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DATE 23 April 1998

TO/DEST. The Chair and Members of Regional Council

FROM/EXP. Director, Engineering Division
Environment and Transportation Department

SUBJECT/OBJET **1998 WATER DISTRIBUTION SYSTEM
REHABILITATION PROGRAMME**

That the Planning and Environment Committee receive this report outlining the scope of work included in the 1998 Water Distribution System Rehabilitation Programme.

BACKGROUND

The Region's water distribution system consists of over 2,350 km of watermains of which approximately 250 km are over 50 years old. The replacement value of the system is estimated to be in excess of \$1.5 Billion. An annual planned rehabilitation programme to renew the system on an ongoing basis to avoid larger annual expenditures in later years has been in place since 1987.

The selection of each year's specific projects is determined by the structural performance (i.e., break history) and life expectancies of the pipe, the hydraulic performance (i.e., flow capacity), and the opportunity to co-ordinate with the road and sewer construction of other agencies

A study was recently completed by Weston Consultants entitled, "Decision Making Model, Watermain Rehabilitation Program" which investigated the optimum level of replacement investment that minimizes life-cycle costs. The study concluded that the Region's level of investment is near the optimum required.

A pre-commitment for the co-ordinated projects outlined in Appendix A was approved by Council on 22 April 1998. The overall programme is subject to Council approval.

Information Previously Distributed
To be listed on Planning and Environment
Committee Agenda of 12 May 1998

DISCUSSION

The 1998 scope of works are as outlined in Appendices A, B, C and D:

Appendix A : 1998 Co-ordinated Watermain Rehabilitation

This section lists projects where the local municipality is the lead agency on the project.

Appendix B : 1998 Proactive Watermain Rehabilitation

This section lists projects where the Region is the lead agency on the project.

Both sections of the programme involve the replacement and rehabilitation of watermains and services which, for example, are of :

- Excessive age (typical life expectancy 70 to 80 years);
- Insufficient size (present minimum standard size is 150 mm);
- Insufficient depth of cover (present standard is 2.4 metres);
- Excessive break rate;
- Lead services (present standard is copper);
- Low flow capability.

All locations are fully co-ordinated with other agencies and area municipalities. It is considered necessary to proceed with co-ordinated programme locations, as the area municipalities will be reconstructing roadways and replacing sewers. Experience has shown that when a road is reconstructed and the watermains and services are not replaced at the same time, the watermains and services are put at a higher risk of freezing and breakage. It is unlikely that such an opportunity will occur again for another 50 years. It is also considered necessary to proceed with the proactive programme now due to high break rates and/or low flow capability.

Appendix C : 1998 Cathodic Protection Installations

The installation of cathodic protection anodes throughout the distribution system effectively extends the life cycle of the existing infrastructure and costs approximately 10% of the cost of full replacement. Cathodic protection installation on existing watermains has progressively increased since about 1994 and has proven to reduce the break rate on the existing watermains thus reducing maintenance costs. These installations are handled by staff of the Water Division of the Environment and Transportation Department.

Appendix D : 1998 Intersection Improvements

This part of the programme involves minor water system requirements such as the installation of new water valves, the replacement, relocation and refurbishment of existing hydrants, interconnection of watermains and abandonment of out of date system components.

Also included in this programme are items to address needs resulting from unforeseen municipal co-ordinated works and for 1999 pre-engineering design. For all the foregoing work the setting of priorities involves an iterative process, with locations being revised as the priorities of other agencies are finalized.

CONSULTATION

This programme falls under the Schedule “ A” category of the Class Environmental Assessment process as defined through the *Environmental Assessment Act*. Consultation with area municipalities has taken place in developing the programme. Local residents and Regional Councillors are notified of the proposed rehabilitation works during the design stage and prior to construction through a series of notices.

FINANCIAL IMPLICATIONS

An annual rehabilitation program to renew the watermain distribution system will avoid larger annual expenditures in later years.

The 1998 Water Distribution System Rehabilitation Programme is fully co-ordinated with programmes and needs as outlined by the area municipalities, the National Capital Commission, Public Works and Government Services Canada and the Urban Rehabilitation Programme.

All the 1998 scope of works can be accommodated within the 1998 Capital Budget allocation of \$14.0 M of which \$2.0 M was approved as a transfer of funds to Account No. 922-41924, under Special Delegated Authority on 24 December 1997. Subsidies, for the 1998 programme, from the Ministry of the Environment (MOE) and the Ontario Clean Water Agency (OCWA) are not available.

Approved by
J.M. Miller, P.Eng.

FM/jw

1998 WATER DISTRIBUTION SYSTEM REHABILITATION PROGRAMME
CAPITAL PROJECT : 922-41924

<u>Summary of Components</u>	<u>Budget Estimate</u>
Appendix A: 1998 Coordinated Watermain Rehabilitation	\$7,690,000
Appendix B: 1998 Proactive Watermain Rehabilitation	\$2,510,000
Appendix C: 1998 Cathodic Protection Installation	\$1,500,000
Appendix D: 1998 Water Intersection Improvements	\$750,000
Total Program:	\$12,450,000
Unforeseen Municipal Coordinated Works	\$850,000
1999 Pre-Engineering Design	\$500,000
Regional Utility Easement Renewal	\$200,000
Budget:	\$14,000,000

The programme contingency will be used for the following purposes:

- a) To address unforeseen works which are part of the 1998 programme elements
- b) To address unforeseen works which become apparent during design review of other works.

1998 WATER DISTRIBUTION SYSTEM REHABILITATION PROGRAMME
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Appendix A: 1998 Coordinated Watermain Rehabilitation

Other Contact	Project Manager	Street	From	To	Estimate
Gloucester	M. Ross	Belcourt	St. Joseph	Carriere	\$380,000
Gloucester	W. Coombe	Bickerton	Casey	Eastvale	\$355,000
Gloucester	W. Coombe	Dutton	Kender	Dutton	\$275,000
Gloucester	M. Ross	Eighth Street	Kingsdale	Queensdale	\$50,000
Gloucester	M. Ross	Queensdale Avenue	Hwy 31	Conroy	\$400,000
Gloucester	M. Ross	Sixth Street	Kingsdale	Queensdale	\$50,000
Nepean	S. Harish	Woodridge Cres.	Bayshore	Bayshore	\$950,000
Ottawa	M. Ross	Balsam	Booth St.	Preston	\$245,000
Ottawa	M. Willmets	Burnside	Hinchey	Stonehurst	\$100,000
Ottawa	W. Coombe	Fairmont	Carling	Queensway	\$550,000
Ottawa	M. Willmets	Fifth - replace. services	Bank	Queen Elizabeth	\$115,000
Ottawa	S. Harish	Glebe Ave.	Bank	Lyon	\$165,000
Ottawa	M. Willmets	Howick	Fifth Ave.	dead end	\$100,000
Ottawa	W. Coombe	Irving	Sherwood	Irving Pl.	\$90,000
Ottawa	W. Coombe	Kinnear	Fairmont	Irving	\$45,000
Ottawa	W. Coombe	Osgoode	King Edward A	Range	\$475,000
Ottawa	M. Willmets	Pinehurst	Oxford	Scott	\$180,000
Ottawa	M. Willmets	Rupert	Fifth Ave.	dead end	\$100,000
Ottawa	S. Harish	Second Ave.	Bronson Ave.	Bank St.	\$550,000
Ottawa	W. Coombe	Young	Fairmont	135 m east	\$70,000
Rockcliffe	M. Willmets	Blenheim	Lakeway	Sandridge	\$245,000
Rockcliffe	M. Willmets	Blenheim/Birch - relocate services from backyard service to str			\$100,000
Rockcliffe	M. Willmets	Buchan	Acacia	Mariposa	\$175,000
Rockcliffe	M. Willmets	Hillsdale	Sandridge	bridge crossing	\$150,000
Rockcliffe	M. Willmets	Lakeway	Sandridge	McNabb	\$400,000
Rockcliffe	M. Willmets	Sandridge	Lakeway	Hillsdale	\$125,000
RMOC-Tran/O	Z. Ghadban	Elgin St. Recon. (ph. 1)	Wellington St.	Queen St.	with Wellington
RMOC-Tran/O	Z. Ghadban	Wellington St.	O'Connor St.	Elgin St.	\$1,000,000
RMOC-Tran/O	Z. Ghadban	Elgin St. (ph. 2) - Desig	Queen St.	Laurier St.	\$200,000
RMOC-Tran/Ott		Mackenzie Ave.			\$50,000

Totals: \$7,690,000

1998 WATER DISTRIBUTION SYSTEM REHABILITATION PROGRAMME
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Appendix B: 1998 Proactive Watermain Rehabilitation

Other Contact	Project Manager	Street	From	To	Estimate
Gloucester	W. Coombe	Coxford	Wick	Wren	\$90,000
Gloucester	W. Coombe	Rothwell	Wick	Delong	\$210,000
Gloucester	W. Coombe	Wick	Coxford	Rothwell	\$260,000
Nepean	S. Harish	Argue	Normandy	dead end	\$480,000
Nepean	S. Harish	Tiverton	Bowmoor	Meadowlands	\$395,000
Nepean	F. Marcuccio	Marson	Sunnycrest	Baseline	\$50,000
Nepean	F. Marcuccio	Farlane	Baseline	Hilliard	\$400,000
Ottawa	M. Ross	Burn	Cummings	Rainsford	\$50,000
Ottawa	M. Ross	Clarke	Cummings	Rainsford	\$50,000
Ottawa	M. Ross	Rainsford	Wilson	dead end	\$475,000
Ottawa	M. Ross	Wilson	Rainsford	Cummings	\$50,000
				Totals:	\$2,510,000

1998 WATER DISTRIBUTION SYSTEM REHABILITATION PROGRAMME
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Appendix C: 1998 Cathodic Protection Installation

Other Contact	Project Manager	Street	From	To	Estimate
Cumberland	D. Raymond	Innes Rd. (proact.)	Mer Bleue	Tenth Line	\$106,000
Cumberland	D. Raymond	Jeanne d'Arc	Willow	Mockingbird	\$44,500
Gloucester	D. Raymond	Athans	Hwy #31	East End	\$18,500
Gloucester	D. Raymond	Innes Rd. (proact.)	Tauvette	Cleroux	\$131,500
Kanata	D. Raymond	Castlefrank	Sheldrake (east l	Glamorgan (west leg)	\$16,500
Kanata	D. Raymond	Castlefrank	Sheldrake (east l	Glamorgan (west leg)	\$15,000
Kanata	D. Raymond	Hazeldean (proact.)	Terry Fox	Fringewood	\$219,000
Kanata	D. Raymond	Harness	Stonehaven	Equestrian	\$3,000
Kanata	D. Raymond	Morton	Sheldrake	McElroy	\$3,000
Nepean	D. Raymond	Aberfeldy	Cherrywood	Trinity	\$5,000
Nepean	D. Raymond	Bernadette	cul-de-sac	Paula	\$1,000
Nepean	D. Raymond	Camwood	McClellan (S)	McClellan (N)	\$11,500
Nepean	D. Raymond	Cassidy	Northside	Dante	\$4,000
Nepean	D. Raymond	Catalina	McClellan	Camwood	\$5,500
Nepean	D. Raymond	Cherrywood	Ridgefield	Ridgefield	\$19,500
Nepean	D. Raymond	Emery	cul-de-sac	Parkland	\$2,500
Nepean	D. Raymond	Farm Gate	Viewmount (E)	Viewmount (W)	\$8,500
Nepean	D. Raymond	Hallowell	Midland	cul-de-sac	\$2,000
Nepean	D. Raymond	Jeremiah	Shehan	Banner	\$11,000
Nepean	D. Raymond	Kadeer	Henfield	Foxfield	\$7,500
Nepean	D. Raymond	McClellan	Sisken	Cramer	\$50,000
Nepean	D. Raymond	McClellan	Cramer	Nancy	\$4,000
Nepean	D. Raymond	Midland	McClellan (S)	McClellan (N)	\$15,000
Nepean	D. Raymond	Moss	Midland	cul-de-sac	\$1,000
Nepean	D. Raymond	Parkland	Riverbrook (S)	Riverbrook (N)	\$26,000
Nepean	D. Raymond	Parkland Court	cul-de-sac	Parkland	\$1,500
Nepean	D. Raymond	Paula	McClellan (S)	McClellan (N)	\$11,000
Nepean	D. Raymond	Plaza	Parkland	cul-de-sac	\$2,500
Nepean	D. Raymond	Sandhead	Knollsbrook	Knollsbrook	\$5,000
Nepean	D. Raymond	Scholars	cul-de-sac	Four Seasons	\$3,500
Nepean	D. Raymond	Scova	Henfield (N)	Henfield (S)	\$5,500

1998 WATER DISTRIBUTION SYSTEM REHABILITATION PROGRAMME
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Appendix C: 1998 Cathodic Protection Installation (con't)

Other Contact	Project Manager	Street	From	To	Estimate
Nepean	D. Raymond	Sellers	Parkland (S)	Parkland (N)	\$4,000
Nepean	D. Raymond	Sellers Court	cul-de-sac	Sellers	\$2,500
Nepean	D. Raymond	Shadetree	Four Seasons	Four Seasons	\$8,500
Nepean	D. Raymond	Trinity	Cherrywood	Cherrywood	\$6,000
Nepean	D. Raymond	Veronica	Shehan	Nancy	\$2,500
Nep./RMOC R	D. Raymond	Carling Resurf.	Herzberg	Shirley's Bay	\$55,000
Nep./RMOC R	D. Raymond	Carling Resurf.	Herzberg	Teron	\$53,500
Ottawa	D. Raymond	Albion (proact.)	Fontenay	Hunt Club	\$8,000
Ottawa	D. Raymond	Belfast	St. Laurent	Michael	\$11,000
Ottawa	D. Raymond	Belfast	Tremblay	Terminal	\$15,000
Ottawa	D. Raymond	Belfast	Terminal	St. Laurent	\$50,000
Ottawa	D. Raymond	Charles	John	Stanley	\$3,000
Ottawa	D. Raymond	Fallow	Greenboro	cul-de-sac	\$1,500
Ottawa	D. Raymond	Fielding	Hartman	McCarthy	\$14,000
Ottawa	D. Raymond	Frances	Donald	Presland	\$9,500
Ottawa	D. Raymond	Greenboro	Tapiola	Tapiola	\$10,500
Ottawa	D. Raymond	Jasper	Nottinghamhill	Walkley	\$6,000
Ottawa	D. Raymond	Kilborn	Featherstone	Prospect	\$34,500
Ottawa	D. Raymond	Michael	Kenaston	Belfast	\$13,500
Ottawa	D. Raymond	Michael	Belfast	Newmarket	\$18,500
Ottawa	D. Raymond	Pebble	Cahill	Albion	\$21,500
Ottawa	D. Raymond	Pleasant Park	St. Laurent	Othello	\$4,500
Ottawa	D. Raymond	Pleasant Park	St. Laurent	Dorval	\$50,500
Ott./RMOC Rd	D. Raymond	Conroy Rd. (proact.)	Walkley	Johnston	\$63,500
Ott./RMOC Rd	D. Raymond	Hawthorne Rd. Resurf.	Hunt Club	350 m north	\$13,000
Nep./RMOC R	D. Raymond	Meadowlands	Merivale	Indian	\$26,500
Nep./RMOC R	D. Raymond	Meadowlands	Woodroffe	Indian	\$29,500
Kan./RMOC R	D. Raymond	Hazeldean	Terry Fox	Castlefrank	\$47,500

Anode Installation coord. w. peripheral ETD work \$156,500

Total: \$1,500,000

1998 WATER DISTRIBUTION SYSTEM REHABILITATION PROGRAMME
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Appendix D: 1998 Water Intersection Improvements

Other Contact	Project Manager	Item Description	Estimate
Ottawa	S. Gelsomino	Lyon St @ Slater - intersection simplification (coord. w. RMO	\$5,000
Ottawa	S. Gelsomino	Lyon St @ Laurier - intersection simplification (coord. w. RM	\$5,000
Ottawa	S. Gelsomino	Main St. @ Harvey - mod. intersection connections (coord. w.	\$6,000
Ottawa	S. Gelsomino	Main St.@ Greenfield-mod. intersection connections (coord.w.	\$6,000
Rockcliffe/Ott.	S. Gelsomino	Maple Lane/ Lisgar intersection - simplify main connections	\$36,800
Ottawa	S. Gelsomino	Besserer - intall new valve where valve #427 shown if cannot l	\$3,000
Cumberland	S. Gelsomino	Prestone/River Ridge - install valve at east leg intersection - for	\$3,800
Ottawa	S. Gelsomino	Thornhedge - install second hydrant (@ dead end)	\$3,200
Gloucester	S. Gelsomino	Meadowbrook Rd. - remove stub w. valve #45 near Appleton	\$3,000
Kanata	S. Gelsomino	Varley Crt.-remove stubs w. valve #29@Lismer Cres. & valve	\$5,000
Ottawa/Gloucester/Vanier		191 Hydrant replacements @ various locations	<u>\$673,200</u>
Total:			\$750,000