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2004 CAPITAL IMPROVEMENT PROGRAMS FOR INTERSECTIONS, BRIDGES AND RESURFACING

The Transportation and Works Committee recommends the adoption of the recommendations contained in the following report, April 21, 2004, from the Commissioner of Transportation and Works:

1. RECOMMENDATION

It is recommended that:

1. The following report be received for information by the Transportation and Works Committee and Regional Council.

2. PURPOSE

The purpose of this report is to provide the list of projects to be carried out in the rehabilitation, resurfacing, intersection improvements, railway crossings, and bridge and culvert works programs included in the approved 2004 Business Plan and Budget. Funding for these programs is generally shown as a single line account in the Budget. The work programs in each account are flexible and adjusted as priorities change.

3. BACKGROUND

The following provides information on how each of the intersections, bridges, and resurfacing capital programs is managed.

3.1 Intersection Improvements – Miscellaneous Capital Improvements

Departmental staff maintains a candidate list of approximately 100 intersections which are approaching capacity, where signal warrants are close to being met, or where other operational problems or safety concerns have been observed. These intersections are placed on the candidate list, as a result of personal observation by Regional staff, from routine capacity analysis based on traffic counts, and on the consideration of comments from residents and local municipalities' staffs.

Priorities for intersection improvement and/or the installation of traffic signals are established based on Provincial/Regional warrants for the improvements under consideration. Higher priority sites are monitored annually and programmed for construction when all relevant warrants are met, subject to budgetary constraints.

In the past, much of the budget for intersection improvements has been applied to the widening of major intersections and the installation of traffic signals in areas where land development has taken place.

The approved budget for this work in 2004 is \$2,183,000.

3.2 Intersection Improvements – Various Railway Crossing Improvements

Railway crossing improvements may be warranted because of changes to railway facilities (i.e. adjusting the elevation or the addition of tracks), the poor condition of the surface of the crossing or the need to improve the level of protection provided for road users. The Region is required to share in the cost of railway crossings, as directed by the Railway Safety Act.

Departmental staff and railway staff meet regularly to determine the needs for improvements, to prioritize them and to plan and implement the work.

In the past, the funding for this work was included in the “miscellaneous capital improvements” program.

The approved budget for this work in 2004 is \$350,000.

3.3 Bridge Rehabilitation – Miscellaneous Bridge and Culvert Rehabilitation

This program deals with bridges and culverts with a span of three metres or more. All bridges and culverts in this category are required to be inspected every two years, in accordance with the Ontario Structure Inspection Manual. The Region engages a consultant to inspect all bridges in this category every other year. Any deficiencies are recorded with a recommendation on the timing and priority of the repair required. From the records of the inspection procedure, a five-year program of rehabilitation is developed. Major projects typically involve the replacement of a structure or land acquisition, which requires a Class Environmental Assessment.

The approved budget for this work in 2004 is \$2,308,000.

3.4 Resurfacing – Various Road Resurfacing

Typically, each Regional road section is surveyed every other year to assess the frequency and severity of deficiencies in the road structure. The deficiencies recorded are rutting, roughness and cracking. From this, a pavement condition index is generated for every section. Computer software is then used to evaluate the benefit that could be gained from each of various options for improving the road structure (i.e. overlay, reconstruction, recycling, etc.) compared with the costs.

The software then optimizes the network-wide benefits by selecting treatments and priorities for each road section within the funding allocated in the Ten-Year Road Construction Program. This represents a “draft rehabilitation program”, which staff review and modify as necessary to define the five-year resurfacing program.

Typically, staff may amend the computer generated program to avoid having undue congestion in a corridor where a capital project and a resurfacing project may have been

programmed for the same year, or in cases where a road is advanced in priority because the surface course is breaking off, thereby, creating a legal safety concern, for example.

The approved budget for this work in 2004 is \$6,291,000.

3.5 Five-Year Intersections, Bridges and Resurfacing Capital Road Program

For each of the four components of the Five-Year Intersections, Bridges and Resurfacing Capital Road Program outlined above, Regional staff prepares a five-year program of construction. These programs are flexible, as each responds to constantly changing conditions and forecasts of future conditions. Typically, the projects programmed for the first and second years can be expected to follow the schedule fairly closely because the warrants and needs are based on firm data rather than forecasts. Projects scheduled in the later years of a program are regarded as having a flexible implementation date as they are based more on forecasts than observed information. Ongoing monitoring, analysis and evaluation are used to refine and define each program and to develop a “rolling” five-year program.

Some key factors that affect these programs are:

- The uncertainty of the scale and pace of land development on a given site. This affects the timing of intersection improvements.
- Winter conditions may affect road surfaces differently, causing major pot-holes for example. This affects the resurfacing priorities.
- A culvert may collapse, or erosion caused by unusual stream conditions may occur. This affects the Bridge and Culvert Rehabilitation Program.

4. ANALYSIS AND OPTIONS

The projects identified for construction in 2004 from the analysis and evaluation procedures described in Section 3, for each of the four programs, are as shown in the following tables.

The programs shown here are based on available estimates. It may be necessary to amend the programs once contract prices become available to meet budgetary constraints.

It should also be noted that, as the year goes on, priorities may change which could result in the addition or deletion of a project in any of the four programs.

4.1 Intersection Improvements – Miscellaneous Capital Improvements

Table 1
Miscellaneous Capital Intersection Improvements
2004 Program

Intersection	Location	Municipality	*Type of Improvement
16th Avenue	Granton Drive	Richmond Hill	TS(N)
16th Avenue	Stone Mason Drive/ Mingay Avenue	Markham	TS(N)
Bathurst Street	Queensville Sideroad	East Gwillimbury	G/I
Bayview Avenue	Carberry Street	Newmarket	TS(N)
Bayview Avenue	Stone Road (north)	Aurora	TS(N)
Bayview Avenue	Stone Road (south)	Aurora	TS(N)
Black River Road	Maple Avenue	Georgina	I
Dufferin Street	Viceroy Road	Vaughan	TS(M)/I
Islington Avenue	Sunset Ridge/Spring Berry Gate	Vaughan	TTS
Keele Street	Gantner Gate	Vaughan	TS(N)
Keele Street	Vista Gate	Vaughan	TS(N)
Kennedy Road	Unionville GO Station/ Helen Avenue	Markham	TS(M)
Langstaff Road	Planchet Road	Vaughan	TS(N)
Leslie Street	Ivsbridge Boulevard/ Kingdale Road	Newmarket	TS(N)
Major Mackenzie Drive	Vellore Woods Boulevard	Vaughan	TS(N)
Metro Road	Old Homestead Road	Georgina	G
Mount Albert Road	Grist Mill Road	East Gwillimbury	G/I

Ninth Line	Tiers Gate/White Hill	Markham	TTS(N)
Rutherford Road	Fossil Hill Road	Vaughan	TS(N)
Warden Avenue	Catering Road	East Gwillimbury	I
Woodbine Avenue	Baseline Road	Georgina	I
Yonge Street	Jefferson Forest Drive/ Tower Hill Road	Richmond Hill	TS(N)

TS(N) - New Traffic Signals

TS(M) - Traffic Signal Modification

I - Illumination

G - Geometric Improvement

Funding available for 2004 - \$2,183,000.

4.2 Various Railway Crossing Improvements

Table 2
Various Railway Crossing Improvements
2004 Program

Site Description	Location	Municipality	Work Proposed
Green Lane	East of 2 nd Concession	East Gwillimbury	Railway Crossing Rehabilitation
Mulock Drive	West of Bayview Avenue	Newmarket	Railway Crossing Rehabilitation
Weir's Road	South of Old Homestead Road	Georgina	Railway Crossing Rehabilitation
McCowan Road	North of Davis Drive	East Gwillimbury	Railway Crossing Rehabilitation
Kennedy Road	North of St. John's Sideroad	Whitchurch- Stouffville	Railway Crossing Rehabilitation
Aurora Road	East of Woodbine Avenue	Whitchurch- Stouffville	Railway Crossing Rehabilitation

Funding available for 2004 - \$350,000

4.3 Bridge Rehabilitation – Miscellaneous Bridge and Culvert Rehabilitation

Table 3
Bridge Rehabilitation
Miscellaneous Bridge and Culvert Rehabilitation
2004 Program

Site Description	Work Proposed
<u>Bridges</u>	
Yonge Street – 0.69 km north of Steeles Avenue	Rehabilitation of wearing surface
Kennedy Road - 0.40 km north of Highway 7	Repair transverse joints, repair embankments, rehabilitation wearing surface
High Street - 0.95 km north of Highway 48	Repair transverse joints, repair railing, rehabilitation wearing surface
King Road - 1.98 km east of Bathurst Street	Rehabilitation of wearing surface
Bayview Avenue - 0.01 km north of Highway 7	Seal cracks in concrete
14th Avenue - 0.87 km east of Reesor Road	Repair railing, improve guide rail
Langstaff Road - 0.15 km east of Keele Street	Repairs to superstructure, substructure and improve guide rail
Metro Road - 1.40 km north of Morton Avenue	Repair railing, improve guide rail
Old Homestead Road east of Warden Avenue at Belhaven	Replace structure
Green Lane .48 km east of 2nd Concession -- Joe Kelley	Repairs and painting of the steel structure, and deck replacement
Metro Road - 1.40 km north of Morton Avenue	Rehabilitation of structure

Site Description	Work Proposed
<u>Culverts</u>	
King Road - 2.08 km east of 8th Concession	Repair superstructure
Leslie Street - 1.65 km north of Bloomington Road	Repair superstructure
Leslie Street - 0.16 km north of Mullock Drive	Repair superstructure
Lloydtown/Aurora Road .40 km east of Concession 8	Cracks in steel plates to be welded
Teston Road - 0.04 km east of Pine Valley Road	Repair superstructure and substructure, rehabilitation of invert
Warden Avenue 1.21 km north of 16th Avenue	Cracks in steel plates to be welded
Herald Road .20 km east of Leslie Street	Embankment improvement and repair
Yonge Street .02 km north of Bradford Street	Embankment improvement and repair

Funding available for 2004 - \$2,308,000

4.4 Resurfacing – Various Road Resurfacing

Table 4
Resurfacing
Various Road Resurfacing
2004 Program

Road Name	Location	Type of Work Proposed
Mount Albert Road	From Woodbine Avenue to Highway 48	Recycle and overlay existing pavement
Davis Drive	From Woodbine Avenue to Highway 48	Recycle and overlay existing pavement
Queensville Sideroad	From Bathurst Street to Woodbine Avenue	Recycle and overlay existing pavement
Highway 7	At Thornhill Woods Gate	Recycle and overlay existing pavement

Funding available for 2004 - \$6,291,000.

5. FINANCIAL IMPLICATIONS

Funds for the work outlined in Section 4 are included in the approved 2004 Transportation and Works Department budget.

6. LOCAL MUNICIPAL IMPACT

The work proposed will benefit the residents of, and the businesses located in, the local municipalities.

Where issues of joint work and cost sharing apply, or where road closures are contemplated, Regional staff will contact the staff of the local municipality concerned, and will work co-operatively.

7. CONCLUSION

This report is prepared to provide the lists of projects included in the resurfacing, intersection, railway crossing, and bridge and culvert programs in the proposed 2004 Business Plan and Budget. Changes to these programs could occur throughout the year as tenders are received and priorities changed.

The Senior Management Group has reviewed this report.