findings for each Township under the Status Quo Funding Scenario:

- South Frontenac – The regional roads net levy would have to increase at an average annual rate of 8% annually. By comparison, the regional roads net levy increase is 5.4 times higher than that for all other services over the period.
- Central Frontenac – The regional roads net levy would have to increase at an average annual rate of 13% annually. By comparison, the regional roads net levy increase is 29 times higher than that for all other services over the period.

- North Frontenac - The regional roads net levy would increase gradually at an average annual rate of 15% annually. By comparison, the regional roads net levy increase is 41 times higher than that for all other services over the period.
 - Frontenac Islands - The regional roads net levy would increase gradually at an average annual rate of 23% annually. By comparison, the regional roads net levy increase is 25 times higher than that for all other services over the period.
9. Under the County funding options, the majority of Townships would benefit from a County funding model. For Regional Roads Network Option 1, in the near term (to 2015) the County funding model would result in a fiscal impact per \$100,000 of assessed value ranging from \$170 to \$184. By comparison, under the Status Quo funding option, the 2015 fiscal impact per \$100,000 would range from a low of \$98 in Central Frontenac to a high of \$406 in Frontenac Islands. As a result, the Townships of Frontenac Islands and South Frontenac would benefit over the near term from one of the County funding options. When compared over the longer term (i.e. 2040), only South Frontenac would have a lower overall fiscal impact per \$100,000 of assessed value, i.e. \$1,314 vs. \$2,220. All other municipalities would benefit from the County funding option.
10. Concluding Comments:
- a. There are a significant amount of immediate capital roads needs which have gradually accumulated over time. This amount ranges between \$37.2 million up to \$42.2 million, depending on the roads option and represent approximately 9% of total Regional Roads assets. Historically, the Township's commitment to regional roads funding has largely been accommodated through grant funding. Given recent levels of stimulus funding, the reliance on future grant funding for regional roads needs, particularly in the near term, may serve add to the deficit. As such, there will be a need to establish a funding strategy to address this work backlog as a priority in the near term.
 - b. The overall tax impact may be standardized and somewhat mitigated on a County-wide basis if the long term capital needs requirements can be financed through taxes being levied on a County-wide basis. Since the roads under study provide a benefit both to residents and to business on a County-wide basis, this does provide a rationale for further examination of this potential funding scenario.
 - c. It is recommended that further work be undertaken on the County Transportation Management Plan in order to refine and better quantify specific capital demands and asset management choices.

1. INTRODUCTION

1. INTRODUCTION

1.1 Introduction

The County of Frontenac consists of four Townships, including the Township of South Frontenac, Township of Central Frontenac, Township of North Frontenac and Township of Frontenac Islands (i.e. The Townships). In September, 2009, the County of Frontenac adopted its first Integrated Community Sustainability Plan (ICSP) that establishes principles and decision-making policies to support sustainable behaviour throughout the County. Sustainable Actions, a secondary document that forms part of the ICSP, identifies a list of strategic initiatives identified to support sustainability. From this list, ten projects were recommended for immediate consideration. A transportation management plan, to review and assess the merits of a long term integrated plan for future road development, maintenance and financing in the County of Frontenac was identified as one of these priorities.

Provincial Highways and County Roads of approximately 400 kilometres were downloaded to the four Townships following the 1998 municipal amalgamations. These regional roads represent major transportation arteries, providing for the majority of the traffic throughout the County. Currently, the ongoing maintenance and replacement of these infrastructure assets are maintained and financed by the Townships individually. While historically, there has been some assistance provided by the City of Kingston, through agreement, in support of the regional roads, the agreement between the County and the City of Kingston will expire in 2013. The agreement presently provides approximately \$700,000 in annual funding for regional roads. Since regional road assets require significant maintenance and investment to maintain current service standards, the County has identified a need to develop a fiscal model to assist the Townships and the County to develop an optimal strategy for maintaining the Regional Roads Network over the long term.

Watson & Associates Economists Ltd. (Watson) was retained by the County of Frontenac to prepare a Fiscal Management Plan for the County Regional Roads Network. The Fiscal Management Plan will provide the County with a lifecycle-based capital plan to assess the sufficiency of existing funding levels and to determine appropriate levels of funding to maintain the defined Regional Roads Network.

1.2 Fiscal Management Plan Methodology

The Fiscal Management Plan (FMP) was developed based on the lifecycle needs of the Regional Roads Network. This Plan is based on the long-term fiscal impact model that was developed to consider multiple funding mechanisms and the impacts associated with the lifecycle maintenance of an identified regional road system. In developing the long-term fiscal impact model, the following methodology was employed:

1. Regional Roads Network – Discussions were undertaken with the Project Steering Committee to identify the Regional Roads Network for consideration in the FMP. While further development of the Regional Roads Management Plan would be required to produce an empirical basis for defining a regional roads system, for the purpose of this study, discussions with the Project Steering Committee produced three regional road options to be evaluated. The three options include:
 - Option 1 - Regional Roads Network consisting of downloaded Provincial Highways and former County Roads.
 - Option 2 – Regional Roads Network consisting of those identified in Option 1, plus existing area municipal roads in North Frontenac and Central Frontenac that were considered to have similar characteristics to regional roads.
 - Option 3 – Regional Roads Network consisting of those identified in Option 2, plus existing area municipal roads within the Townships that connect to regional status roads in neighbouring jurisdictions.
2. Current Regional Roads Funding – Historic financial information from the Townships was reviewed to determine the current amount of regional roads funding. This review included data available from historic budget and actual expenditures and revenues, Financial Information Returns (FIRs) filed with the Province, existing reserve funds and debt obligations. Where a regional roads levy could not be readily determined from municipal financial information, benchmark regional road maintenance costs were applied to the area regional roads inventory.
3. Forecast Lifecycle Capital Needs and Funding Requirements – Lifecycle capital needs were determined based on the PSAB regional roads asset inventory from each Township. The regional roads assets included road base, road surface and structures by Regional Road Network option. The information provided by the Townships included the following, as well as other data elements:
 - Road identification and length
 - Asset historic costs
 - Year of construction or most recent improvement
 - Useful life assumptions

The PSAB inventory information was categorized by Regional Roads Network Option. The historic asset values were inflated to 2010 values and compared with results for each of the Townships to ensure values were comparable for similar road assets. Lifecycle based capital replacement needs were forecast for the 2010-2040 period by area municipality and Road Network options. Annual lifecycle funding levels for asset replacement were calculated and compared with existing funding levels and capital needs.

4. Fiscal Impact Assessment – Lifecycle capital funding requirements and annual operating and maintenance costs were projected over the 2010-2040 period. The annual regional roads net levy was calculated incorporating forecast annual capital and operating funding needs, capital and operating cost inflation, assessment growth and alternative revenue sources (e.g. contributions, grant funding, etc.).

Two regional roads net levy forecasts were prepared: one illustrating the full lifecycle cost impacts of the regional roads needs; and the second identifying the impacts of phasing-in the full lifecycle cost impacts over a 30-Year period. By comparison, the first forecast (i.e. Full Lifecycle) quantifies the current infrastructure funding gap by Township for the regional roads system and calculates the immediate net levy impact of addressing the existing funding deficit. It should be noted that this forecast is provided to demonstrate the size of the current infrastructure funding gap and is not provided as a practical approach to achieving sustainable regional roads funding. The second forecast (i.e. 30-Year Phase-In) increases the regional roads net levy at a real linear rate to achieve the same capital funding over the same 30-Year forecast period.

In discussion with the Project Steering Committee, the fiscal impact assessment was prepared for each of the Regional Roads Network options, and also incorporated three funding scenarios. The funding scenarios are described below:

- **Scenario 1 – Status Quo Service Delivery and Funding**
Under this scenario the Townships would continue to operate, maintain and fund the regional roads assets independently over the forecast period.
- **Scenario 2 – County Regional Roads Funding**
Under this scenario, the Regional Roads Network would be funded at the County level. The operation and maintenance of the regional roads would continue under the jurisdiction of the Townships, but would benefit from a broader funding base. Implicit under this scenario is the need to establish a regional roads needs evaluation framework also at the County level (e.g. funding criteria, prioritization of needs, etc.).
- **Scenario 3 – County Regional Roads Funding with Additional Support**
This scenario includes the assumptions in Scenario 2, but also identifies additional support for regional roads services from vacated tax room resulting from the social services upload and gas tax support. Three different alternatives

of additional support funding have been evaluated, based on discussions with County staff.

2. REGIONAL ROADS NETWORK

2. REGIONAL ROADS NETWORK

2.1 Regional Roads Network Options

Discussion held with the Project Steering Committee produced three regional road options for consideration in the Fiscal Management Plan. As summarized in the introduction, the three options include:

Option 1 - Regional Roads Network consisting of downloaded Provincial Highways and former County Roads. The following table identifies the regional roads included within this option and the associated road length in kilometres, by area municipality.

Township	Regional Roads	Road Length (km)
South Frontenac	Road 38, Battersea Road, Bedford Road, Bellrock Road, Desert Lake Road, Harrowsmith Road, Moreland Dixon Road, Perth Road 10, Rutledge Road, Sunbury Road, Sydenham Road, Westport Road, Wilton Road 18, Yarker Road 4	192.60
Central Frontenac	Road 38, Road 509, Ardoch Road, Westport Road	57.07
North Frontenac	Road 506, Road 509	73.74
Frontenac Islands	Highway 95, Highway 96, Howe Island Drive	58.35
TOTAL		381.76

Option 2 – Regional Roads Network consisting of those identified in Option 1, plus existing area municipal roads in North Frontenac and Central Frontenac that were considered to have similar characteristics to regional roads. The following table identifies the regional roads included within this option and the associated road length in kilometres, by area municipality.

Township	Regional Roads	Road Length (km)
South Frontenac	Same as Option 1	192.60
Central Frontenac	Option 1, plus Arden Road, Henderson Road	89.46
North Frontenac	Option 1, plus Ardoch Road, Buckshot Lake Road, Harlow Road, Henderson Road	113.99
Frontenac Islands	Same as Option 1	58.35
TOTAL		454.40

Option 3 – Regional Roads Network consisting of those identified in Option 2, plus existing area municipal roads within the Townships that connect to regional status roads in neighbouring jurisdictions. The following table identifies the regional roads included within this option and the associated road length in kilometres, by area municipality.

Township	Regional Roads	Road Length (km)
South Frontenac	Option 1, plus Opinicon Rd	208.25
Central Frontenac	Option 2, plus Crow Lake Road, Fifth Lake Road, Long Lake Road, Mountain Grove Road, Wagerville Road	138.81
North Frontenac	Same as Option 2	113.99
Frontenac Islands	Same as Option 1	58.35
TOTAL		519.40

Map 2-1 illustrates the Regional Roads Network options by area municipality.

2.2 Regional Roads Network Options – Asset Replacement Values

**Table 2-1
Regional Network Options – Asset Replacement Value**

Township	Regional Road Network Option (2010\$)		
	1	2	3
Frontenac Islands	47,302,234	47,302,234	47,302,234
South Frontenac	84,552,693	84,552,693	89,985,612
Central Frontenac	54,200,522	66,809,659	86,532,938
North Frontenac	67,997,931	85,596,032	85,596,032
TOTAL	254,053,380	284,260,618	309,416,816

Table 2-1 summarizes the 2010\$ asset replacement values for the Regional Roads Network options. The total asset replacement value for the Regional Roads Network ranges from a low of \$254 million under Option 1 for the downloaded Provincial Highways and former County Roads, to a high of \$309 million based on the broader network identified by the Project Steering Committee as Option 3.

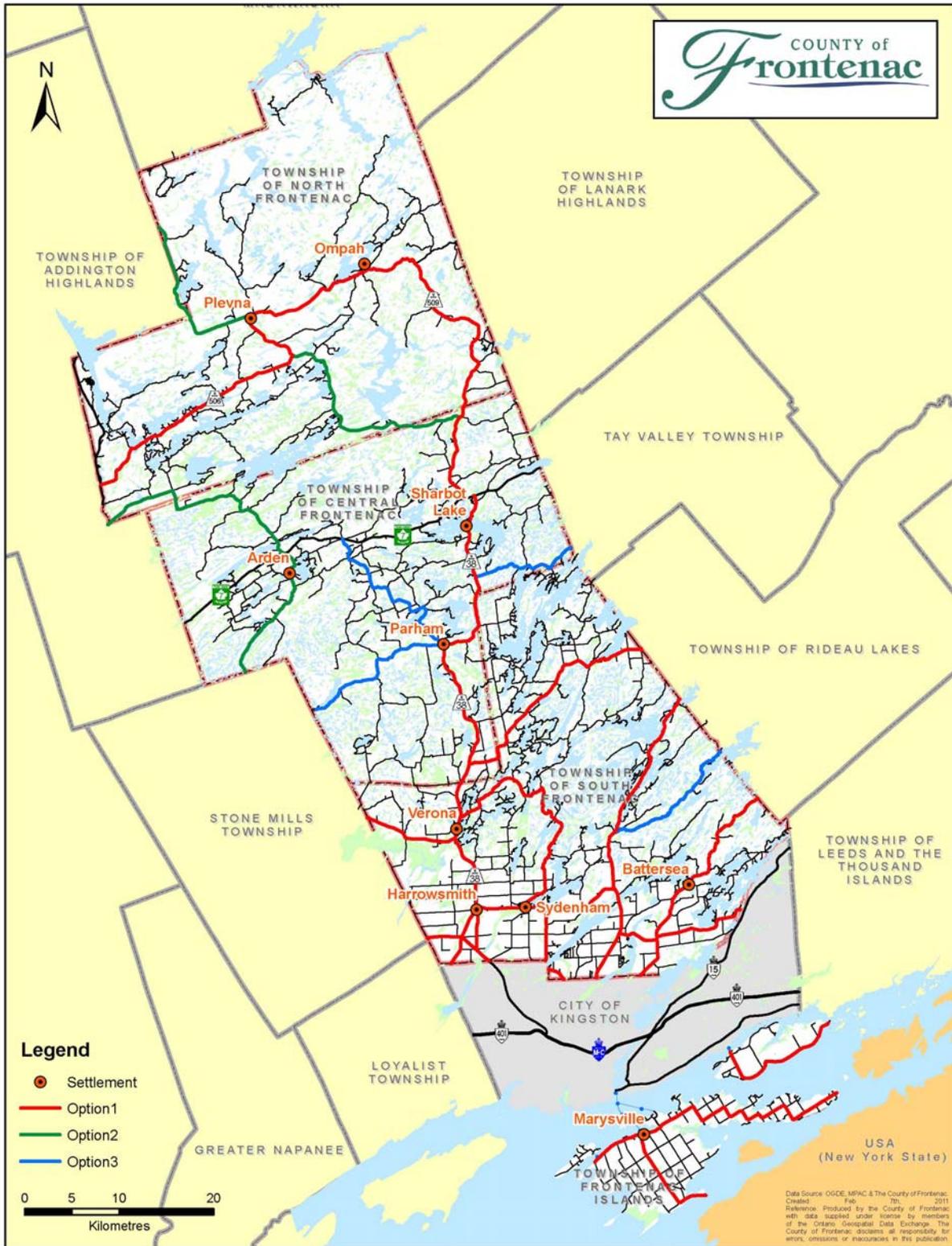
The following replacement cost assumptions by road classification were used in our analysis to estimate the long term regional road capital cost replacement needs:

Road Classification	2010\$ Replacement Cost Estimate (per linear km.)
Downloaded Provincial Highways	\$1.0 million
Former County Roads and Option 2 and 3 Area Municipal Roads	\$0.35 million

Replacement cost data was initially gathered from each of the Townships, using data that had been relied upon to calculate PSAB information to satisfy annual financial reporting requirements. This cost data was indexed to 2010\$ values based on the Statistics Canada, Construction Price Statistics index. Upon review of the base data, the replacement cost data varied considerably by Township and for individual road lengths. Replacement cost estimates for downloaded provincial highways ranged from a low of \$240,000 to a high of \$625,000 per linear kilometre. For former County roads and area municipal roads believed to be of regional priority, the Township replacement cost data ranged from a low of \$130,000 to a high of \$855,000 per linear kilometre, with both the weighted average and median values roughly approximating \$350,000 per linear kilometre.

In our discussions with the Project Steering Committee it was determined that it would be preferable to standardize the replacement cost assumptions for each road type in order to eliminate variances between Township costing assumptions. In our experience, replacement cost per linear kilometre for a highway status profile would conservatively cost approximately \$1 million. Moreover, this information has also been confirmed by one of the Township's consulting engineers, McIntosh Perry Consulting Engineers Ltd. With respect to the former County Roads and area municipal roads identified in Options 2 and 3, our experience would support using the average replacement cost value of \$350,000 per linear kilometre. Again, McIntosh Perry Consulting Engineers Ltd. was also able to confirm that the average replacement cost value as being a reasonable estimate for this purpose. Therefore, we have confidence that the average replacement cost assumptions above result in a reasonable assessment of replacement cost needs on an overall basis for the County.

Map 2-1 Regional Roads Network Options



3. LIFECYCLE CAPITAL NEEDS AND CAPITAL FUNDING REQUIREMENTS

3. LIFECYCLE CAPITAL NEEDS AND CAPITAL FUNDING REQUIREMENTS

3.1 Overview of Lifecycle Costing

3.1.1 *Definition*

For many years, life cycle costing has been used in the field of maintenance engineering and to evaluate the advantages of using alternative materials in construction or production design. The method has gained wider acceptance and use in the areas of industrial decision-making and the management of physical assets.

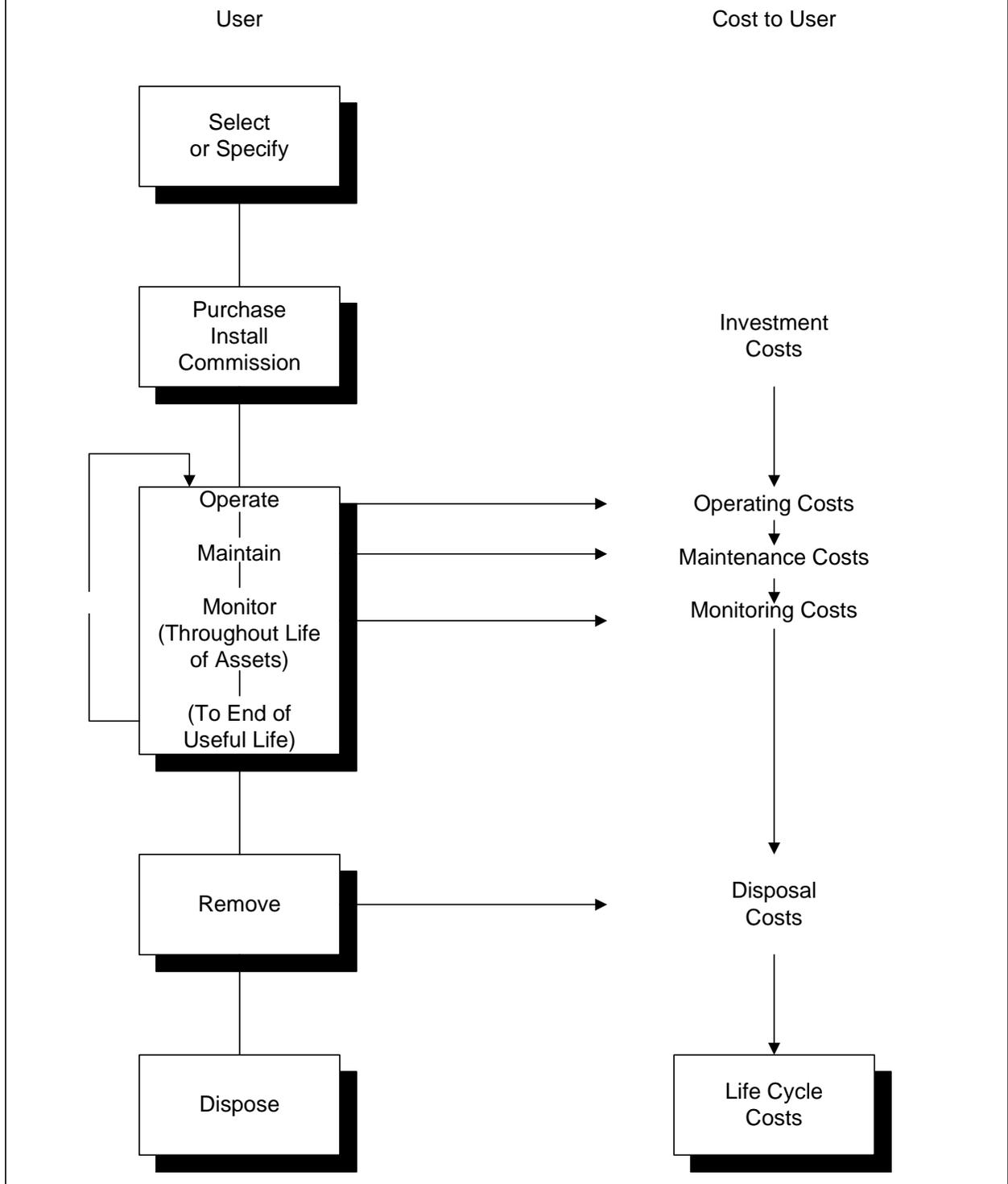
By definition, life cycle costs are all the costs which are incurred during the life cycle of a physical asset, from the time its acquisition is first considered, to the time it is taken out of service for disposal or redeployment. The stages which the asset goes through in its life cycle are specification, design, manufacture (or build), install, commission, operate, maintain and disposal. Figure 3-1 depicts these stages in a schematic form.

3.1.2 *Financing Costs*

This section will focus on financing mechanisms in place to fund the costs incurred throughout the asset's life.

In a municipal context, services are provided to benefit tax/rate payers. Acquisition of assets is normally timed in relation to direct needs within the community. At times, economies of scale or technical efficiencies will lead to oversizing an asset to accommodate future growth within the municipality. Over the past few decades, new financing techniques such as development charges have been employed based on the underlying principle of having tax/rate payers who benefit directly from the service paying for that service. Operating costs which reflect the cost of the service for that year are charged directly to all existing tax/rate payers who have received the benefit. Operating costs are normally charged through the tax base or user rates.

**Figure 2-1
Life Cycle Costing**



Capital expenditures are recouped through several methods; operating budget contributions, development charges, reserves, developer contributions and debentures, being the most common.

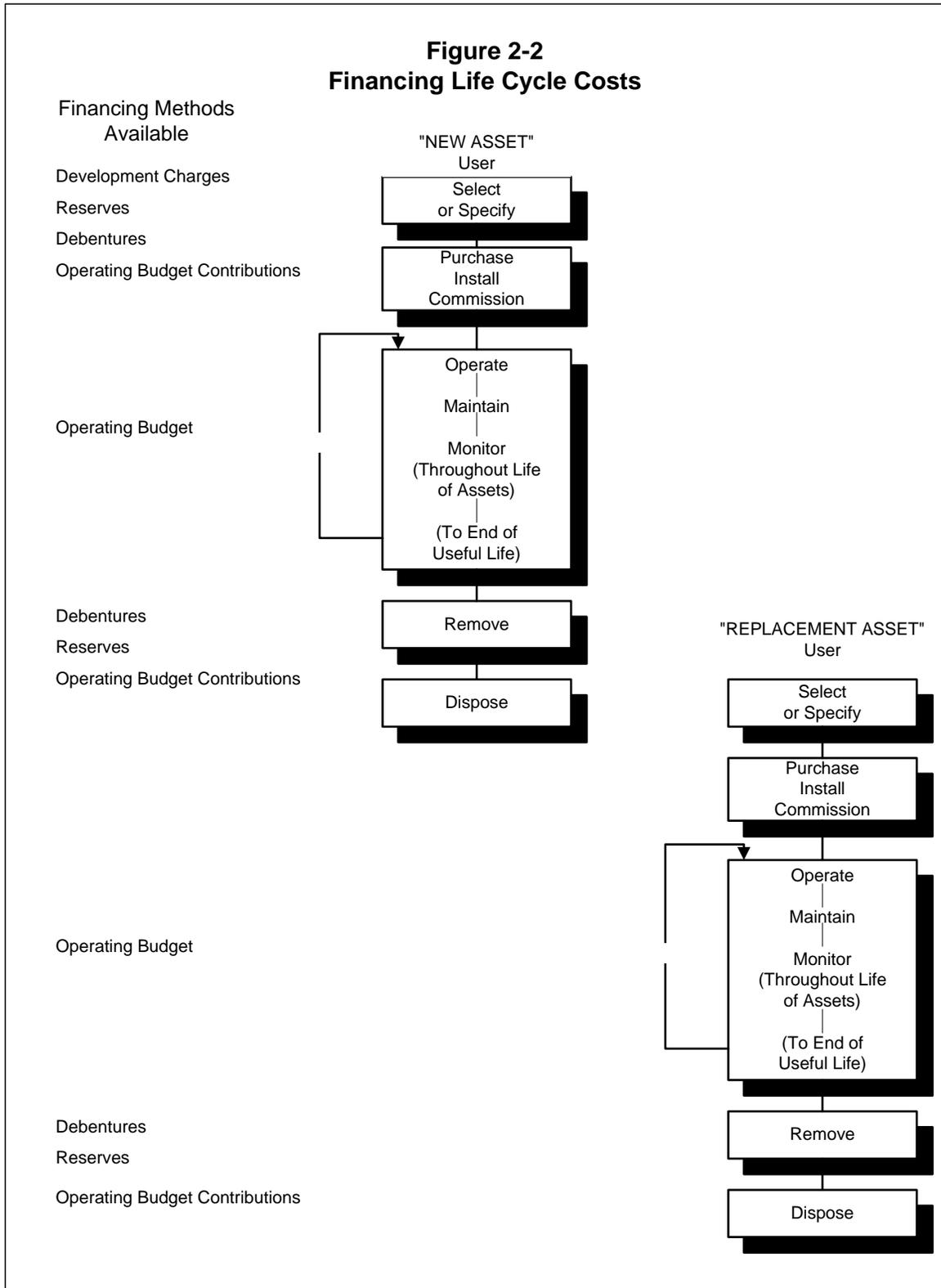
New construction related to growth could produce development charges and developer contributions (e.g. works internal to a subdivision which are the responsibility of the developer to construct) to fund a significant portion of projects, where new assets are being acquired to allow growth within the municipality to continue. As well, debentures could be used to fund such works, with the debt charge carrying costs recouped from taxpayers in the future.

However, capital construction to replace existing infrastructure is largely not growth-related and will therefore not yield development charges or developer contributions to assist in financing these works. Hence, a municipality will be dependent upon debentures, reserves and contributions from the operating budget to fund these works.

Figure 3-2 depicts the costs of an asset from its initial conception through to replacement and then continues to follow the associated costs through to the next replacement.

As referred to earlier, growth-related financing methods such as development charges and developer contributions could be utilized to finance the growth-related component of the new asset. These revenues are collected (indirectly) from the new homeowner who benefits directly from the installation of this asset. Other financing methods may be used as well to finance the non-growth related component of this project; reserves which have been collected from past tax/rate payers, operating budget contributions which are collected from existing tax/rate payers and debenturing which will be carried by future tax/rate payers. Ongoing costs for monitoring, operating and maintaining the asset will be charged annually to the existing tax/rate payer.

When the asset requires replacement, the sources of financing will be limited to reserves, debentures and contributions from the operating budget. At this point, the question is raised; "If the cost of replacement is to be assessed against the tax/rate payer who benefits from the replacement of the asset, should the past tax/rate payer pay for this cost or should future rate payers assume this cost?" If the position is taken that the past user has used up the asset, hence he should pay for the cost of replacement, then a charge should be assessed annually, through the life of the asset to have funds available to replace it when the time comes. If the position is taken that the future tax/rate payer should assume this cost, then debenturing and, possibly, a contribution from the operating budget should be used to fund this work.



Charging for the cost of using up of an asset is the fundamental concept behind depreciation methods utilized by the private sector. This concept allows for expensing the asset as it is used up in the production process. The tracking of these costs forms part of the product's selling price and hence end users are charged for the asset's depreciation. The same concept can be applied in a municipal setting to charge existing users for the asset's use and set those funds aside in a reserve to finance the cost of replacing the asset in the future.

3.1.3 Costing Methods

There are two fundamental methods of calculating the cost of the usage of an asset and for the provision of the revenue required when the time comes to retire and replace it. The first method is the Depreciation Method. This method recognizes the reduction in the value of the asset through wear and tear, and aging. There are two commonly used forms of depreciation: the straight-line method and the declining balance method.

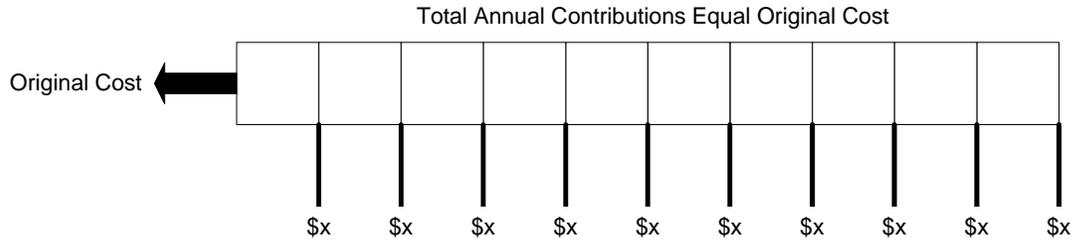
The straight line method is calculated by taking the original cost of the asset, subtracting its estimated salvage value (estimated value of the asset at the time it is disposed of) and dividing this by the estimated number of years of useful life. The declining balance method is calculated by utilizing a fixed percentage rate and this rate is applied annually to the undepreciated balance of the asset value.

The second method of life cycle costing is the sinking fund method. This method first estimates the future value of the asset at the time of replacement. This is done by inflating the original cost of the asset at an assumed annual inflation rate. A calculation is then performed to determine annual contributions which, when invested, will grow with interest to equal the future replacement cost.

The preferred approach used herein is the sinking fund method of lifecycle costing. This method better portrays the effects of inflation both on the annual contributions to reserves and the ultimate replacement value to be funded.

FIGURE 2-3

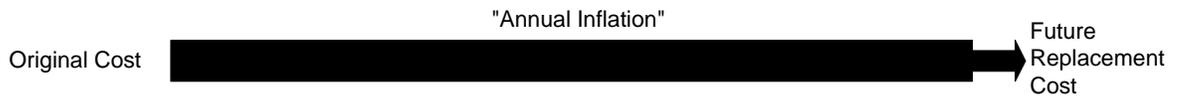
STRAIGHT LINE DEPRECIATION



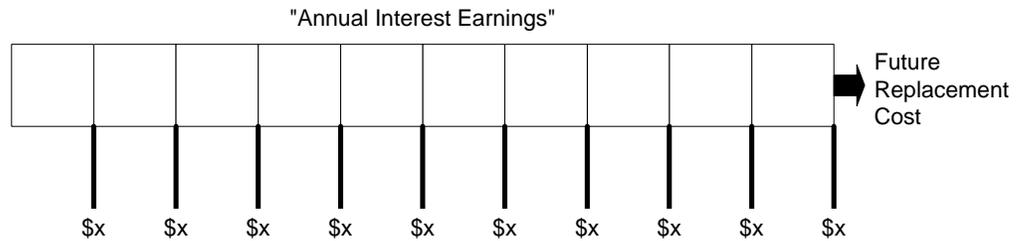
<p>Formula:</p> $\frac{\text{Original Cost} - \text{Salvage Cost}}{\text{Number of Years of Useful Life}}$
--

SINKING FUND METHOD

1. "Estimate Future Replacement Cost"



2. "Estimate Annual Contribution which will Grow with Interest to Equal Future Replacement Cost"



3.1.4 Annual Lifecycle Sinking Fund Contributions

Based on the sinking fund method identified above, Table 3-1 summarizes the annual contribution in 2010\$ required to fully fund the annual capital obligation. It should be noted that this amount represents the annual contribution required on a straight-line basis in 2010\$, in application these contributions would require annual adjustment for capital inflation over the forecast period (i.e. 3% annually). Moreover, in the subsequent modeling the annual lifecycle requirements must also account for the current infrastructure funding gap.

Table 3-1
Annual Sinking Fund Lifecycle Contributions
By Regional Road Network Option and Area Municipality

Township	Annual Lifecycle Sinking Fund Contributions (2010\$)		
	1	2	3
Frontenac Islands	510,967	510,967	510,967
South Frontenac	3,067,485	3,067,485	3,266,180
Central Frontenac	1,937,922	2,383,812	3,076,176
North Frontenac	2,498,279	3,093,535	3,093,535
TOTAL	8,014,653	9,055,799	9,946,858

3.2 2010-2040 Regional Roads Capital Needs

The introductory chapter provided the study methodology. This methodology identified the need to consider two regional roads net levy forecasts: one illustrating the full lifecycle cost impacts of the regional roads needs; and a second identifying the impacts of phasing-in the full lifecycle cost impacts over a 30-Year period. As part of this analysis, two lifecycle capital replacement forecast scenarios are provided.

3.2.1 Full Lifecycle Capital Needs Forecast

The Full Lifecycle Capital Needs Forecast identifies the amount of annual capital replacement needs based on the useful life estimates of the Townships Regional Roads Tangible Capital Assets (i.e. PSAB 3150 Asset Inventory). The results of this analysis suggest that there are a proportion of regional road assets requiring immediate replacement (i.e. from a PSAB 3150 perspective, the remaining service life of these assets is zero). These immediate replacement

needs, in the context of current capital funding levels, form part of the area municipal infrastructure deficit.

The following table summarizes the immediate capital needs and the total lifecycle capital needs for the 2010-2040 forecast period by Township for each Regional Roads Network Option. Capital inflation of 3% annually has been assumed for future capital needs. Under the full lifecycle capital forecast, it is assumed that all immediate capital needs would be addressed in 2011 (i.e. immediately), which results in an impact on subsequent replacement spikes for many of these assets again in subsequent years. In total under this scenario, the anticipated capital replacement over the period 2010-2040 ranges from \$37.2 million under Regional Roads Network Option 1, to \$42.2 million under Option 3. This scenario is provided for illustration purposes only, as it outlines the replacement trend as outlined by the Townships PSAB 3150 asset inventory (i.e. with no refinements or “smoothing”). However, it should be noted that under each options approximately 9% of the Regional Roads Network requires immediate attention. This represents a significant amount of immediate capital needs that will have to be addressed and compared with existing funding levels.

Table 3-2
Immediate and Forecast Regional Roads Lifecycle Capital Needs
By Regional Road Network Option and Area Municipality

Township	Regional Road Network Option - Capital Needs (inflated\$)					
	Option 1		Option 2		Option 3	
	Immediate Needs	2010-2040 Forecast Needs	Immediate Needs	2010-2040 Forecast Needs	Immediate Needs	2010-2040 Forecast Needs
Frontenac Islands	5,068,354	104,423,915	5,068,354	104,423,915	5,068,354	104,423,915
South Frontenac	24,650,501	164,065,790	24,650,501	164,065,790	24,660,692	175,853,641
Central Frontenac	4,059,000	36,017,979	5,445,000	46,905,135	9,035,756	63,360,604
North Frontenac	3,386,084	94,848,380	3,386,084	106,560,386	3,386,084	106,560,386
TOTAL	37,163,939	399,356,064	38,549,939	421,955,226	42,150,886	450,198,546

Figure 3-4 illustrates the lifecycle capital replacement needs under the full lifecycle forecast for the period 2010-2040 for each Township by Regional Road Network option.

Figure 3-4
2010-2040 Forecast Regional Roads Lifecycle Capital Needs
By Regional Road Network Option and Area Municipality

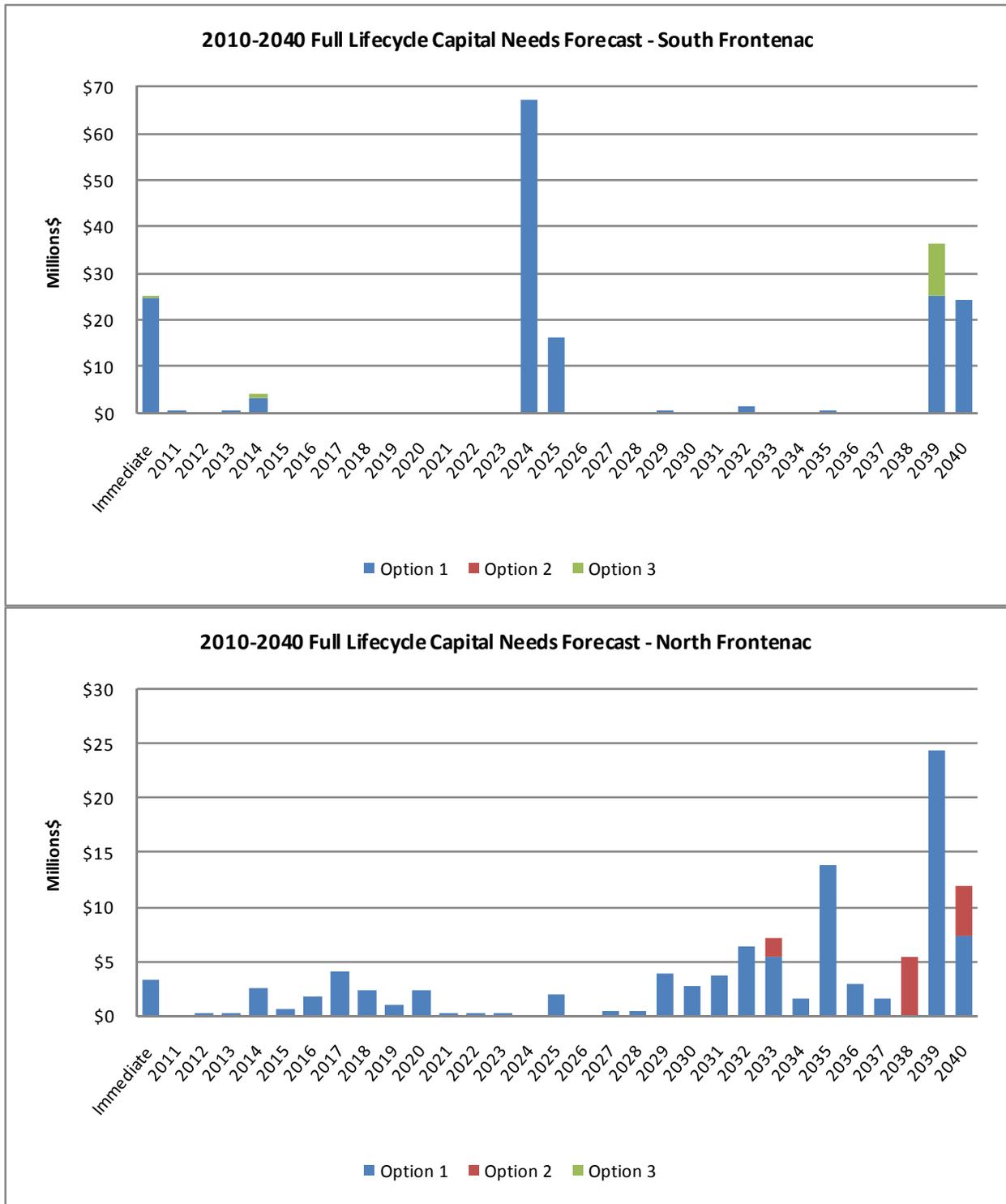
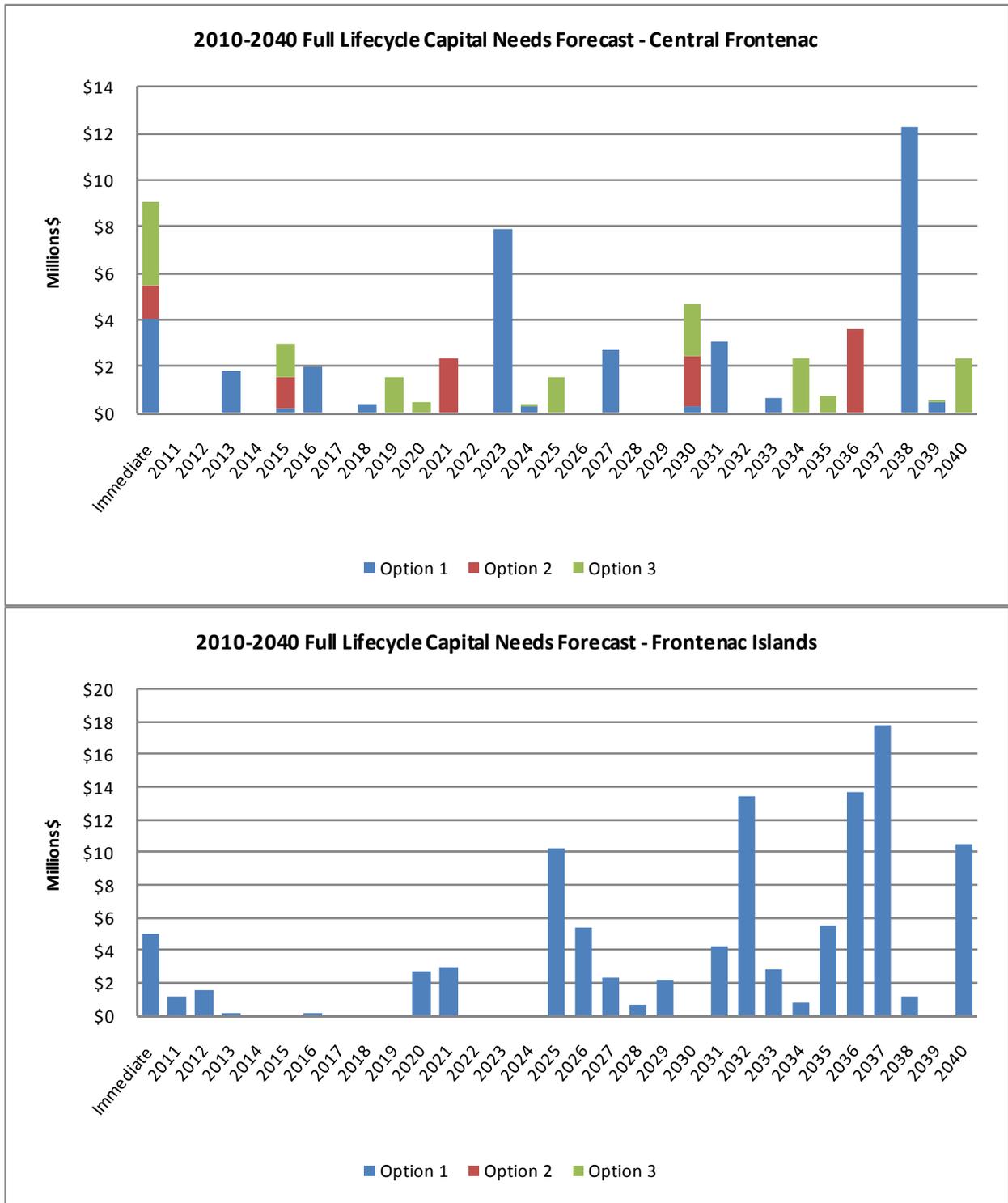


Figure 3-4 (cont'd)
2010-2040 Forecast Regional Roads Lifecycle Capital Needs
By Regional Road Network Option and Area Municipality



3.2.2 30-Year Phase-in Lifecycle Capital Needs Forecast

The 30-Year Phase-in Lifecycle Capital Needs Forecast recognizes the financial restrictions associated with funding all immediate capital replacement needs in one year, as well as continuing to fund replacement needs over the next several years. This approach attempts to smooth out the timing of the remaining immediate capital replacement needs to produce a more financially feasible approach, while at the same time attempting to reach a sustainable replacement level within a 30-Year period. In actual practice, it may not be the specific “immediate needs” assets, or other assets due for replacement being deferred, but rather a corresponding deferral of the replacement of alternative assets of the same value during the same period. The 30-Year phase-in period has been demonstrated considering that the majority of the “immediate” replacement needs are for infrastructure assets with a longer service life; as well as taking into account the need to achieve capital funding sustainability within a reasonable timeframe.

Under this forecast, the immediate capital replacement needs of \$37.2-\$42.2 million under Options 1 and 3 respectively, are redistributed over the 30-Year period in an attempt to phase-in the required increases in capital funding. Deferring immediate capital needs has a further impact, in that inflationary costs of deferred capital are applied over the forecast period.

This capital forecast scenario results in anticipated capital needs over the period 2010-2040 of approximately \$453 million for Regional Road Network Option 1, \$475 million for Option 2, and \$507 million for Option 3. This scenario does smooth out the financial impact of the immediate lifecycle needs, but it also results in a higher replacement cost over the period 2010-2040, due to the effects of annual capital inflation on replacement costs which have been deferred. As noted above, the inflationary impact of capital deferral adds \$53-\$57 million in additional capital costs for the respective options. Figure 3-5 illustrates the annual capital forecast for the 30-Year Phase-in Lifecycle Capital Needs Forecast by regional road network option and area municipality.

Figure 3-5
2010-2040 Forecast Regional Roads 30-Year Phase-in Lifecycle Capital Needs
By Regional Road Network Option and Area Municipality

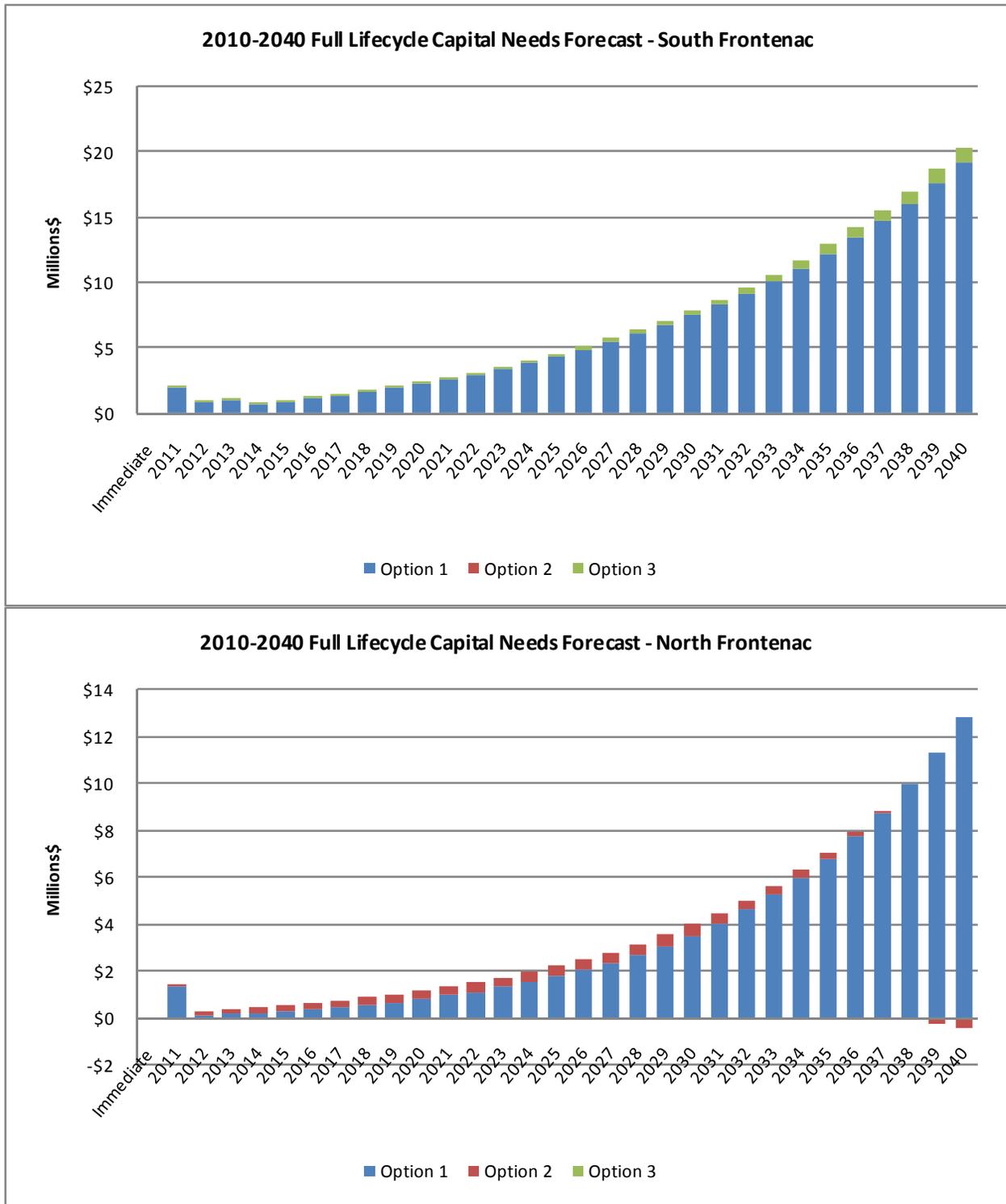
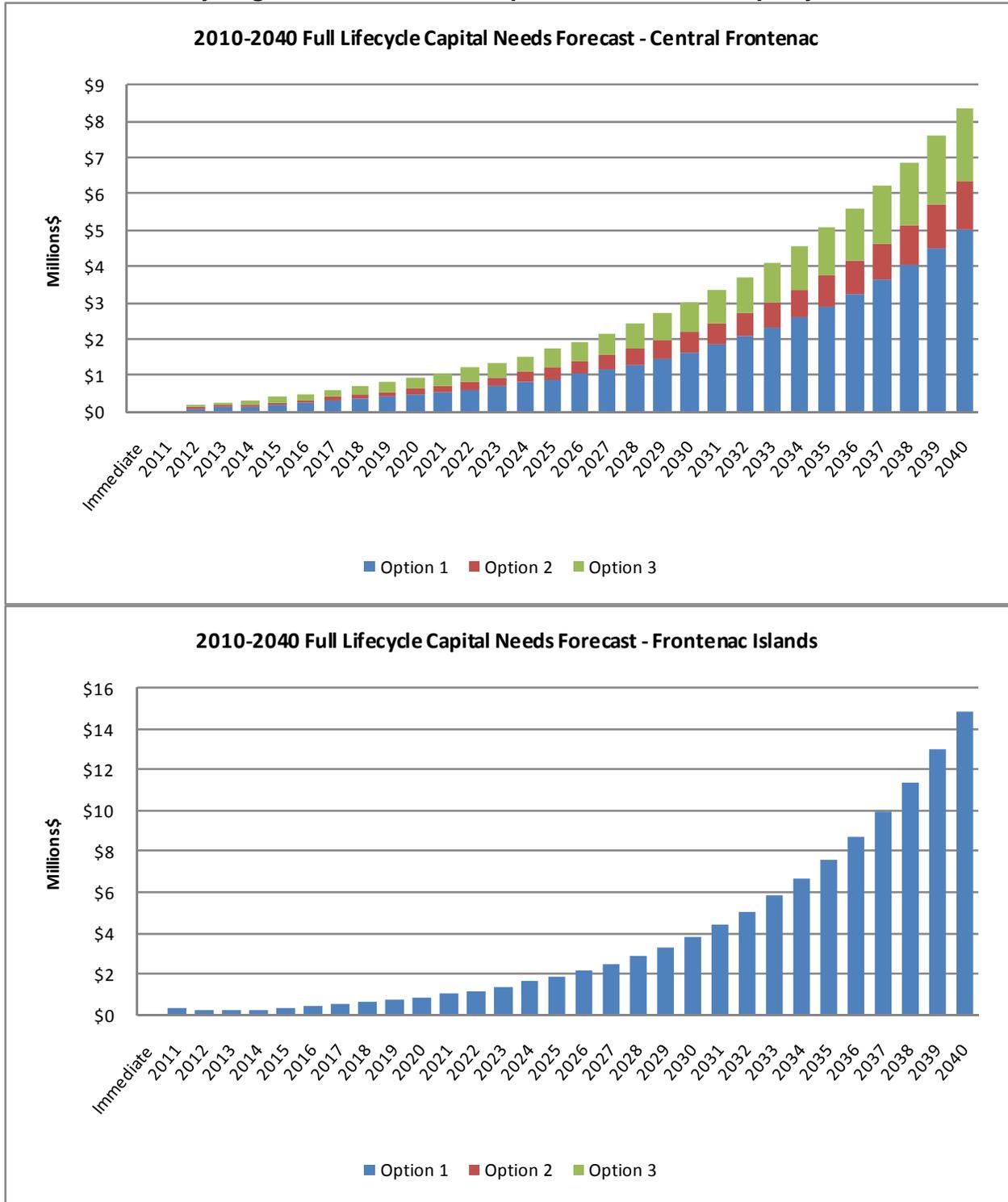


Figure 3-5 (cont'd)
2010-2040 Forecast Regional Roads 30-Year Phase-in Lifecycle Capital Needs
By Regional Road Network Option and Area Municipality



3.3 2010-2040 Regional Roads Capital Funding Plan

Utilizing the 30-Year Phase-in Lifecycle Capital Needs Forecast identified in the prior section, a capital funding plan was developed and the net capital levy determined. In developing the capital funding plan, three funding scenarios were considered as described previously in Chapter 1.

In order to carry out the capital funding component of the fiscal impact analysis, the following assumptions were used:

- Development charges will not be used to fund replacement of existing tangible capital assets. If development charges are available for these assets, it is assumed that this funding would be used for asset enhancements or upgrades that are not included as part of this analysis.
- Gas tax revenue has been identified as a potential funding source only under the County roads option, Scenario 3. Under this scenario, a potential funding of \$110,000 in gas tax revenue has been assumed for a 20-year period commencing in 2011. This estimate is based on the amount previously allocated by County Council to new road infrastructure projects. No gas tax or aggregates funding has been assumed under the Status Quo funding scenarios (i.e. Scenario 1), as discussions with Project Steering Committee confirmed that these funds would be retained for area municipal local road needs.
- Social service upload funding has been identified under the County roads option, Scenario 3. In discussions with the Project Steering Committee it was determined that a sensitivity analysis should be considered where by the estimated \$350,000 in net levy freed up from the upload of social services would be applied to regional road needs. This sensitivity analysis has been undertaken with and without inflationary adjustments to the initial upload amount.
- Kingston Regional Roads Contribution - Upon separation of the City of Kingston from the County in 1998, the City entered into an agreement with the County to provide an annual payment of approximately \$700,000, to be used toward the reconstruction or other capital maintenance in relation to particular County arterial roads. It was originally agreed that the payment would increase in relation to the increase in the number of households, and the agreement is due to expire during 2013. Since 2008, the first \$50,000 of the annual contribution has been provided to the Township of Frontenac Islands for use toward the Ferry service, and the remainder has been allocated in the following proportion to the Townships of South Frontenac (93.6%) and Frontenac Islands (6.4%). For purposes of this study, we have assumed that amounts of \$578,610 and \$39,563, plus inflation, have been included in the analysis for three years until 2013, to offset the cost of long term capital maintenance for arterial roads in the Townships of South Frontenac and Frontenac Islands, respectively.

- Net levy requirements and tax rate calculations have been calculated exclusive of any new debt financing.
- Capital inflation has been assumed at 3% annually.
- Operating budget inflation has been assumed at 2% annually.
- Interest rate earned on a Lifecycle Cost Replacement Reserve Fund will be 2% annually. A minimum annual reserve balance of \$100,000 has been assumed for all funding scenarios.
- Contributions to Lifecycle Cost Replacement Reserve Fund will increase annually based on the capital inflation rate.
- Assessment growth assumptions were developed based on the growth forecasts currently being prepared by the County. The annual assessment growth rates utilized in the analysis by Township includes: South Frontenac 0.94%, Central Frontenac 0.45%, North Frontenac 0.73% and Frontenac Islands 1.08%.

Based on the capital funding plan assessment for each regional roads option, Tables 3-3 through 3-5 summarize the tax impact per \$100,000 of taxable assessment for each capital funding scenario. Detailed financial plans for each fiscal impact scenario, containing the projected regional roads capital levy and net levy amounts and tax rates are contained in Appendices to this report.

Based on the 2010-2040 regional roads fiscal impact modeling for capital expenditures under Regional Network Option 1, in 2010 the Townships' net capital levy for regional roads service based on \$100,000 of assessed value was nil, with the exception of South Frontenac which had a regional roads capital levy of \$97/\$100,000 assessed value. This is reflective of the fact that most of the Townships utilized available grant funding for any regional road capital needs in recent years. Based on the Status Quo funding scenario, the 2040 regional roads capital net levy per \$100,000 of assessed value would range between a low of \$1,248 (or \$38 annual increase) in South Frontenac and a high of \$6,135 (or \$204 annual increase) in Frontenac Islands.

Under the County funding scenarios, both with and without additional funding sensitivity, we find that most Frontenac Townships would benefit from a County funding model over the long-term, and that the impacts on a County-wide basis would be much more consistent between Townships. In the near term (to 2015) the County funding model would result in a fiscal impact per \$100,000 of assessed value ranging from \$107 to \$120. By comparison, under the Status Quo funding option, the 2015 fiscal impact per \$100,000 would range from a low of \$40 in Central Frontenac to a high of \$206 in Frontenac Islands. As a result, the Townships of Frontenac Islands and South Frontenac would benefit over the near term from one of the County funding options. When compared over the longer term (i.e. 2040), only South Frontenac would have a lower overall fiscal impact per \$100,000 of assessed value, i.e. \$1,248 vs. \$2,132. All other municipalities would benefit from the County funding options.

Similar results are provided for the other Regional Road Network Options below.

Table 3-3
Regional Roads Fiscal Impact for 30-Year Phase-in of Lifecycle Capital Needs
for Regional Road Network Option 1 and by Area Municipality

TOWNSHIP FUNDING IMPACTS (Capital Levy)	ROADS OPTION	COUNTY FUNDING SCENARIOS			
	1 Provincial & County Roads	1 No Additional Funding	2 \$350,000 Social Service upload for 20 Years	3 \$350,000 Social Service upload for 20 Years with Inflation (2%)	4 #3 - plus \$110,000 Gas Tax allocation for 20 Years
	\$	\$	\$	\$	\$
TOWNSHIP Frontenac Islands					
2010	-	59	59	59	59
2015	206	120	110	110	107
2030	1,843	692	683	679	676
Annual Increase	92	32	31	31	34
2040	6,135	2,132	2,132	2,132	2,132
Annual Increase	204	69	69	69	69
Frontenac South					
2010	97				
2015	152				
2030	556				
Annual Increase	23				
2040	1,248				
Annual Increase	38				
Frontenac Central					
2010	-				
2015	40				
2030	595				
Annual Increase	30				
2040	2,386				
Annual Increase	80				
Frontenac North					
2010	-				
2015	56				
2030	919				
Annual Increase	46				
2040	3,966				
Annual Increase	132				

Table 3-4
Regional Roads Fiscal Impact for 30-Year Phase-in of Lifecycle Capital Needs
for Regional Road Network Option 2 and by Area Municipality

TOWNSHIP FUNDING IMPACTS (Capital Levy)	ROADS OPTION	COUNTY FUNDING SCENARIOS			
	2 1st Priority Township Roads Added	1 No Additional Funding	2 \$350,000 Social Service upload for 20 Years	3 \$350,000 Social Service upload for 20 Years with Inflation (2%)	4 #3 - plus \$110,000 Gas Tax allocation for 20 Years
	\$	\$	\$	\$	\$
TOWNSHIP Frontenac Islands					
2010	-	59	59	59	59
2015	206	126	116	115	112
2030	1,843	734	726	722	719
Annual Increase	92	34	33	33	36
2040	6,135	2,193	2,193	2,193	2,193
Annual Increase	204	71	71	71	71
Frontenac South					
2010	97				
2015	152				
2030	556				
Annual Increase	23				
2040	1,248				
Annual Increase	38				
Frontenac Central					
2010	-				
2015	56				
2030	760				
Annual Increase	38				
2040	2,827				
Annual Increase	94				
Frontenac North					
2010	-				
2015	73				
2030	1,024				
Annual Increase	51				
2040	3,949				
Annual Increase	132				

Table 3-5
Regional Roads Fiscal Impact for 30-Year Phase-in of Lifecycle Capital Needs
for Regional Road Network Option 3 and by Area Municipality

TOWNSHIP FUNDING IMPACTS (Capital Levy)	ROADS OPTION	COUNTY FUNDING SCENARIOS			
	3 2nd Priority Township Roads Added	1 No Additional Funding	2 \$350,000 Social Service upload for 20 Years	3 \$350,000 Social Service upload for 20 Years with Inflation (2%)	4 #3 - plus \$110,000 Gas Tax allocation for 20 Years
	\$	\$	\$	\$	\$
TOWNSHIP Frontenac Islands					
2010	-	59	59	59	59
2015	206	131	121	120	117
2030	1,843	786	777	773	771
Annual Increase	92	36	36	36	36
2040	6,135	2,343	2,343	2,343	2,343
Annual Increase	204	76	76	76	76
Frontenac South					
2010	97				
2015	154				
2030	576				
Annual Increase	24				
2040	1,305				
Annual Increase	40				
Frontenac Central					
2010	-				
2015	81				
2030	1,019				
Annual Increase	51				
2040	3,603				
Annual Increase	120				
Frontenac North					
2010	-				
2015	73				
2030	1,024				
Annual Increase	51				
2040	3,949				
Annual Increase	132				

4. FISCAL IMPACT ASSESSMENT

4. FISCAL IMPACT ASSESSMENT

4.1 Approach

Summarizing the components of the fiscal impact considered thus far:

- As described in Chapter 2, three Regional Road Network Options were modeled;
- Two lifecycle capital needs forecasts were developed for the 2010-2040 forecast period (i.e. full lifecycle and 30-Year phase-in); and
- Regional Roads Capital Funding Plans were developed for each of the Regional Road Network Options, based on the 30-Year Phase-in Lifecycle Capital Needs Forecast. Three Funding Scenarios were also considered (i.e. Status Quo, County, County with additional support), as previously described in Chapter 1.

Having addressed the capital funding needs, the fiscal impact methodology combines the capital-related net levy requirements with the forecast annual operating and maintenance costs for regional roads services. This provides a total net levy fiscal impact assessment for regional roads services. Subsequently, this information is projected relative to the overall municipal levy to quantify the impact of regional roads relative to the overall municipal net levy and tax rate.

In forecasting the regional roads annual operating and maintenance costs, the 2010 regional roads net tax levy was determined. Since, generally, the Townships do not maintain accounting records that would record regional road expenditures separately from all other Township roads, it was necessary for us to determine an appropriate benchmark to be used for this purpose.

From records maintained by each of the Townships, it was determined that the overall operating cost per lane kilometre for all area municipal and regional roads ranged from a low of approximately \$1,300 to a high of approximately \$3,400 (see Table 4-1). Moreover, based on North Frontenac budgets, the maintenance cost per lane kilometre for Highways 506 and 509 was approximately \$2,675. Seeking additional data to validate our benchmark cost assumptions, information was gathered from other Eastern Ontario Counties that reported county road information. Using this information, an average operating cost assumption of approximately \$2,600 per lane kilometre was ultimately determined.

For the purposes of calculating the 2010 regional roads net levy as our basis for the fiscal impact, the operating benchmark cost was applied to the lane kilometres of regional roads for each of the Townships. Furthermore, a 10% operating cost premium was applied for Frontenac Islands based on an assumed premium due to location. Utilizing this approach ensures that a common service level is being utilized to assess the fiscal impact, thus reducing further variability.

Table 4-1
Summary of Operating Cost Assumptions per Lane Kilometre
(2010\$)

Municipality	Financial Information Return(FIR) Benchmark Costs	Highway 506/509 Benchmark Costs	Comparative Benchmark Costs	Operating Cost Assumption Utilized
South Frontenac ¹	3,096			2,860
Central Frontenac	1,298			2,600
North Frontenac	1,812	2,673		2,600
Frontenac Islands	3,440			2,600
Other Eastern Ontario Counties			2,600	

Forecasting the net levy funding for other municipal services (i.e. services other than regional roads) it was assumed that, in real terms, the net levy would remain constant over the forecast period. As such, the calculated fiscal impact assumes that capital and operating levy funding for other services would increase from 2010 levels at the rate of inflation plus annual assessment growth.

4.2 Regional Roads Fiscal Impact

The fiscal impact analysis has been based on the lifecycle sinking fund approach described in Chapter 3. Under this approach, the capital levy would be increased to address the forecast capital needs and to achieve the long-term lifecycle sinking fund amounts. Annual contributions in excess of capital costs in a given year would be transferred to a Lifecycle Cost Replacement Reserve Fund for future capital replacement needs. This approach provides for a stable funding base, eliminating variances in annual funding requirements, particularly in years when capital replacement needs exceed typical capital levy funding. Operating and maintenance benchmark costs are then applied to the net capital levy to determine the overall regional roads net levy. This has been prepared for each Regional Roads Network Option and funding scenario.

Tables 4-2 through 4-4, summarize the tax impact per \$100,000 of taxable assessment for each funding scenario. Detailed financial plans for each fiscal impact scenario, containing the regional roads net levy and tax rate are contained in Appendices to this report.

¹ FIR data unavailable, estimate based on 90% of Frontenac Islands benchmark cost.

Based on the 2010-2040 regional roads fiscal impact modeling for the Regional Roads Network Option 1, in 2010 the Townships net levy for regional roads service based on \$100,000 of assessed value ranged between a low of \$54 in Central Frontenac and a high of \$192 in Frontenac Islands. Based on the status quo funding option, the 2040 regional roads net levy per \$100,000 of assessed value would range between a low of \$1,314 (or a \$39 annual increase) in South Frontenac and a high of \$6,386 (or a \$206 annual increase) in Frontenac Islands.

Once again, under the County funding options, the majority of Townships would benefit from a County funding model. In the near term (to 2015) the County funding model would result in a fiscal impact per \$100,000 of assessed value ranging from \$170 to \$184. By comparison, under the Status Quo funding option, the 2015 fiscal impact per \$100,000 would range from a low of \$98 in Central Frontenac to a high of \$406 in Frontenac Islands. As a result, the Townships of Frontenac Islands and South Frontenac would benefit over the near term from one of the County funding options. When compared over the longer term (i.e. 2040), only South Frontenac would have a lower overall fiscal impact per \$100,000 of assessed value, i.e. \$1,314 vs. \$2,220. All other municipalities would benefit from the County funding option.

Similar results are provided for the other Regional Road Network Options below:

Table 4-2
Regional Roads Fiscal Impact for 30-Year Phase-in of Lifecycle Capital Needs
for Regional Road Network Option 1 and by Area Municipality

TOWNSHIP FUNDING IMPACTS	ROADS OPTION	COUNTY FUNDING SCENARIOS			
	1 Provincial & County Roads	1 No Additional Funding	2 \$350,000 Social Service upload for 20 Years	3 \$350,000 Social Service upload for 20 Years with Inflation (2%)	4 #3 - plus \$110,000 Gas Tax allocation for 20 Years
	\$	\$	\$	\$	\$
TOWNSHIP Frontenac Islands					
2010	192	119	119	119	119
2015	406	184	174	173	170
2030	2,072	769	760	756	754
Annual Increase	94	33	32	32	38
2040	6,386	2,220	2,220	2,220	2,220
Annual Increase	206	70	70	70	70
Frontenac South					
2010	145				
2015	203				
2030	616				
Annual Increase	24				
2040	1,314				
Annual Increase	39				
Frontenac Central					
2010	54				
2015	98				
2030	667				
Annual Increase	31				
2040	2,471				
Annual Increase	81				
Frontenac North					
2010	67				
2015	130				
2030	1,018				
Annual Increase	48				
2040	4,088				
Annual Increase	134				

Table 4-3
Regional Roads Fiscal Impact for 30-Year Phase-in of Lifecycle Capital Needs
for Regional Road Network Option 2 and by Area Municipality

TOWNSHIP FUNDING IMPACTS	ROADS OPTION	COUNTY FUNDING SCENARIOS			
	2 1st Priority Township Roads Added	1 No Additional Funding	2 \$350,000 Social Service upload for 20 Years	3 \$350,000 Social Service upload for 20 Years with Inflation (2%)	4 #3 - plus \$110,000 Gas Tax allocation for 20 Years
	\$	\$	\$	\$	\$
TOWNSHIP Frontenac Islands					
2010	192	130	130	130	130
2015	406	201	191	190	187
2030	2,072	824	815	811	808
Annual Increase	94	35	34	34	40
2040	6,386	2,294	2,294	2,294	2,294
Annual Increase	206	72	72	72	72
Frontenac South					
2010	145				
2015	203				
2030	616				
Annual Increase	24				
2040	1,314				
Annual Increase	39				
Frontenac Central					
2010	84				
2015	147				
2030	874				
Annual Increase	39				
2040	2,960				
Annual Increase	96				
Frontenac North					
2010	104				
2015	184				
2030	1,158				
Annual Increase	53				
2040	4,101				
Annual Increase	133				

Table 4-4
Regional Roads Fiscal Impact for 30-Year Phase-in of Lifecycle Capital Needs
for Regional Road Network Option 3 and by Area Municipality

TOWNSHIP FUNDING IMPACTS	ROADS OPTION	COUNTY FUNDING SCENARIOS			
	3 2nd Priority Township Roads Added	1 No Additional Funding	2 \$350,000 Social Service upload for 20 Years	3 \$350,000 Social Service upload for 20 Years with Inflation (2%)	4 #3 - plus \$110,000 Gas Tax allocation for 20 Years
	\$	\$	\$	\$	\$
TOWNSHIP Frontenac Islands					
2010	192	140	140	140	140
2015	406	217	207	206	203
2030	2,072	888	879	875	873
Annual Increase	94	37	37	37	37
2040	6,386	2,458	2,458	2,458	2,458
Annual Increase	206	77	77	77	77
Frontenac South					
2010	149				
2015	209				
2030	640				
Annual Increase	25				
2040	1,377				
Annual Increase	41				
Frontenac Central					
2010	130				
2015	222				
2030	1,196				
Annual Increase	53				
2040	3,810				
Annual Increase	123				
Frontenac North					
2010	104				
2015	184				
2030	1,158				
Annual Increase	53				
2040	4,101				
Annual Increase	133				

4.3 Overall Fiscal Impact

Figures 4-1 through 4-4 illustrate the overall fiscal impact for each of the Townships, contrasting the impacts of the full lifecycle forecast and 30-Year lifecycle phase-in forecast for regional roads with the forecast municipal net levy for all services. The purpose of this comparison is to illustrate the relative fiscal impact of regional roads services to all other municipal services, accounting for no real increases in other services (i.e. only assessment and inflationary increases). These illustrations are provided for Regional Roads Network Option 1 only, corresponding graphs for all other regional road network options are contained in Appendices to this report.

Figure 4-1

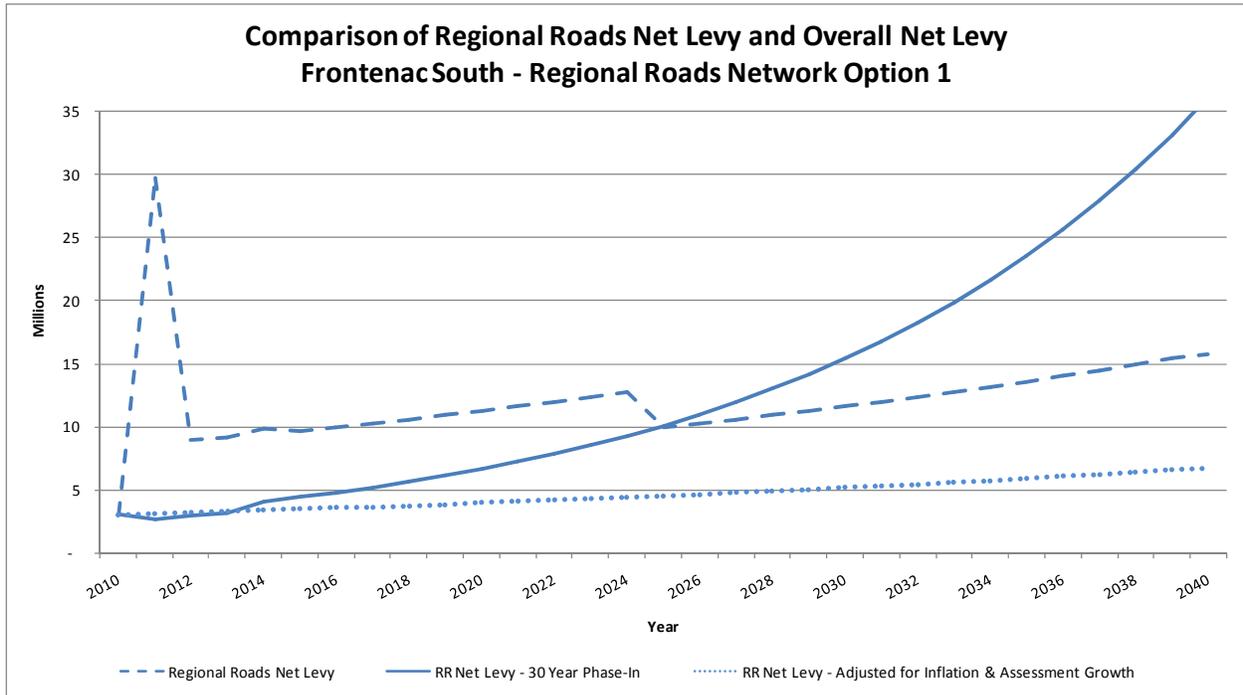


Figure 4-2

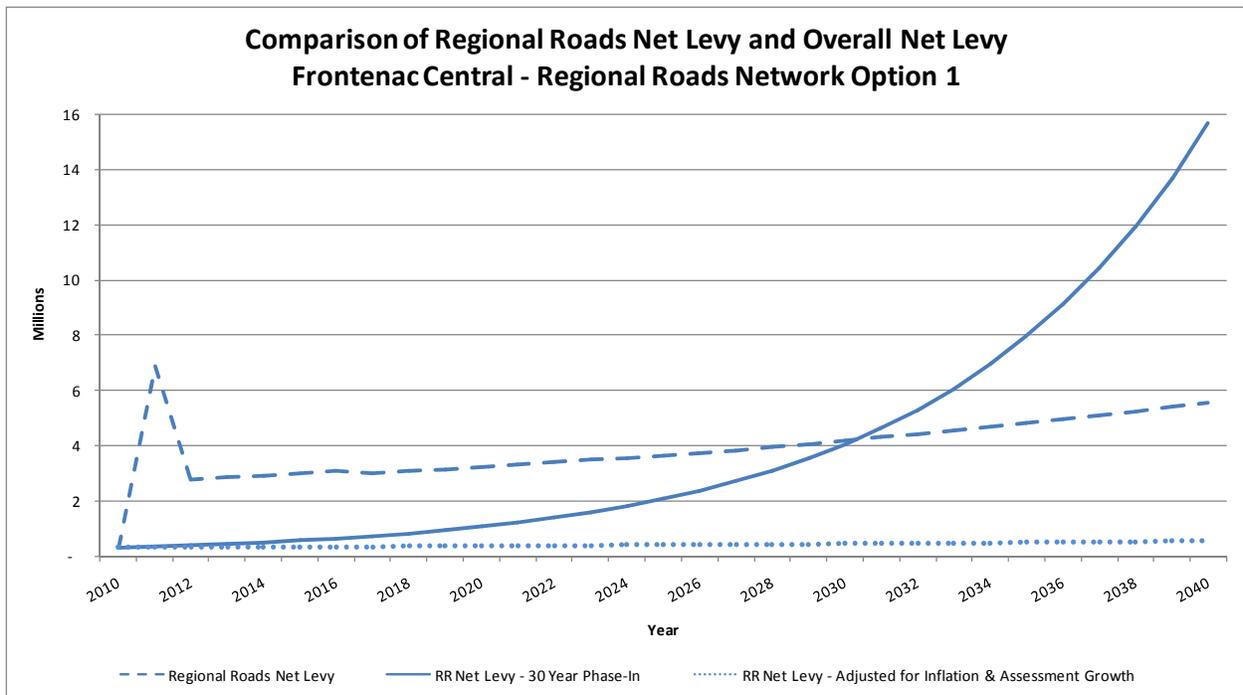


Figure 4-3

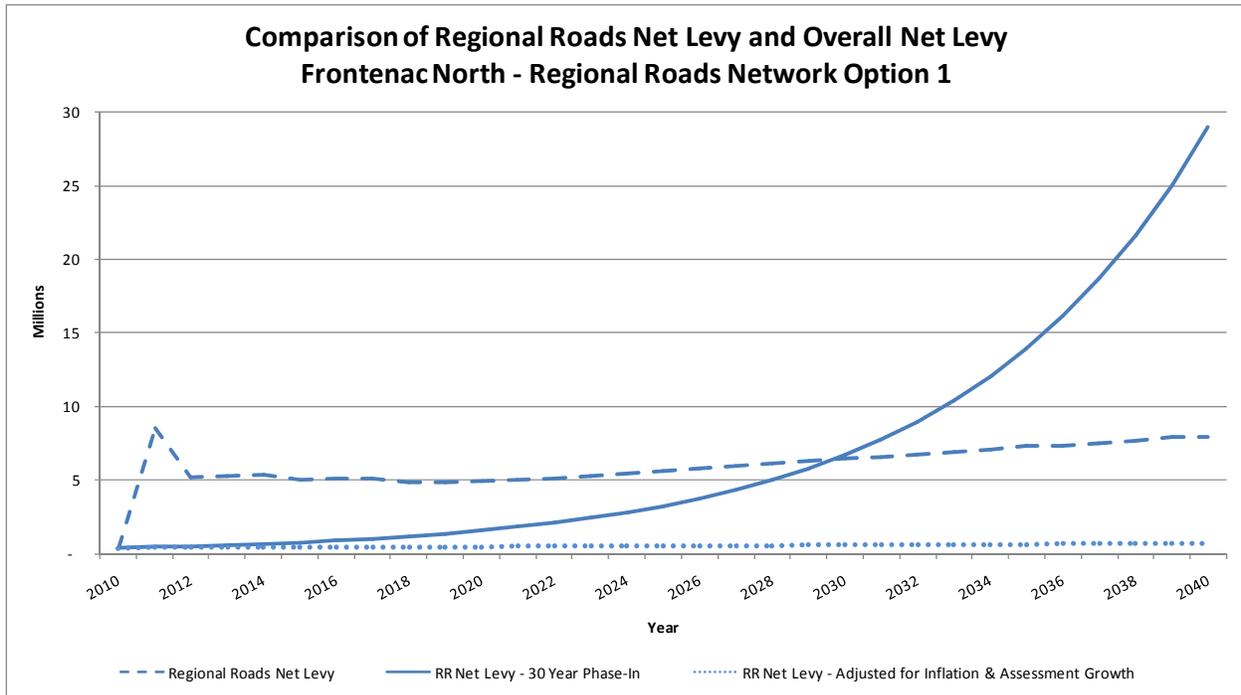
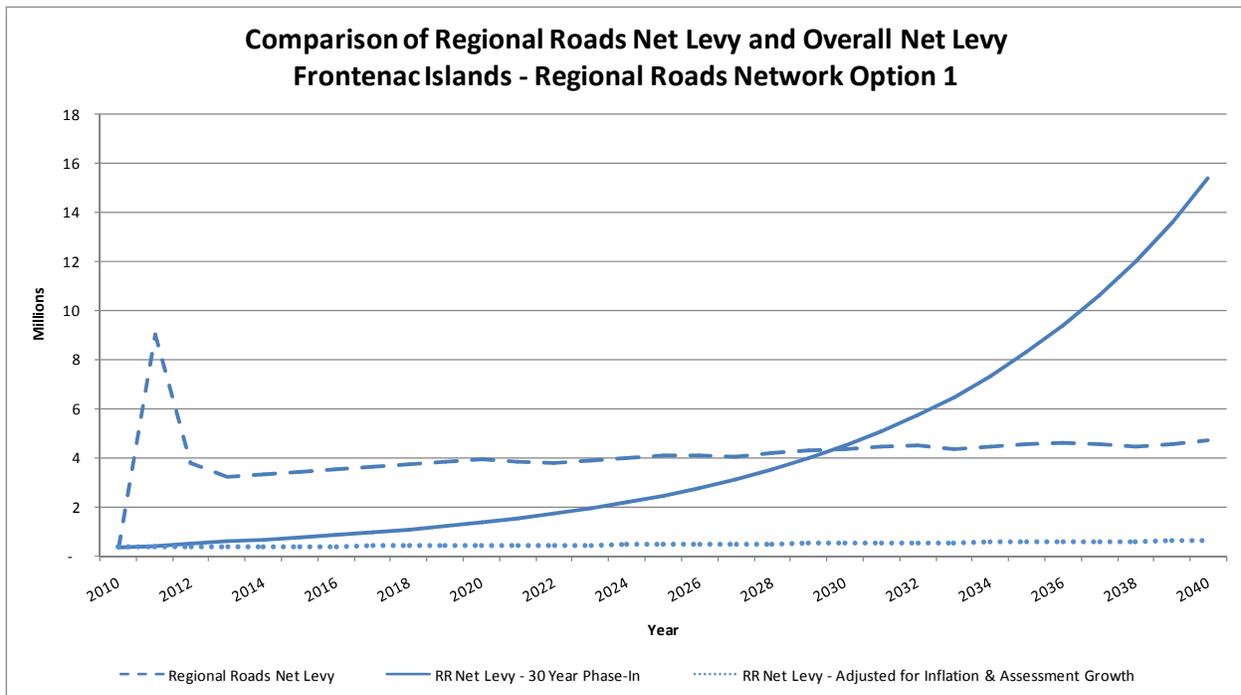


Figure 4-4



As illustrated above:

- South Frontenac - under the full lifecycle forecast, the regional roads net levy would increase by \$26.7 million in 2011 to fund the immediate requirements. Once this obligation is satisfied the regional roads net levy would decline to \$8.9 million in 2012 with inflation, then gradually increase to \$15.7 million by 2040. Under the 30-Year lifecycle phase-in the net levy increases gradually at an average annual rate of 8% annually. At around 2026, both the full lifecycle and 30-Year phase-in scenarios are at comparable funding levels (i.e. \$10.6 million). However, after this point, the 30-Year phase-in continues to increase significantly to address the increase capital cost of the immediate needs deferral (\$36.0 million by 2040). When comparing the regional roads forecast levy under the 30-Year phase-in forecast with inflationary and assessment growth adjustments for all other services (i.e. no real increase), non-regional roads services increase at an average annual rate of 2% annually. By comparison, the regional roads net levy increase is 5.4 times higher than that for all other services over the period.
- Central Frontenac – under the full lifecycle forecast, the regional roads net levy would increase by \$6.5 million in 2011 to fund the immediate requirements. Once this obligation is satisfied the regional roads net levy would decline to \$2.8 million in 2012, then gradually increase to \$5.5 million by 2040. Under the 30-Year lifecycle phase-in the net levy increases gradually at an average annual rate of 13% annually. Around 2031, both the full lifecycle and 30-Year phase-in scenarios are at comparable funding levels (i.e. \$4.1 million). However, after this point, the 30-Year phase-in continues to increase significantly to address the increase capital cost of the immediate needs deferral (\$15.6 million by 2040). When comparing the regional roads forecast levy under the 30-Year phase-in forecast with inflationary and assessment growth adjustments for all other services (i.e. no real increase), non-regional roads services increase at an average annual rate of 2% annually. By comparison, the regional roads net levy increase is 29 times higher than that for all other services over the period.
- North Frontenac – under the full lifecycle forecast, the regional roads net levy would increase by \$8.1 million in 2011 to fund the immediate requirements. Once this obligation is satisfied the regional roads net levy would decline to \$5.2 million in 2012 with inflation, then gradually increase to \$7.9 million by 2040. Under the 30-Year lifecycle phase-in the net levy increases gradually at an average annual rate of 15% annually. Around 2030, both the full lifecycle and 30-Year phase-in scenarios are at comparable funding levels (i.e. \$6.6 million). However, after this point, the 30-Year phase-in continues to increase significantly to address the increase capital cost of the immediate needs deferral (\$28.9 million by 2040). When comparing the regional roads forecast levy under the 30-Year phase-in forecast with inflationary and assessment growth adjustments for all other services (i.e. no real increase), non-regional roads

services increase at an average annual rate of 2% annually. By comparison, the regional roads net levy increase is 41 times higher than that for all other services over the period.

- Frontenac Islands - under the full lifecycle forecast, the regional roads net levy would increase by \$8.7 million in 2011 to fund the immediate requirements. Once this obligation is satisfied the regional roads net levy would decline to \$3.8 million in 2012 with inflation, then gradually increase to \$4.7 million by 2040. Under the 30-Year lifecycle phase-in the net levy increases gradually at an average annual rate of 23% annually. Around 2030, both the full lifecycle and 30-Year phase-in scenarios are at comparable funding levels (i.e. \$4.4 million). However, after this point, the 30-Year phase-in continues to increase significantly to address the increase capital cost of the immediate needs deferral (\$15.4 million by 2040). When comparing the regional roads forecast levy under the 30-Year phase-in forecast with inflationary and assessment growth adjustments for all other services (i.e. no real increase), non-regional roads services increase at an average annual rate of 2% annually. By comparison, the regional roads net levy increase is 25 times higher than that for all other services over the period.

5. CONCLUSIONS

5. CONCLUSIONS

5.1 Conclusions

Watson was retained to undertake a Fiscal Management Plan for the County of Frontenac Regional Roads System. Through discussions with the Project Steering Committee, three Regional Road Network Options were derived. The road length and 2010 replacement values for these regional road options are summarized as follows:

Regional Road Network Option	Road Length (km)	Replacement Value (2010\$)
Option 1 – Downloaded Provincial Highways and Former County Roads	381.8	\$254.1 million
Option 2 – Option 1 + existing area municipal roads of County status in North Frontenac and Central Frontenac	454.4	\$284.3 million
Option 3 – Option 2 + existing area municipal roads that connect to County roads in neighbouring jurisdictions	519.4	\$309.4 million

Considering the lifecycle capital needs of the regional road assets, based on each municipality's PSAB 3150 inventory data with adjustment for benchmark cost data, there is a significant cumulative amount of immediate capital needs. The following summarizes the amount of immediate capital needs for each Regional Road Network Option:

- Regional Road Network Option 1 - \$37.2 million (or 15% of current replacement value)
- Regional Road Network Option 2 - \$38.5 million (or 14% of current replacement value)
- Regional Road Network Option 3 - \$42.2 million (or 14% of current replacement value)

Based on the review of the regional roads asset data, the current road assets represent a significant amount of assets of importance to inter-County transportation. Moreover, a significant amount of these assets require immediate attention in the near term, particularly in light of the regional roads funding agreement with the City of Kingston due to lapse in 2013 removing approximately \$700,000 in annual funding.

A capital funding plan was developed for two capital forecast scenarios, the Full Lifecycle Capital Needs Forecast and the 30-Year Phase-in Lifecycle Capital Needs Forecast. While the

first forecast is provided to illustrate the regional roads funding gap, the latter is provided as a strategy to gradually move toward lifecycle sustainability for these assets. The fiscal impact assessment identifies that the needs for the increased funding are largely required to address capital needs. However, operating and maintenance costs were also forecast for the regional roads system based on benchmark costs to minimize the influence of service levels differences in the analysis.

The fiscal impact assessment for regional roads services considered multiple funding scenarios, including:

- Status Quo - whereby the Township would continue to fund regional roads
- County Funding – where the County would fund regional roads
- County Funding with Additional Support – where additional sensitivity options for social service upload and gas tax funding support were provided to fund regional roads under the County funding structure

Based on the findings of the fiscal impact modeling, the regional roads funding impact, particularly for capital needs, will place a significant financial burden on the Townships over the forecast period. This is largely as a result of the significant amount of capital needs and the lack of taxation support currently being provided to the regional roads system beyond grant funding. The regional roads funding impact is greatest for Frontenac Islands, particularly given its amount of regional roads assets relative to its assessment base. By comparison, South Frontenac is impacted the least. However, all fiscal impacts are significant with average tax increase of \$70/100,000 of assessed value being required over the forecast period.

In considering the fiscal impacts for the regional roads system, the County Funding Options appear to provide the greatest overall benefit to the majority of Townships. However, this comes at a cost to the Township of South Frontenac, increasing the fiscal impact per \$100,000 of assessed value by an additional \$31 to \$36 annually over the 2010-2030 period, and more significantly to over the 2040 forecast period.

In conclusion, the fiscal impact modeling demonstrates that there is a significant need to address sustainable capital funding issues for the regional roads system in Frontenac County. It is recommended that further work be undertaken on the County Transportation Management Plan in order to refine and better quantify specific capital demands and asset management choices.

Moreover, the study results suggest that a County funding option should be given further consideration. By smoothing, and thereby minimizing, future tax impacts to all County constituents, the provision of a better and more consistent overall level of service to all residents and businesses for regional roads will be facilitated. By the very nature of their regional benefit, the cost of maintaining regional roads should ideally impact County constituents in a relatively

uniform manner. This is particularly important in light of scarce municipal funding to address a continuing overall needs deficit, unless a significant strategic action is identified and supported.

**APPENDIX A – DETAILED FISCAL IMPACT MODEL RESULTS
FOR SOUTH FRONTENAC**

**APPENDIX B – DETAILED FISCAL IMPACT MODEL RESULTS
FOR CENTRAL FRONTENAC**

**APPENDIX C – DETAILED FISCAL IMPACT MODEL RESULTS
FOR NORTH FRONTENAC**

**APPENDIX D – DETAILED FISCAL IMPACT MODEL RESULTS
FOR FRONTENAC ISLANDS**

**APPENDIX E – DETAILED FISCAL IMPACT MODEL RESULTS
FOR COUNTY FUNDING OPTIONS**

