For Information Only

Summer Roads Maintenance - Zero Base Budget

Presented To:	Finance Committee
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Recommendation

For Information Only

Finance Implications

The 2012 Summer Roads Maintenance budget was developed using a zero base budgeting methodology in conjunction with the Budget Preparation Policy. The Infrastructure Services Department and the Finance Department are currently undertaking the development of a Ten Year Fiscal Sustainability Plan for Roads, which will detail the annual operating budget requirements as well as the 10 year capital requirements. The plan will be made available to Council prior to the 2013 budget.

Background

See Attached Report.

Signed By

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Introduction

In 2010, the City's Chief Financial Officer/Treasurer presented a report to the Policy Committee titled Toward Fiscal Sustainability. Council subsequently adopted Resolution 2010-32 which states "That zero base budgeting be implemented, or alternatively another budget method adopted by Council, to be done department by department, starting in 2012, commencing with Infrastructure Services."

It was determined that staff would implement zero base budgeting for the 2012 Summer Roads Maintenance program.

Methodology for the 2012 Summer Roads Maintenance Budget

The development of a zero base budget for the 2012 Summer Roads maintenance program was completed in five steps described as follows.

The **first step** was to **verify and update the inventory of assets** for which the Roads Division is responsible. In this regard, the Roads Division is responsible for an asset inventory that includes, but is not limited to approximately:

- 3,600 lane km of roadway.
- 350 km of sidewalk.
- 1,100 km of curb and gutter
- 14,000 manholes and catch basins
- 30,000 signs.
- 254 km of storm sewer

The **second step** was to **determine the summer maintenance requirements** on each type of roads asset. This includes the type of work required and the frequency with which this type of work needs to be performed on the asset. The summer maintenance budget is developed using best maintenance practices as described in the Ministry of Transportation Maintenance Manual and local experience of the summer roads maintenance program. While some of the best management practices dictate a frequency of maintenance, others dictate an end result specification. An example of an end result specification is that a catch basin shall not have its sump filled to capacity impeding drainage. The frequency of the maintenance required to remove the debris in the sump is based on the local knowledge of operating the drainage system.

The **third step** was to **define how work was to be performed** in the most effective manner and with the most efficient use of resources. This included reviewing the work process, including the required units of labour, materials, equipment and contractors to perform each type of work.

The **fourth step** was to **apply current unit costs** to the work plan developed above.

The **fifth step** was to **review the work program** and re-question all assumptions and processes to ensure that the result is an effective work program that maintains the assets under the responsibility of the Roads Division, provides for public safety and forms the basis for productivity standards which will enable comparison to actual production.

2012 Summer Roads Maintenance Budget

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The 2012 Summer Roads Maintenance budget is categorized into seven (7) separate cost centres. These cost centres are delineated based on the assets in the road network. Within each cost centre are separate work activities and the respective budgets that serve to maintain the City's road network. Table 1 below provides the cost centres and the type of work that is budgeted for in each of the cost centres.

TABLE 1 - SUMMER ROADS MAINTENANCE COST CENTRES

COST CENTRE	TYPE OF WORK
SURFACE & SHOULDER	Pavement & Gravel Maintenance
ROADSIDE MAINTENANCE	Brushing, Debris Collection
SIDEWALK & CURB	Sidewalk & Curb Repairs
DRAINAGE STRUCTURES	Storm Sewers, Catch Basins, Culverts, Bridges
TRAFFIC & SAFETY	Signalization, Line Painting, Signs
FORESTRY	Tree removal, pruning, planting
MISCELLANEOUS	Inter Departmental Recoveries, Fringe Benefits, Supervision

Within each cost centre different activities are budgeted for and continue to be tracked monthly both in terms of actual production and cost. This enables supervisory staff to compare production to the budgeted standard and make any adjustments necessary to achieve the standard. The number of work units and unit costs will continue to be reviewed and adjusted annually as necessary.

The 2012 Summer Roads Maintenance Budget developed using a zero base budget methodology resulted in a required budget of $18 Million or some 34 percent above the 2011 budget. A brief summary on how the Summer Roads Maintenance Budget has evolved since 2006 including the 2012 zero based budgeting result is shown in **Appendix A** attached.

The Infrastructure Services Department and the Finance Department are undertaking the development of a Ten Year Financial Sustainability Plan for Roads. This plan will be available to Council prior to the 2013 Budget. The plan will outline in detail the annual operating budget requirements as highlighted herein, as well as the 10 year Capital requirements.

Therefore, staff developed the 2012 Summer Roads Maintenance Budget utilizing the information obtained from the zero base budget build while adhering to the budgetary guidelines established by Council. The recommended 2012 Summer Roads Maintenance Budget is summarized in Table 2 below.

TABLE 2: Summer Roads Maintenance Budget- 2012 vs. 2011				
Cost Centre	2011 Budget ($)	2012 Budget ($)	Variance ($)	Variance (%)
Surface & Shoulder	3,747,049	4,056,320	309,271	8.3
Roadside Maintenance	637,090	485,150	-151,940	-23.8
Sidewalk & Curb	305,747	268,677	-37,070	-12.1
Drainage Structures	2,535,982	2,622,056	86,074	3.4
Traffic & Safety	2,034,645	2,106,081	71,436	3.5
Forestry	580,390	598,660	18,270	3.1
Miscellaneous	3,620,573	3,718,792	98,219	2.7
TOTAL	$13,461,476	$13,855,736	$394,260	3%

The 2012 zero base budget as compared to the 2011 budget has identified some significant variances in work unit requirements in the various cost centres.

The most notable change is that the 2012 budget for Roadside Maintenance Cost Centre has been reduced by approximately 24 percent or $152,000. This is a result of the reduced need for the Miscellaneous Roadside maintenance activity within this cost centre. By identifying all the work activities that need to be performed the "miscellaneous" work activity within this cost centre has been significantly reduced. In 2011 the budget for this activity was approximately $180,000; in 2012 it will be $15,000.

Conversely, the Surface and Shoulder Cost Centre has been increased by approximately 8 percent or $309,000. It was identified that more surface and shoulder maintenance of the roads is required. Activities such as gravel resurfacing, gravel shouldering and asphalt patching are activities within this cost centre that have been increased.

In addition to the above changes there are numerous smaller re-allocations between work activities within each cost centre. Some examples are:

- $85,000 decrease in mechanical ditching
- $20,000 increase for culvert replacements
- $43,000 decrease for dust control on gravel shoulders on paved roads
- $128,000 increase for dust control on gravel roads

Overall, the 2012 Summer Roads Maintenance program has generated a 3 percent increase. However, when combined with the Winter Roads Maintenance budget the overall increase in the Roads Maintenance budget is approximately 2 percent and within budget guidelines.

Next Steps

The Infrastructure Services Department and the Finance Department are undertaking the development of a Ten Year Financial Sustainablilty Plan for Roads. This plan will be available to Council prior to the 2013 Budget. The plan will outline in detail the annual operating budget requirements as highlighted herein, as well as the 10 year Capital requirements.

Staff will also provide various phase in alternatives for Council's consideration.

Appendix "A"

Summer Roads Needs

History

In 2006 an Ad Hoc Committee consisting of staff and a Covenco management consultant reviewed the Summer Roads Maintenance program. The committee recommended that the summer maintenance program be increased by $6 million annually to meet identified needs. In 2008, a budget option was put forward requesting that the annual summer maintenance budget be increased by $1.5 Million per year for 4 years. In 2008, Council approved a $750,000 permanent budget increase and one-time funding of an additional $750,000. Similar budget options were presented to Council in subsequent years resulting in one-time funding of $750,000 being approved in 2009 and 2011. There was no increase in funding approved in 2010.

Current

The zero base budget build undertaken for the 2012 budget updated and further defined the overall needs for the summer roads maintenance program. Table 3 below outlines the recommended service levels that were identified using the zero base budget approach to Summer Roads maintenance. Table 3 also compares the 2012 Summer Roads maintenance budget and the associated service levels. Examples of activities in each cost centre have been identified in Table 3. A full detailed list of activities by cost centre can be found in **Appendix B.** The Recommended budget is the service level required to adequately maintain the City's roads according to the methodology used for the 2012 budget as outlined above.

TABLE 3 - SERVICE LEVELS				
	Recommended		2012 Base Budget	
DESCRIPTION	Service Level	Budget	Service Level	Budget
SURFACE & SHOULDER				
Asphalt Patching	1.8 T/km	1,303,000	1.48 T/km	1,092,000
Contract Patching	25,000 sq. meter	1,000,000	8,000 sq. metre	310,000
Gravel Resurfacing	20 yr. cycle	1,075,000	80 yr. cycle	257,000
Sub-total		**6,727,324**		**4,056,320**
ROADSIDE MAINTENANCE				
Roadside Brushing	5 yr. cycle	66,000	5 yr. cycle	66,000
Sub-total		**486,198**		**485,150**
SIDEWALK & CURB				
Curb & Sidewalk Replacement	400 linear metre	175,000	400 linear metre	175,000
Sub-total		**276,734**		**268,677**
DRAINAGE				
Cathbasin & Manhole Repairs	20 yr. cycle	848,646	29 yr. cycle	595,380
Catchbasin & Manhole Cleaning	2 yr. cycle	993,713	5.5 yr.cycle	365,540
Sub-total		**3,627,369**		**2,622,056**
TRAFFIC & SAFETY				
Signs Manufacture	1800 signs/year	153,000	1795 signs/year	152,500
Sub-total		**2,159,371**		**2,106,081**
FORESTRY				
Tree Removal	400 trees/year	173,523	375 trees/year	162,500
Tree Pruning	1600 trees/year	258,275	1576 trees/year	254,340
Sub-total		**658,374**		**598,660**
SUB-TOTAL (ex. Miscellaneous)		**13,935,371**		**10,136,944**
MISCELLANEOUS				
Fringe Benefits, Supervision, Inter-departmental Recoveries		4,050,700		3,718,792
Sub-total		**4,050,700**		**3,718,792**
TOTAL		**18,041,637**		**13,855,736**

The recommended level of funding for Summer Maintenance that was generated using the zero base budget build represents an approximate $4 million gap between the needs and the 2012 budget. This is significantly lower than the $6 million gap defined by the Ad Hoc Committee on Summer Roads Maintenance in 2006. This is a result of Roads Staff reassessing/reviewing how needs are defined and how results are achieved. Some examples are:

-Theoretically, gravel roads should be resurfaced every 10 years. Staff reviewed this from a practical perspective and identified that the traffic volume on gravel roads needs to be considered. The result is that the City of Greater Sudbury's gravel roads can be classified into low, medium and high volume roads, with resurfacing cycle requirements of 30, 20 and 10 years respectively. This resulted in an approximate $400,000 reduction to the Summer Roads Maintenance needs.

-Curb and sidewalk replacement has been reduced by approximately $300,000 due to a more coordinated approach with the Roads capital budget to receive lower per metre costs on higher volume purchases.

-The incorporation of spot dust control in low density areas versus full application has reduced the cost of this work activity by approximately $400,000; $395,000 of which is in materials.

In addition the reduction in the funding gap is also a result of Council's will to permanently increase the base Summer Roads maintenance budget by $750,000 in 2008.

Another benefit from the zero base budget build is that steps are being taken to eliminate and/or minimize capital requirements for new equipment by:

-Implementing/increasing cross division equipment sharing.

-Implementing multiple shifts for "routine work" in the summer months. This can be used to generate economies of scale on large pieces of equipment, thereby spreading the fixed costs over an increased number of work units and minimizing capital expenditures.

APPENDIX B -Cost Centre Work Units by Service Level						
Cost Centre	**Work Activity**	**Measurement**	**Recommended Units**	**Recommended Budget**	**2012 Base Budget**	**2012 Base Budget**
Drainage	Mechanical ditching- Spot	Linear Metres	2,678	30,200	2,678	30,200
Drainage	Mechanical ditching- Contract	Linear Metres	50,889	558,444	50,524	554,440
Drainage	Manual ditching- Backyards	Man Hours	265	9,078	262	8,990
Drainage	Beaver Dams -off take and Maintenance	Man Hours	1,291	77,442	1,234	74,000
Drainage	Bridge Maint Clean and Inspect	Bridge	90	108,273	88	97,820
Drainage	Road Culvert maint	Linear Metres	1,550	344,285	1,550	344,440
Drainage	Culvert cleaning	Linear Metres	5,906	78,960	5,906	78,960
Drainage	Entrance culvert resets	Linear Metres	295	58,943	279	55,760
Drainage	Entrance culvert replacement	Linear Metres	591	133,519	302	68,270
Drainage	New entrance culverts	Linear Metres	36	12,175	30	10,010
Drainage	Revenue			-122,577		-89,474
Drainage	Hydro			14,700		14,700
Drainage	Storm sewage repairs	Linear Metres	508	244,706	401	193,070
Drainage	Storm sewer clean and inspect	Linear Metres	21,603	166,993	19,415	150,080
Drainage	Catchbasin and Manhole Cleaning	Facility	7,101	993,713	2,612	365,540
Drainage	catch basin and manhole repairs < 1 ft	Repair	511	405,648	399	316,310
Drainage	catch basin and manhole repairs >1 ft	Repair	180	442,998	113	279,070
Drainage	Screens and Inlets	Facility	1,840	69,870	1,840	69,870
Drainage Total				3,627,369		2,622,056
Forestry	Tree Replacement	Trees	200	32,777	179	29,360
Forestry	Tree Removal	Trees	400	173,523	375	162,500
Forestry	Tree Pruning	Trees	1,600	258,275	1,576	254,340
Forestry	Tree Stumping	Trees	60	25,949	58	25,280
Forestry	Contribution to Reserve/User Fees			-98,759		-91,510
Forestry	Benefits			167,850		159,000
Forestry	Tree Planting	Trees	400	98,759	242	59,690
Forestry Total				658,374		598,660
Roadside Maintenance	Sidewalk Sweeping	Pass KM	1,620	60,480	1,615	60,310
Roadside Maintenance	Flail Mowing	Pass KM	5,361	203,970	5,361	203,970
Roadside Maintenance	Roadside Brushing - Manual	Pass KM	27	16,950	27	16,950
Roadside Maintenance	Roadside Brushing - Mechanical	Pass KM	509	49,110	509	49,110
Roadside Maintenance	Hand Mowing	Pass KM	976,195	98,803	968,953	98,070
Roadside Maintenance	Debris pickup	Man Hours	1,220	41,916	1,216	41,770
Roadside Maintenance	Misc. Roadside Mtce.	Man Hours	330	14,970	330	14,970
Roadside Maintenance Total				486,198		485,150
Sidewalk & Curb	Curb and Sidewalk Padding	KM	6	89,297	5	81,347
Sidewalk & Curb	Stairs, Pedestrian Underpasses & Footbridges	Man Hours	249	12,207	247	12,100

APPENDIX B -Cost Centre Work Units by Service Level						
Cost Centre	**Work Activity**	**Measurement**	**Recommended Units**	**Recommended Budget**	**2012 Base Budget**	**2012 Base Budget**
Sidewalk & Curb	Curb and Sidewalk Replacement	Linear Metres	400	175,230	400	175,230
Sidewalk & Curb Total				276,734		268,677
Surface & Shoulder	Asphalt Patching- Hot/Cold mix	Tons/KM	5,353	1,303,209	4,486	1,092,140
Surface & Shoulder	Asphalt Surface Patching- Grinding	Lane KM	30	681,596	22	495,980
Surface & Shoulder	Contract Patching	Square Metres	25,000	1,000,000	7,751	310,030
Surface & Shoulder	Surface Treatment Preparation	KM	29	221,020	29	221,020
Surface & Shoulder	Gravel Patching	Tonnes	19,047	801,016	5,644	237,350
Surface & Shoulder	Washout	Incident	2,506	226,599	2,404	217,370
Surface & Shoulder	Gravel Resurfacing	KM	37	1,073,295	9	256,790
Surface & Shoulder	Gravel Grading	KM	6,349	331,413	6,317	329,720
Surface & Shoulder	Dust Control Gravel Shoulder	Shoulder KM	268	56,130	268	56,130
Surface & Shoulder	Dust Control Gravel Roads	Pass KM	556	239,920	553	238,630
Surface & Shoulder	Gravel Shoulder Patching	Tonnes	1,308	479,316	868	318,150
Surface & Shoulder	Roads Restoration	Man Hours	1	55,950	1	25,230
Surface & Shoulder	Manual Sweeping summer	Man Hours	200	6,400	200	6,400
Surface & Shoulder	Machine sweeping summer	Pass KM	3,799	138,650	3,799	138,650
Surface & Shoulder	Intersection sweeping summer	Intersection	150	38,760	150	38,760
Surface & Shoulder	Street flushing summer	Pass KM	1,034	28,580	1,041	28,580
Surface & Shoulder	TI - Roads Section	Man Hours	1,289	45,469	1,287	45,390
Surface & Shoulder Total				6,727,324		4,056,320
Traffic & Safety	Lane Line Marking	Pass KM	1,200	340,330	1,200	340,330
Traffic & Safety	Pre-Marking	Pass KM	480	16,537	458	15,770
Traffic & Safety	Special Marking	Mark	2,500	180,146	2,481	178,760
Traffic & Safety	Preparation Time	Man Hours	120	19,337	119	19,180
Traffic & Safety	Sign Manufacture	Sign	1,800	152,955	1,795	152,510
Traffic & Safety	Sign Maintenance	Sign	3,000	315,608	2,999	315,490
Traffic & Safety	Traffic Signal Maintenance	Incident	1,000	427,780	1,000	427,780
Traffic & Safety	Railway Maintenance	Contract	1	285,000	1	285,000
Traffic & Safety	Flex Beam Painting	Post	1,004	36,080	990	35,580
Traffic & Safety	Guide post replacement	Post	427	161,582	296	111,940
Traffic & Safety	Misc. Traffic & Safety Device Mtce.	Man Hours	500	30,351	496	30,090
Traffic & Safety	Radar Speed Monitoring	Man Hours	80	4,345	80	4,330
Traffic & Safety	Hydro			189,321		189,321
Traffic & Safety Total				2,159,371		2,106,081
Grand Total				13,935,371		10,136,944