



CITY OF VANCOUVER

Supports Item No. 4  
CS&B Committee Agenda  
April 19, 2007

ADMINISTRATIVE REPORT

Report Date: March 29, 2007  
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Meeting Date: April 19, 2007

TO: Standing Committee on City Services and Budgets  
FROM: General Manager of Engineering Services  
SUBJECT: 2007 Engineering Basic Capital Budget and Close-outs

RECOMMENDATION

- A. THAT, subject to Council approval of Recommendation A in the 2007 Basic Capital Budget Report (RTS06612), the 2007 Basic Capital Budget for the Streets, Communications, and Street Lighting Programs totalling \$34,969,500 as summarized in this report and detailed in Appendix 1 be approved, with sources of funding as follows:
- \$32,154,500 from borrowing authorities approved by plebiscite as part of the 2006-2008 Capital Plan for the Streets, Communications, and Street Lighting Programs
  - \$350,000 from 2007 Capital from Revenue for the Communications
  - \$2,465,000 from Development Cost Levies (DCL) for the Streets Program.

The total debenture funding includes \$3,682,281 for Streets Capital that has been approved in advance by Council in previous reports.

- B. THAT the 2007 Sewers Basic Capital Budget totalling \$24,893,000 as summarized in this report and detailed in Appendix 1 be approved, with source of funding to be Council approved Sewer borrowing authority from the 2006-2008 Capital Plan.
- C. THAT the 2007 Waterworks Basic Capital Budget totalling \$16,734,000 as summarized in this report and detailed in Appendix 1 be approved, with source of funding to be Council approved Water borrowing authority from the 2006-2008 Capital Plan.
- D. THAT Council receive information on capital program closeouts and approve the transfer of capital funds for the closeouts as detailed in Appendix 2.

## COUNCIL POLICY

In October 2005, Council approved the 2006-2008 Capital Plan which set a level of funding for specific Capital Programs over three years. Through plebiscite, voters approved borrowing authority for the Public Works portion, excluding the Sewers and Waterworks Capital Plans, which are approved by Council.

Funding from the three year Capital Plan is allocated to specific Capital Programs through annual Capital Budgets. Funding for annual Capital Budgets is provided from a combination of borrowed funds, as approved in the plebiscite, revenue funds, with the revenue portion being subject to approval of Capital from Revenue in the Operating Budget, and Development Cost Levies. Council approval of the annual Capital Budget is required before work can proceed on specific projects.

Closeout of completed capital projects, whose variances exceed \$50,000 and 15% of the approved budgets, require Council approval. Allocation of funds in excess of \$50,000 requires Council approval.

In June 1995, Council directed departments to use CityPlan to guide policy decisions, corporate work priorities, budgets and Capital Plans.

In April 2002, the City adopted a formal position, definition, and principles on sustainability to guide the City's work considering environmental, economic and social impacts.

## Streets

### Transportation

In 1997 the Vancouver Transportation Plan was approved by Council; subsequent to this Council also approved the Downtown Transportation Plan, CityPlan, Vancouver Transit Strategy, and Vancouver/UBC Area Transit Plan. The policies created by these plans provide priority for pedestrians, bikes and transit while recognizing a need to improve goods movement and safety in existing corridors. Many of these policies have Capital Budget implications.

### Bicycles / Greenways

The Clouds of Change Report (1990), CityPlan (1995), the Vancouver Greenways Plan (1995), the Vancouver Transportation Plan (1997), the Bicycle Plan (1999) and the Downtown Transportation Plan (2002) establish the City's policy prioritizing pedestrians and promoting and encouraging cycling as a transportation alternative. Greenways also address the growing need of communities to have a voice in the design and use of the urban landscape.

### Sidewalks

Council policy identifies sidewalks as a high priority; this includes the following:

- Establish and maintain a sidewalk network which includes sidewalks on both sides of all blocks
- Establish priorities for completion of the sidewalk network based on sidewalk classifications which include transit, pedestrian collector, higher zoned and local

residential routes

- Expedite completion of sidewalks on all transit routes by 2007 and on all arterial streets by 2009.

### Neighbourhood Traffic Calming

In May 1997, Council approved the Vancouver Transportation Plan that highlighted the need to mitigate the effects of traffic in local neighbourhood areas and to give priority to streets and neighbourhoods where traffic impacts are most serious.

### **Street Lighting**

The Safer City Report (1993) approved by Council indicates the importance of making the public feel secure. This involves taking proactive measures to provide appropriate light levels on streets and at bus stops to assist in the protection of citizens from theft and violence. The Infill Lighting Program funds the improvements to low levels of lighting on residential streets and around bus shelters.

### **Sewers & Drainage**

In the early 1970's, Council approved the policy of separating sanitary and storm sewers, starting in the West End and Downtown areas, for the purpose of reducing and eliminating combined sewer overflows (CSOs).

In 1981, this policy was reaffirmed with the adoption of the 1% life cycle replacement policy for sewer mains as part of the Sewers Long Range Capital Plan.

Both of the previously mentioned policies were reaffirmed in the 1991 Policy Report on Vancouver's "Design and Service Level Standards for Sewer Collection Infrastructure," and the current Capital Plan provides funding to continue this long range plan.

In 2001, Council approved the regional Liquid Waste Management Plan (LWMP) which continues the 1% replacement program in order to provide continuous CSO reductions, with the goal of the elimination of CSOs by 2050.

### **Waterworks**

In October 2005, Council approved the 2006 - 2008 Waterworks Capital Plan. The Capital Plan focuses on the proactive replacement of aging infrastructure, water system upgrading to keep pace with development, emergency preparedness, technology upgrades and water quality improvement work.

## **SUMMARY**

This report seeks Council approval for the 2007 Engineering Basic Capital Budget as well as for account closeouts, and allocation of closeout funds for projects that exceed \$50,000 and 15% of the approved budgets. Details of the Budget are included in Appendix 1 whereas details and explanations for the account close outs, funding allocations are contained in Appendix 2.

The 2007 Engineering Basic Capital Budget, the second year of the 2006-08 Capital Plan, allocates thirty-six percent of the funds approved by plebiscite in 2005. Details of the Budget submission appear in Appendix 1. A summary of the proposed Budget of City related funding for each of the areas is provided in Table 1.

Table 1: 2007 Engineering Basic Capital Budget Summary (\$,000)

Program	Borrowing Authority	Capital from Revenue	DCL	Total Basic Capital Budget	% of 2006-2008 Plan
Streets	\$ 30,423	-	\$ 2,465	\$ 32,888	39%
Communications	-	\$ 350	-	\$ 350	18%
Street Lighting*	\$ 1,732	-	-	\$ 1,732	34%
Sewers & Drainage	\$ 24,893	-	-	\$ 24,893	33%
Waterworks	\$ 16,734	-	-	\$ 16,734	30%
<b>TOTAL</b>	<b>\$ 73,782</b>	<b>\$ 350</b>	<b>\$ 2,465</b>	<b>\$ 76,597</b>	<b>36%</b>

\*Funding subject to Council approval of transfer of debenture funding from Expo Deck.

A total of \$3,682,281 for Streets Capital has been approved in advance by Council in previous reports. This includes \$1,000,000 for Arterial Rehabilitation, \$1,800,356 for Sidewalk Reconstruction and Sidewalk projects, and \$881,925 for local area improvements for residential streets and lanes. This pre-approved funding is included in the figures presented in this report.

The Capital account closeouts presented in Appendix 2 include accounts for completed projects from the 2003-2005 Capital Plan. This closeout will involve complete Program closeouts for Street Lighting and Sewers, and partial Program closeouts for Streets, Communications, Waterworks, and Yards; as a result, Council is asked to approve the transfer of remaining capital funding as detailed in Appendix 2.

## DISCUSSION

### 2007 ENGINEERING BASIC CAPITAL BUDGET DETAILS

The 2007 Engineering Basic Capital Budget consists of five Programs: Streets, Communications, Street Lighting, Sewers, and Waterworks. These Programs are summarized in this report, and detailed in Appendix 1. Details on external funding for the Programs from Provincial and regional governments are provided later in the report.

#### A. Streets 2007 Budget \$32,887,500

The 2007 Streets Capital Budget is comprised of a number of programs that reflect Council policy. In addition to the Basic Capital Budget for each area, the Streets Program will receive DCL funds as detailed in Appendix 1. The key highlights of the Streets Program for 2007 are the continued rehabilitation of deteriorating streets infrastructure in coordination with other infrastructure rehabilitation and transportation improvement programs, such as the Canada Line, to improve overall construction efficiencies. Rehabilitation projects for 2007 include the major sidewalk rehabilitation on West Broadway and the paving of deteriorated sections of pavements and sidewalks on Robson, West Broadway, East Hastings, Knight, West 12th, and Nanaimo. Efforts will also be made to complete other major projects such as the Carrall Street Greenway. A brief description of the Streets Programs is listed below.

**A-1 Infrastructure** **\$6,135,000**

This Program addresses the on-going need to rehabilitate the City's street infrastructure. This Program also includes the reconstruction of deteriorated streets and lanes in areas of poor soil conditions and where normal maintenance or rehabilitation is not effective. It also provides for the replacement of existing facilities, major maintenance of City bridges, and construction materials research. This Program does not fund new facilities or reconstruction for capacity increases. This Program is also expected to be augmented with \$3,067,000 in additional funding from TransLink.

Given the significant volume of work required to maintain Vancouver's arterial street network, on October 17, 2006 Council approved City funding of \$1,000,000 in advance of the 2007 Streets Basic Capital Budget to permit early commencement of the 2007 Arterial Rehabilitation Program for West Broadway (RTS 05663).

**A-2 Pedestrians, Bicycles & Greenways** **\$5,940,000**

This Program provides for pedestrian and cycling priorities. Funding needs for the construction of new sidewalks, curb ramps, and sidewalk reconstruction are addressed and reflect the goals of the City's sidewalk construction program approved by Council on April 8<sup>th</sup>, 2004.

\$1,750,000 in funding from DCLs are allocated to this Program for New Sidewalks, Greenways, Curb Ramp and Street Beautification projects. This Program is expected to be augmented with \$305,000 in funding from TransLink as part of the Major Road Network (MRN) Operating, Maintenance and Rehabilitation (OMR) Program, \$900,000 from the TransLink as part of Cycling Infrastructure Capital Program, and \$150,000 from property owners.

To improve and maintain the condition of the sidewalks on the sidewalk network, on October 17, 2006 Council approved \$1,500,000 in advance of the 2007 Streets Basic Capital Budget to permit early commencement of the 2007 Sidewalk Reconstruction Program (RTS 05663). An additional \$300,356 in funding (\$250,000 and \$50,356) was approved for sidewalk projects in advance of the 2007 BCB submission through Court of Revision on November 7, 2006 (RTS 06175 and RTS 06248).

**A-3 Traffic Signals** **\$2,200,000**

This funding covers new pedestrian and vehicular signal installations and the modification, renovation and replacement of existing signals. This Program is expected to receive \$165,000 from Translink as part of the MRN OMR Program.

**A-4 Strategic Transportation** **\$1,612,500**

This Program provides funding to address various transportation priorities to enhance transit and improve safety by making improvements to arterials, bus slabs and landings, and pedestrian crossings. The major focus of this budget is the implementation of the Clark/Knight corridor plan. In order to implement these improvements, funding is provided within this Program for property acquisitions. \$415,000 in DCL funding is allocated for Arterial Improvements and it is expected that this Program will also be augmented with approximately \$1,319,000 in funding from the TransLink Minor Capital Program.

A-5 Local Area \$3,000,000

This Program addresses the need for installation of neighbourhood traffic controls. Neighbourhood Transportation Plans and local street traffic calming measures are integral components of the Transportation Plan. Projects include public consultation and the installation of traffic circles, bulges, diverters, and other traffic calming measures.

This Program also provides funding for the construction of streets and lanes from the Local Improvements Program. The majority of the funding in this area is used to fulfill the demand for property owners to petition for new streets and lanes. In order to get started on these projects, Council approved \$881,925 in advance of the 2007 budget to begin local area improvements for residential lanes and streets (RTS 06175, RTS 06312 and RTS 06248). In addition to the City's share of funding for this Program, it is expected that approximately \$2,250,000 will be received from property owners in order to augment City funding.

A-6 Major Projects \$14,000,000

In addition to the funding requested to carry out the Infrastructure Program as summarized above, funding is requested for two major street reconstruction and improvement projects taking place in Vancouver over the next two years: Granville Mall Reconstruction and Cambie Street Reconstruction. This work is being coordinated with street repairs for the Canada Line rapid transit project in order to minimize the impact to the community and improve construction efficiency.

\$11 million was included in the 2006-2008 Capital Plan for the design and reconstruction of Granville Street downtown from the Granville Street Bridge to Cordova Street; external funding was not provided; therefore, the project was approved to be entirely funded by the City. Cost sharing opportunities have now been confirmed with TransLink and the City has the opportunity to leverage cost sharing benefits for both the Granville Mall and Cambie Street reconstruction projects by reallocating City funding. Both projects fall under the Infrastructure Program; therefore, the reallocation of funding will not impact the spending authority approved as part for 2006-2008 Plan.

The 2007 Streets Budget also includes \$3.5 million to finish construction of the Carrall Street Greenway. The Carrall Street Greenway will allow cyclists, rollerbladers, and pedestrians to connect from the existing False Creek seawall through International Village, Chinatown, and Gastown. This water-to-water connection will accommodate users along a mixed use path. \$300,000 in DCL funding is allocated for this project. \$221,500 in external funding is being sought from senior governments to augment City funding.

Other

The 2006-2008 Capital Plan included \$2 million debenture funding for temporary repairs to the Expo deck. Options are currently being explored for the replacement of the entire decking structure as ongoing temporary repairs to the deck may not cost effectively address systemic design and safety concerns. Council approval is sought, in the accompanying Corporate Budgets authored 2007 Basic Capital Budget Report (RTS06612), to transfer the entire funding to the 2006-2008 Street Lighting Capital Program. A report outlining options for the replacement of all or the most critical areas of the Expo deck, the associated funding requirements and strategy will be presented to Council within three months.

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<b>B. Communication</b>	<b>2007 Budget</b>	<b>\$350,000</b>
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The City's communications system is made up of the Engineering radio dispatch system which operates on wide band assignments, as well as a communications cable network. An effective communication system is essential to the efficient operation of the City departments, and is essential to all aspects of emergency response. The 2007 Budget provides funding for the continuation of the underground cable plant replacement and expansion programs.

<b>C. Street Lighting</b>	<b>2007 Budget</b>	<b>\$ 1,732,000</b>
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The 2007 Street Lighting Capital Budget provides for the ongoing infrastructure replacement program for the Street Lighting Plant. The Street Lighting Plant continues to age, with many components now past their estimated service life. The Program will provide for the replacement of street lighting poles, service panels, conduit replacement, and other components. Delays in replacing street lighting infrastructure increase the probability of exposure for citizens due to falling poles or energized poles and panels. Street lighting outages will also be reduced by rebuilding connections on trolley routes and replacing badly corroded service panels. Funding is also requested to upgrade lighting levels in response to local public safety and security concerns, and for the City's share of new lighting projects approved through the Local Improvement process (an additional \$228,000 is expected from property owners from this purpose). Funding these initiatives helps create a more secure and pleasant environment for pedestrians and residents.

As mentioned above, the Street Lighting Capital budget is subject to Council approval of the transfer of funding from the Expo Deck.

<b>D. Sewers &amp; Drainage</b>	<b>2007 Budget</b>	<b>\$24,893,000</b>
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The Sewers Capital Budget includes the programs listed below. The key highlights of the Sewers Program for 2007 will be the replacement of the sewers in the China Creek, Balaclava and the Fraser River drainage areas.

D-1 System Replacement/Separation	\$23,877,000
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The 2007 Sewers Capital Budget is a continuation of an ongoing infrastructure program that began in the early 1970's. This program consists of the renewal of sewer mains, connections, manholes, catch basins and pump stations. Factors considered in selecting the projects in this category include replacements for physical failure, deterioration from age, inadequate capacity and related flooding problems, environmental benefits, and Liquid Waste Management Plan requirements.

The City has adopted a strategy of continuous sewer replacement to replace 1% of the existing sewer system over a 100-year life instead of periodic large reconstruction programs. The benefits of this strategy include:

- Providing for continuous environmental improvements by reducing CSOs
- Meeting the approved LWMP's CSO management goal of gradual reduction and eventual elimination over 50 years
- Avoiding crisis funding and spreading the cost of Capital replacement works to taxpayers more evenly over time
- Maintaining a stable, well-trained workforce

- Maintaining an adequate level of service in sewers by providing for the ongoing, timely replacement of older sewers and thus reducing the risk of sewer collapse and sewage flooding of private residences and businesses.

In addition to the Basic Capital for this Program, it is expected that the City will augment its funding contribution with \$200,000 from Translink's OMR Program and \$218,000 from the Canada BC Infrastructure Program; after claiming the \$218,000, the City will reach the maximum grant provision of \$18.26 million from the Canada- B.C. Infrastructure Program.

D-2 System Management \$346,000

The System Management Program provides funds to support a variety of information and research projects. These projects provide key information that is used to prioritize our 1% replacement program and establish routine maintenance programs. This Program also provides funds for a variety of tools that support cost-effective capital work programs, including sewer system modelling, field monitoring of sewer flows, construction site exposures, soundings of underground facilities, and investigation of new products and technical standards for sewer design and construction.

D-3 Other Pollution Abatement \$670,000

This Program funds other pollution abatement initiatives such as LWMP initiatives and Sewer Separation on Private Property. The Sewer Separation Program was established by Council in 1978 in order to achieve the pollution control benefits of a separated sewer system. The major benefit of this Program has been a reduction in the fecal coliform levels in waters that are adjacent to the City. It also allows us to completely eliminate combined sewer outfalls in the City, by taking advantage of sewers which have been separated in the street area. This work helps the City to achieve the LWMP objectives and minimize costly short-term improvements to reduce Vancouver's sewage overflows. The program has mainly focused on the False Creek area and the West End and to a lesser degree on the Downtown Eastside/Strathcona, Still Creek and Fraser River areas.

D-5 Public Sewer Connections \$0

Based on recent reviews of permit applications and residential and commercial construction activity, it is anticipated that about \$9.5 million of public sewer connections will be installed in 2007. The cost of this work will be recovered from public sewer connection fees charged to developers and builders.

**E. Waterworks 2007 Budget \$16,734,000**

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The 2006-2008 Capital Plan is based on the Waterworks Long Range Plan (LRP). The LRP is a strategic planning and work program document outlining the City's plans for water quality improvement, demand growth, demand management, emergency preparedness, infrastructure management, business process improvement and financial planning. The Waterworks Program for 2007 will continue to focus on the systematic replacement and rehabilitation of aging distribution mains.

The 2007 Waterworks Capital Budget is composed of the following:



**E-1 Aging Infrastructure Replacement** **\$15,355,000**

A key strategic objective of the Waterworks Long Range Plan is to manage infrastructure proactively. The City's water system has an estimated replacement value of \$1.5 billion. It consists of approximately 1440 km of water mains, plus associated facilities such as pressure regulating stations, and appurtenances such as valves, fire hydrants, and service connections. With such an extensive system, it is important to maintain reliable water service and follow a Replacement Program that renews infrastructure components that are suffering from corrosion attack and mechanical wear.

**E-2 Addressing Growth** **\$356,000**

This Program addresses population growth and development impacts, funding infrastructure upgrades to increase supply capabilities, new connections and meters, and a conservation program to help curb water demand.

**E-3 Emergency Planning** **\$ 151,000**

The Emergency Planning Program for 2007 includes funding for work on the Dedicated Fire Protection System (DFPS) and for emergency supplies. The DFPS funding will provide for the repair of damaged architectural features, and to repair valves, piping, and hydrants. The emergency supplies funding will be used for the Vancouver General Hospital emergency water connection installation.

**E-4 Investigation, Monitoring and Control** **\$ 205,000**

Ongoing components of this Program include the installation and replacement of telemetry (water system monitoring) equipment, and engineering investigation in advance of capital projects.

**E-5 Water Quality Projects** **\$ 667,000**

This Program funds capital improvements to ensure adequate water quality throughout the distribution system. Of fundamental importance is the avoidance of waterborne health problems due to bacterial or chemical contamination. Projects typically focus on preventing stagnation in areas where building density is low and water supply capacity far exceeds demand.

**SENIOR GOVERNMENT COST SHARING**

Staff pursue cost-sharing opportunities with senior governments as they arise. As described in the sections above, Provincial and regional government funding that is available or may become available to help fund capital projects includes the following:

**TransLink Operating, Maintenance and Rehabilitation (OMR) Funding**

For 2007, \$3.74 million of capital funding will be available from TransLink for the MRN OMR Program. This amount is based on 578 lane-km of MRN Roadways. Table 2 explains the impact of the OMR funding on the Capital budget.

Table 2: 2007 TransLink MRN OMR Funding Summary

2007 MRN OMR Funding	\$ per lane-km	Qualifying lane-km	Operating Budget	Capital Budget
Operating & Maintenance	\$ 5,306	578	\$ 3,066,868	-
Rehabilitation	\$ 5,306	578	-	\$ 3,066,868
Other	\$ 2,123	578	\$ 552,192	\$ 674,902
<b>TOTAL</b>	<b>\$ 12,735</b>		<b>\$ 3,619,060</b>	<b>\$ 3,741,770</b>

Capital components of the TransLink funding include:

Rehabilitation \$3,066,868

This category covers reconstruction or replacing existing facilities (both pavements and other items). Rehabilitation is required to keep the City's MRN roads up to the average standard of the region.

Other \$674,902

This category covers the rehabilitation of MRN sidewalks, curbs, boulevards, traffic signals, and sewer catch basins.

### TransLink Minor Capital

Under Translink's definition, this category only includes new works or improvements on the MRN that generally address congestion, safety, and capacity issues. Translink will fund 50% of the cost of these projects up to a pre-established maximum funding level. The City has submitted 2007 project applications to Translink for Minor Capital funding; however, at the time of writing, project award by Translink had not been received. The City's share of the cost of these projects would be from Council approved budgeted project and program accounts.

### TransLink Cycling Infrastructure Capital

In 2007, it is anticipated that Translink will provide \$900,000 funding towards development and construction of new roads and facilities in order to enhance Vancouver's Bicycle Network. This funding will assist the City with providing a safe and convenient cycling environment for commuter and recreational cyclists by improving the existing road network to better meet the needs of cyclists, and by promoting the safe and responsible use of bicycles.

### Canada - BC Infrastructure Program

This program, formally announced in 2001, has previously been reported to Council and includes \$218,000 in funding for Sewers projects in the 2007 budget; a total of \$18.26 million in funding was awarded to the City for sewer and streets infrastructure upgrading under this Program.

## SUSTAINABILITY IMPLICATIONS

Sustainable practices and technologies have been incorporated into many aspects of the planning, design and constructions processes for capital works within Engineering Services. The focus of the 2007 Engineering Capital Budget is the rehabilitation of existing

infrastructure and the implementation of programs and projects related to the Council approved Transportation Plan.

Projects in the Streets program highlight sustainable modes of transportation in accordance with the Transportation Plan.

The majority of the Sewer and Water programs are based on life cycle replacement of infrastructure, which supports economic sustainability. Within the Waterworks program, water conservation initiatives such as recirculation systems for City owned ornamental water features complement the main distribution replacement program which replaces leak prone pipe with state of the art concrete lined ductile iron pipe. Storm water management and environmental improvements through the reduction of combined sewer overflow into the City's receiving waters are focuses within the Sewers program.

The Streets, Sewers and Waterworks programs additionally incorporate the use of recycled materials, such as concrete and asphalt, in construction activities when technically and economically feasible.

### **CAPITAL CLOSEOUTS**

Closeouts are reported to Council for information and approval when capital project expenditures exceed 15% and \$50,000 of the approved budgets. The allocation of funds in excess of \$50,000 also requires Council approval. This closeout process for the 2003-2005 Capital Plan will involve the complete program closeouts for Street Lighting and Sewers and partial program closeouts for Streets, Communications, Waterworks and Yards.

A summary of the account closeout for each capital area is provided Appendix 2. Council authority is required to close capital accounts with a variance of more than 15% and \$50,000 of the approved budget. Explanations for each account with a significant variance are provided for Council's information.

The net overall unexpended balance resulting from the closeout in each area is summarized in Appendix 2 and in most cases, the Capital Programs have unexpended balances. In the case where a group of accounts will be closed with a deficit, funding sources from the 2007 Budget have been identified for Council approval.

### **FINANCIAL IMPLICATIONS**

Funding shown in Table 3 for Streets, Communications and Street Lighting is from borrowing authorities approved by voters in the October 2005 plebiscites and Capital from Revenue. Funding for Sewers originates from Council approved borrowing authority, and Waterworks is a Council approved self-funding utility with debt financing through water rates revenues.

There are several projects contained in the 2007 Engineering Capital Budget, such as bike routes, greenways, and neighbourhood traffic plans, etc., that will require various forms of maintenance in the future. Increases that may be required to the Engineering Operating Budget for these maintenance items are identified in the detailed submissions in Appendix 1, or will be identified with the individual projects when they are reported to Council.

Table 3: Engineering Capital Budget Funding Summary (\$,000)

Program	2006-2008		2007 Basic Capital Budget				Senior Govt Cost-sharing**
	Revised Capital Plan	DCL	Borrowing Authority	Capital from Revenue	DCL	Total	
Streets	\$ 74,600	\$ 7,700	\$ 30,423	-	\$ 2,465	\$ 32,888	\$ 20,378
Communications	\$ 1,900	-	-	\$ 350	-	\$ 350	-
Street Lighting*	\$ 5,150	-	\$ 1,732	-	-	\$ 1,732	\$ 228
Sewers & Drainage	\$ 74,430	-	\$ 24,893	-	-	\$ 24,893	\$ 418
Waterworks	\$ 54,870	-	\$ 16,734	-	-	\$ 16,734	-
Yards	\$ 300	-	-	-	-	-	-
<b>TOTAL</b>	<b>\$ 211,250</b>	<b>\$7,700</b>	<b>\$ 73,782</b>	<b>\$ 350</b>	<b>\$ 2,465</b>	<b>\$ 76,597</b>	<b>\$ 21,024</b>

\*Street Lighting - funding subject to Council approval of transfer of debenture funding from Expo Deck

\*\*Senior Government Cost-sharing - includes secured funding as well as cost-sharing opportunities that require confirmation

## CONCLUSION

This report summarizes the 2007 Engineering Basic Capital Budget for Council's review and approval. While this report provides a summary, the details of the Budget are contained in Appendix 1. In addition to the Budget, this report also provides a brief summary of the Capital Closeouts proposed to be completed this year. These details are provided in Appendix 2 and Council approval is required in order to close the accounts with variances of more than \$50,000 and 15%, allocate the closeout balance and provide the funding sources as specified.

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# 2007 Engineering Basic Capital Budget



City of Vancouver

April 2007

Engineering Capital Budget Submission Details

**ENGINEERING SUMMARY**

<b>Project Number</b>	<b>Program 2007</b>	<b>Estimated Gross Budget \$ (000)</b>	<b>External Funding (\$000)</b>	<b>*Capital Closeout Transfer \$(000)</b>	<b>DCL Funding \$(000)</b>	<b>Revenue/ Debenture Funding \$(000)</b>	<b>Basic Capital Budget \$(000)</b>
A	STREETS	53,265	20,378	0	2,465	30,423	32,888
B	COMMUNICATIONS	647	0	297	0	350	350
C	STREET LIGHTING	2,060	228	100	0	1,732	1,732
D	SEWERS	25,958	418	647	0	24,893	24,893
E	WATERWORKS	17,085	0	351	0	16,734	16,734
F	YARDS	0	0	0	0	0	0
	<b>TOTAL - ENGINEERING</b>	<b>99,015</b>	<b>21,024</b>	<b>1,395</b>	<b>2,465</b>	<b>74,132</b>	<b>76,597</b>

\*Close-out balance will be transferred to 2007 Program subject to Council approval of 2003-2005 Capital Plan Close-outs.

Engineering Capital Budget Submission Details

**ENGINEERING STREETS**

Project Number	Program 2007	Estimated Gross Budget \$(000)	External Funding \$(000)	*Capital Closeout Transfer \$(000)	DCL Funding \$(000)	Revenue/Debtenture Funding \$(000)	Basic Capital Budget \$(000)
<b>A1</b>	<b>INFRASTRUCTURE</b>						
	a) Repair of Deteriorated Arterial Streets	7,067	3,067	0	0	4,000	4,000
	b) Peat Street Reconstruction	500	0	0	0	500	500
	c) Major Maintenance - City Bridges	185	0	0	0	185	185
	e) Pavement and Materials Research	100	0	0	0	100	100
	g) Reconstruction of Residential Streets and Lanes	1,000	0	0	0	1,000	1,000
	h) Rehabilitation Work Complementing Cut Restoration & Development	350	0	0	0	350	350
	<b>SUBTOTAL - INFRASTRUCTURE</b>	<b>9,202</b>	<b>3,067</b>	<b>0</b>	<b>0</b>	<b>6,135</b>	<b>6,135</b>
<b>A2</b>	<b>PEDESTRIAN &amp; BICYCLES</b>						
	a) New Sidewalks	1,450	150	0	1,000	\$300	\$1,30
	b) Sidewalk Reconstruction - Local Improvements	1,775	275	0		1,500	1,500
	d) Curb Ramp Program	705	30	0	175	500	675
	e) Bicycle Network	2,300	900	0		1,400	1,400
	f) Beautification and Street Trees	200	0	0	100	100	200
	g) Pedestrian & Other Structures	65	0	0		65	65
	h) Greenways	800	0	0	475	325	800
	<b>SUBTOTAL - PEDESTRIANS &amp; BICYCLES</b>	<b>7,295</b>	<b>1,355</b>	<b>0</b>	<b>1,750</b>	<b>4,190</b>	<b>5,940</b>
<b>A3</b>	<b>TRAFFIC SIGNALS</b>						
	a) Traffic Signal Program	1,000	0	0	0	1,000	1,000
	b) Modification of Existing Signals	365	0	0	0	365	365
	d) Replace Aging Signal Plant	1,000	165	0	0	835	835
	<b>SUBTOTAL - TRAFFIC SIGNALS</b>	<b>2,365</b>	<b>165</b>	<b>0</b>	<b>0</b>	<b>2,200</b>	<b>2,200</b>
<b>A4</b>	<b>STRATEGIC TRANSPORTATION</b>						
	a) Arterial Improvements	2,682	1,319	0	415	948	1,363
	d) Bus Slabs & Landings	250		0	0	250	250
	<b>SUBTOTAL - STRATEGIC TRANSPORTATION</b>	<b>2,932</b>	<b>1,319</b>	<b>0</b>	<b>415</b>	<b>1,198</b>	<b>1,613</b>

Engineering Capital Budget Submission Details

Project Number	Program 2007	Estimated Gross Budget \$(000)	External Funding \$(000)	*Capital Closeout Transfer \$(000)	DCL Funding \$(000)	Revenue/Debenture Funding \$(000)	Basic Capital Budget \$(000)
<b>A5</b>	<b>LOCAL AREA TRAFFIC PLANS &amp; OTHER IMPROVEMENTS</b>						
	a) Installation of Neighborhood Traffic Calming	750	0	0	0	750	750
	c) Residential Streets - LI	1,800	800	0	0	1,000	1,000
	d) Higher Zones Lanes - LI	500	450	0	0	50	50
	e) Residential Lanes - LI	1,500	1,000	0	0	500	500
	f) Drainage & Utility Relocation Prior to Paving	200	0	0	0	200	200
	i) Neighborhood Collector Program	500	0	0	0	500	500
	<b>SUBTOTAL - LOCAL AREA TRAFFIC PLANS &amp; OTHER IMPROVEMENTS</b>	<b>5,250</b>	<b>2,250</b>	<b>0</b>	<b>0</b>	<b>3,000</b>	<b>3,000</b>
<b>A6</b>	<b>MAJOR PROJECTS</b>						
	d) Carrall St Greenway	3,722	222	0	300	3,200	3,500
	j1) Granville Mall Reconstruction	10,500	5,500	0	0	5,000	5,000
	j2) Granville Mall/Cambie Reconstruction	12,000	6,500	0	0	5,500	5,500
	<b>SUBTOTAL - MAJOR PROJECTS</b>	<b>26,222</b>	<b>12,2212</b>	<b>0</b>	<b>300,000</b>	<b>13,700</b>	<b>14,000</b>
	<b>DEBENTURE COSTS</b>						
	<b>TOTAL - 2007 STREETS CAPITAL BUDGET</b>	<b>53,265</b>	<b>20,378</b>	<b>0</b>	<b>2,465</b>	<b>30,423</b>	<b>32,888</b>

\*Close-out balance will be transferred to 2007 Program subject to Council approval of 2003-2005 Capital Plan Close-outs.



# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1a1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC1EA1ABX1

ORDER NUMBER

30009912

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Arterial Reconstruction - Non-MRN Arterial Streets
DESCRIPTION	Rehabilitation and repair of arterial streets not on the Major Road Network (MRN)

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$4,000,000	\$ 0	\$0	\$0	\$4,000,000	\$4,000,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$666,660	Other Levels of Government			\$
Materials		\$1,833,315	Property Owners			\$
Equipment		\$833,325	Other (specify below)			
Contract		\$				\$
Overhead		\$666,700				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$4,000,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

The arterial rehabilitation program provides for the full reconstruction or rehabilitation of arterial street network pavements that have deteriorated. Major rehabilitation of these pavements extends the life of the street asset and reduces overall life cycle costs. Arterial streets carry large numbers of vehicles and improving these roadways provides safer driving conditions for all road users.

#### SCOPE OF WORK / DELIVERABLES

Typical reconstruction projects will entail grinding off and repaving the surface layer of pavement to extend the life of the road structure. In areas where the road structure has deteriorated, reconstruction of the full road structure and/or the curb and gutter and sidewalk would be undertaken.

The following streets have initially been identified for rehabilitation in 2007:

- Robson Street, Denman to Hornby
- Nanaimo, Grandview Highway South to Kingsway
- 12th Ave, Granville to Trafalgar
- Hornby, Pacific to Nelson

Other projects will be identified by the City Engineer for inclusion in the 2007 program based on pavement condition and utility coordination

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1a1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC1EA1ABX1

ORDER NUMBER

30009912

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Arterial Reconstruction - Non-MRN Arterial Streets
DESCRIPTION	Rehabilitation and repair of arterial streets not on the Major Road Network (MRN)

opportunities.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

N/A

TIMELINE

Start (mm/yy)

January, 2007

Completion (mm/yy)

December, 2007

### IMPACT OF DELAY

Rehabilitation work is planned and scheduled throughout the year to take advantage of coordination opportunities with underground utilities and to minimize disruptions in the community. Timely rehabilitation avoids costly reconstruction when pavements fail.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1a2

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA1AAX1

ORDER NUMBER

30009911

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Arterial Reconstruction - Major Road Network (MRN) Arterial Streets
DESCRIPTION	Rehabilitation and repair of arterial streets on the Major Road Network (MRN)

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$3,067,000	\$3,067,000	\$0	\$0	\$ 0	\$ 0	\$1,000,000
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$511,160	Other Levels of Government			\$
Materials		\$1,405,690	Property Owners			\$
Equipment		\$638,950	Other (specify below)			
Contract		\$	TransLink (MRN - OMR)			\$3,067,000
Overhead		\$511,200				\$
Other (specify below)		\$				\$
		\$				\$
		\$				\$
		\$3,067,000				\$3,067,000

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

The MRN arterial rehabilitation program is funded by TransLink and provides for the full reconstruction or rehabilitation of MRN arterial street network pavements that have deteriorated. Major rehabilitation of these pavements extends the life of the street asset and reduces overall life cycle costs. Arterial streets carry large numbers of vehicles and improving these roadways provides safer driving conditions for all road users.

#### SCOPE OF WORK / DELIVERABLES

Typical reconstruction projects will entail grinding off and repaving the surface layer of pavement to extend the life of the road structure. In areas where the road structure has deteriorated, reconstruction of the full road structure and/or the curb and gutter would be undertaken.

The following streets have initially been identified for rehabilitation in 2007:

- West Broadway, Alma to Stephens
- Clark/Knight, Broadway to Kingsway
- Hastings, Renfrew to Boundary

\$1,000,000 in funding for the West Broadway pavement rehabilitation was approved on October 17, 2006 in advance of the 2007 BCB submission (RTS 05663)

Other projects will be identified by the City Engineer for inclusion in the 2007 program based on pavement condition and utility coordination

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1a2

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA1AAX1

ORDER NUMBER

30009911

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Arterial Reconstruction - Major Road Network (MRN) Arterial Streets
DESCRIPTION	Rehabilitation and repair of arterial streets on the Major Road Network (MRN)

opportunities.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

N/A

TIMELINE

Start (mm/yy)

January, 2007

Completion (mm/yy)

December, 2007

### IMPACT OF DELAY

Rehabilitation work is planned and scheduled throughout the year to take advantage of coordination opportunities with underground utilities and to minimize disruptions in the community. Timely rehabilitation avoids costly reconstruction when pavements fail.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1b

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA1BX1

ORDER NUMBER

30009913

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Peat Street Reconstruction
DESCRIPTION	Reconstruction of Streets and Lanes that have deteriorated primarily due to poor soil conditions such as peat

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$500,000	\$ 0	\$0	\$0	\$500,000	\$500,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$83,340	Other Levels of Government			\$
Materials		\$229,185	Property Owners			\$
Equipment		\$104,175	Other (specify below)			
Contract		\$				\$
Overhead		\$83,300				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$500,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

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### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
To reconstruct streets and lanes which have deteriorated due to poor soil conditions. The streets and lanes are usually located over old peat bog areas of the City or in some areas where there is extreme pavement settling due to ground conditions. The condition of these roads may present safety concerns for road users.
<b>SCOPE OF WORK / DELIVERABLES</b>
Projects involve the total reconstruction of roads and sidewalks including - installation of an engineered road structure designed for poor soil conditions - installation of a new asphalt road surface - reconstructing sidewalks and curb and gutter which are in poor condition  Projects initially identified for 2007 include: - 17th Ave, Carolina to Prince Edward - Prince Edward, 17th to 16th - 20th Ave, Fraser to Prince Albert

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1b

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA1BX1

ORDER NUMBER

30009913

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Peat Street Reconstruction
DESCRIPTION	Reconstruction of Streets and Lanes that have deteriorated primarily due to poor soil conditions such as peat

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

N/A

TIMELINE

Start (mm/yy)

June, 2007

Completion (mm/yy)

September, 2007

IMPACT OF DELAY

Delays may lead to risk management concerns and inconvenience to road users and area residents

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1c

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA1CX1

ORDER NUMBER

30009914

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets Operations - Structures
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Major Maintenance of City Bridges
DESCRIPTION	This program funds major maintenance projects for the City's 34 bridges and other structures

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$185,000	\$ 0	\$0	\$0	\$185,000	\$185,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$70,000	Other Levels of Government			\$
Materials		\$70,000	Property Owners			\$
Equipment		\$10,000	Other (specify below)			
Contract		\$				\$
Overhead		\$35,000				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$185,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

n/a

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment	This program is provided to address ongoing maintenance. By completing this work, operating costs should be maintained at current levels					

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

To conduct maintenance on the major structures in the City. This work includes the resurfacing of the sidewalks on the Howe Street Viaduct and other required work in order to keep them safe.

#### SCOPE OF WORK / DELIVERABLES

The sidewalk on the east side of the Howe Street Viaduct between Cordova and Canada Way Place is in need of resurfacing. The tile work and the exposed aggregate surface exhibit extensive pitting and cracking. The scope of this project involves the removal of both the exposed aggregate and tile work and replacement with a standard concrete finish.

#### OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)

n/a

#### TIMELINE

Start (mm/yy)

April, 2007

Completion (mm/yy)

December, 2007

#### IMPACT OF DELAY

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1c

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA1CX1

ORDER NUMBER

30009914

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets Operations - Structures
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Major Maintenance of City Bridges
DESCRIPTION	This program funds major maintenance projects for the City's 34 bridges and other structures

Safety of the public will be comprised if work is not carried out.



# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1e

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA1EX1

ORDER NUMBER

30009915

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Pavement and Materials Research
DESCRIPTION	This category funds the cost of researching and implementing new paving materials, material technology, recycled construction materials and energy conservation in the production and use of these materials

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$100,000	\$ 0	\$0	\$0	\$100,000	\$100,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$43,000	Other Levels of Government		\$	
Materials		\$5,000	Property Owners		\$	
Equipment		\$20,000	Other (specify below)			
Contract		\$			\$	
Overhead		\$17,000			\$	
Other (specify below)					\$	
Engineering, design, inspection		\$15,000			\$	
		\$			\$	
		\$100,000			\$ 0	

### COST SAVINGS & OTHER BENEFITS -

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### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
The objective of this program is to generate economic and other benefits to the City through the implementation of improved materials, technology and increased use of recycled material.
<b>SCOPE OF WORK / DELIVERABLES</b>
\$100,000 in funding is required to complete five (5) existing projects and start two (2) new ones.
<u>Existing Projects</u> -quality control and assurance testing of reclaimed asphalt pavement (RAP) -research alternate types of asphalt products to improve quality and increase the proportion -test trials and review of recycled crushed concrete and asphalt and screening of native soils for reuse as a construction aggregate -research and field trial of rubberized asphalt and polymer modified asphalt -test trials and review of concrete mixes with recycled crushed concrete and flyash.
<u>New Projects</u> -research reflectivity, water spray and hydroplaning with asphalt pavement

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1e

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA1EX1

ORDER NUMBER

30009915

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Pavement and Materials Research
DESCRIPTION	This category funds the cost of researching and implementing new paving materials, material technology, recycled construction materials and energy conservation in the production and use of these materials

-research opportunities for energy savings in asphalt production.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE

Start (mm/yy)

April, 2007

Completion (mm/yy)

December, 2007

IMPACT OF DELAY

The City will forgo the use of new and potentially more economical and environmentally friendly materials by deferring this work.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1g

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA1GX1

ORDER NUMBER

30009916

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Reconstruction of Non-Arterial Streets and Lanes
DESCRIPTION	Reconstruction of deteriorated non-arterial streets and lanes

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$1,000,000	\$ 0	\$0	\$0	\$1,000,000	\$1,000,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$166,660	Other Levels of Government			\$
Materials		\$458,315	Property Owners			\$
Equipment		\$208,325	Other (specify below)			
Contract		\$				\$
Overhead		\$166,700				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$1,000,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

To reconstruct deteriorated non-arterial streets and lanes. The costs for temporary fixes and ongoing maintenance of these streets and lanes are significant and reconstruction would reduce the long-term life cycle costs for these assets. These streets have surpassed their optimal replacement life and therefore require reconstruction and major rehabilitation.

#### SCOPE OF WORK / DELIVERABLES

The following work was scheduled for 2006 but was not completed because the final designs were undergoing revisions and contract preparation took longer than expected.

#### Projects:

- sections of Blenheim St
- areas west of Granville Island
- various areas of the West End

The 2007 funding allocation will be used to finish up work on Blenheim St and start work on Granville Island and the West End.

#### OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)

N/A

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1g

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA1GX1

ORDER NUMBER

30009916

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Reconstruction of Non-Arterial Streets and Lanes
DESCRIPTION	Reconstruction of deteriorated non-arterial streets and lanes

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	November, 2007
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### IMPACT OF DELAY

Delays may lead to risk management concerns, asset deterioration, and inconvenience to road users and area residents.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1h

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA1HX1

ORDER NUMBER

30009917

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Rehabilitation Work Complementing Cut Restoration and Development
DESCRIPTION	Reconstruction of portions of deteriorated local streets and sidewalks where the majority of the street and/or sidewalk is being replaced as a result of utility cuts or developments

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	2007 ADVANCE FUNDING APPROVED
\$350,000	\$ 0	\$0	\$0	\$350,000	\$350,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$116,680	Other Levels of Government			\$
Materials		\$116,680	Property Owners			\$
Equipment		\$58,340	Other (specify below)			
Contract		\$				\$
Overhead		\$58,300				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$350,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

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### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
This program deals with the reconstruction of the remaining portions of deteriorated local streets and sidewalks where the majority of the street and/or sidewalk is being replaced as a result of utility cuts or development. Reconstructing the remaining portions of the street and/or sidewalk in conjunction with the cut repair or development will be more economical over the asset life cycle since a full reconstruction will have a longer life cycle and will require less maintenance and temporary fixes than a partial reconstruction.
<b>SCOPE OF WORK / DELIVERABLES</b>
Projects will be identified where cut restoration or development reconstruction would be improved through extending the scope of the rehabilitation area. Reconstruction would include: - installation of a new asphalt surface - reconstruction of a new road structure if required - reconstruction of sidewalk and/or curb and gutter which are in poor condition
<b>OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)</b>

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-1h

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA1HX1

ORDER NUMBER

30009917

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Rehabilitation Work Complementing Cut Restoration and Development
DESCRIPTION	Reconstruction of portions of deteriorated local streets and sidewalks where the majority of the street and/or sidewalk is being replaced as a result of utility cuts or developments

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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### IMPACT OF DELAY

Delays for this work would lead to risk management concerns, increased maintenance costs and a reduced life cycle for the deteriorated side of the street, and inconvenience to road users and area residents.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-2a

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA2AX1

ORDER NUMBER

30009845

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Pedestrians & Bicycles
SUB-PROGRAM / PROJECT	New Sidewalks
DESCRIPTION	City-wide program to construct sidewalks on arterial streets and pedestrian collector routes, and to construct local improvement sidewalks in residential areas as requested by petitions or on City initiative

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	2007 ADVANCE FUNDING APPROVED
\$1,450,000	\$150,000	\$0	\$1,000,000	\$300,000	\$1,300,000	\$300,356
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$543,735	Other Levels of Government		\$	
Materials		\$422,905	Property Owners		\$150,000	
Equipment		\$241,660	Other (specify below)			
Contract		\$			\$	
Overhead		\$241,700			\$	
Other (specify below)					\$	
		\$			\$	
		\$			\$	
		\$1,450,000			\$150,000	

### COST SAVINGS & OTHER BENEFITS -

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### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
The goal of the program was outlined in the City's sidewalk construction program approved by Council on April 8, 2004. The goals are to work towards completing the sidewalk network on both sides of all streets, to expedite completion of the sidewalk network on both sides of all transit routes by 2007 and on both sides of all developed arterial streets by 2009. This program also funds sidewalk construction for pedestrian collector routes and for sidewalks adjacent to public facilities like community centres and schools as required to complete the sidewalk network. New residential sidewalks are constructed under the local improvement process and property owners will fund approximately 20% of the cost of these sidewalks.
The development of the sidewalk network improves pedestrian accessibility which will support transit use. This will also promote pedestrian safety by providing clear and unobstructed pathways for the public.
<b>SCOPE OF WORK / DELIVERABLES</b>
New sidewalks on arterial and pedestrian collector routes program will be selected to complete transit, arterial, and pedestrian collector route objectives including constructing sidewalks adjacent to public facilities.
Through the Local Improvement process, residential sidewalk projects are proposed by citizens through Petitions or are proposed by the City on

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-2a

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA2AX1

ORDER NUMBER

30009845

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Pedestrians & Bicycles
SUB-PROGRAM / PROJECT	New Sidewalks
DESCRIPTION	City-wide program to construct sidewalks on arterial streets and pedestrian collector routes, and to construct local improvement sidewalks in residential areas as requested by petitions or on City initiative

Initiative.

\$300,356 in total funding (\$250,000 and \$50,356) for sidewalk projects was approved in advance of the 2007 BCB submission through Court of Revision on November 7, 2006 (RTS 6175 and RTS 6248).

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE

Start (mm/yy)

January, 2007

Completion (mm/yy)

December, 2007

IMPACT OF DELAY

Delays for this work may lead to risk management concerns, delays to pedestrian accessibility to transit routes and inconvenience the public.



# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-2b

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA2BX1

ORDER NUMBER

30009918

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Pedestrians & Bicycles
SUB-PROGRAM / PROJECT	Sidewalk Reconstruction
DESCRIPTION	Reconstruct badly deteriorated sidewalks in commercial and residential areas of high pedestrian use

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	2007 ADVANCE FUNDING APPROVED
\$1,775,000	\$275,000	\$0	\$0	\$1,500,000	\$1,500,000	\$1,500,000
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour			\$665,640	Other Levels of Government		\$
Materials			\$517,720	Property Owners		\$
Equipment			\$295,840	Other ( <i>specify below</i> )		
Contract			\$	TransLink (MRN - OMR)		\$275,000
Overhead			\$295,800			\$
Other ( <i>specify below</i> )						\$
			\$			\$
			\$			\$
			\$1,775,000			\$275,000

### COST SAVINGS & OTHER BENEFITS -

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### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
<p>This program addresses the deterioration of our sidewalk network and funds the replacement and repair of existing sidewalks. Deteriorated sidewalks in areas with high levels of pedestrian activity have been a priority for this program.</p> <p>The City's portion of the 2007 program funding (\$1,500,000) has previously been approved on October 17,2006 by Council for the West Broadway sidewalk reconstruction (RTS 05663).</p> <p>The Local Improvement Process will remain as a mechanism for property owners to help fund petitioned projects which are not identified as Council priorities.</p>
<b>SCOPE OF WORK / DELIVERABLES</b>
<p>2007 Projects include the West Broadway Reconstruction (sections between Alma and Trafalgar), and East Hastings (sections between Nanaimo and Slocan)</p> <p>Sidewalk reconstruction will include:</p> <ul style="list-style-type: none"> <li>-breaking out existing sidewalk</li> <li>-reconstructing the new sidewalk base</li> </ul>

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-2b

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA2BX1

ORDER NUMBER

30009918

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Pedestrians & Bicycles
SUB-PROGRAM / PROJECT	Sidewalk Reconstruction
DESCRIPTION	Reconstruct badly deteriorated sidewalks in commercial and residential areas of high pedestrian use

-reconstructing the new sidewalk and/or curb and gutter if required

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE

Start (mm/yy)

January, 2007

Completion (mm/yy)

December, 2007

IMPACT OF DELAY

Delays for this work may lead to risk management concerns, and an inconvenience to the public and business owners.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-2d

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA2DX1

ORDER NUMBER

30009920

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Pedestrians & Bicycles
SUB-PROGRAM / PROJECT	Curb Ramp Program
DESCRIPTION	Construction of Curb Ramps to Provide Accessible Sidewalks

## SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$705,000	\$30,000	\$0	\$175,000	\$500,000	\$675,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$264,375	Other Levels of Government			\$0
Materials		\$205,625	Property Owners			\$0
Equipment		\$117,500	Other (specify below)			
Contract		\$0	TransLink (MRN - OMR)			\$30,000
Overhead		\$117,500				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$705,000				\$30,000

## COST SAVINGS & OTHER BENEFITS -

n/a

## IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

## SUB-PROGRAM / PROJECT INFORMATION -

### OBJECTIVES

This program funds the installation of curb ramps at street and lane intersections to provide accessible access to the sidewalks. This program benefits many pedestrians including persons with disabilities, persons who use mobility aids and persons with strollers and shopping trolleys. There has been an increase in the demand for curb ramps as the City endeavours to complete the sidewalk network for seamless travel throughout the pedestrian environment.

### SCOPE OF WORK / DELIVERABLES

There are approximately 8,600 locations in the City which still require ramps. This number will be reduced by approximately 200 during 2007.

### OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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### IMPACT OF DELAY

There is currently an extensive list of requests generated by the public and the accessible trolley bus rollout. Delays to the program schedule will affect the completion of the sidewalk network throughout the City.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-2e

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA2EX1

ORDER NUMBER

30009922

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation
PROGRAM	Pedestrians & Bicycles
SUB-PROGRAM / PROJECT	Bicycle Network
DESCRIPTION	Development and construction of new bicycle facilities as per the City of Vancouver Bicycle Plan and the Vancouver Transportation Plan

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	2007 ADVANCE FUNDING APPROVED
\$2,300,000	\$900,000	\$0	\$0	\$1,400,000	\$1,400,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$667,000	Other Levels of Government		\$900,000	
Materials		\$690,000	Property Owners		\$	
Equipment		\$414,000	Other (specify below)			
Contract		\$			\$	
Overhead		\$529,000			\$	
Other (specify below)					\$	
		\$			\$	
		\$			\$	
		\$2,300,000			\$900,000	

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$30,000	2009	\$30,000
Comment	Due to the construction of new infrastructure related to cycling facilities (e.g. traffic calming measures, cyclist actuated signals) the related additional maintenance requires increases in future maintenance budgets.					

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
To provide a safe and convenient cycling environment for the commuter and recreational cyclist by improving the existing road network to better meet the needs of cyclists and by promoting the safe and responsible use of bicycles for transportation and recreation.
<b>SCOPE OF WORK / DELIVERABLES</b>
Further expansion of the City's bicycle network as outlined in the Vancouver Bicycle Plan. Projects suggested for 2007 include, but are not limited to the 28th Avenue Bikeway (Bikeway runs west from Nat Bailey), Borden-Dumfries Bikeway, and the 59 <sup>th</sup> Avenue Bikeway. As projects are developed, staff will continue to seek funding opportunities with other levels of government and project partners. External funding is anticipated to come from Translink Cycling Infrastructure Capital. Details on the specific bike route and the associated funding strategy will be presented to Council later this year.
<b>OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)</b>
Implementation of new cycling facilities is an important component of initiatives within Engineering, the Sustainability office and Planning.
<b>TIMELINE</b>
Start (mm/yy) May, 2007
Completion (mm/yy) May, 2008

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-2e

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA2EX1

ORDER NUMBER

30009922

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation
PROGRAM	Pedestrians & Bicycles
SUB-PROGRAM / PROJECT	Bicycle Network
DESCRIPTION	Development and construction of new bicycle facilities as per the City of Vancouver Bicycle Plan and the Vancouver Transportation Plan

### IMPACT OF DELAY

Development and construction of new cycling facilities would not be completed.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-2f

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA2FX1

ORDER NUMBER

30009923

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Pedestrians & Bicycles
SUB-PROGRAM / PROJECT	Street Beautification
DESCRIPTION	Street Beautification Projects in Commercial and Residential Areas

## SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$200,000	\$ 0	\$0	\$100,000	\$100,000	\$200,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$66,680	Other Levels of Government		\$0	
Materials		\$50,010	Property Owners		\$0	
Equipment		\$50,010	Other (specify below)			
Contract		\$0			\$	
Overhead		\$33,300			\$	
Other (specify below)					\$	
		\$			\$	
		\$			\$	
		\$200,000			\$ 0	

## COST SAVINGS & OTHER BENEFITS -

n/a

## IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

## SUB-PROGRAM / PROJECT INFORMATION -

### OBJECTIVES

This program funds beautification projects in commercial and residential areas such as those for Visioning process or for improving the public realm. Also used for Local Improvement work such as decorative street and pedestrian lighting projects. These projects generally improve the public realm throughout the City. Funding is also used for the development of various Neighbourhood Centres in the City.

### SCOPE OF WORK / DELIVERABLES

Various projects are anticipated that may include new trees, minor landscaping, planters, street furniture or other enhanced treatments. These projects are coordinated with other streets projects.

### OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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### IMPACT OF DELAY

Delays will not allow City to take advantage of construction activities and this could result in increased beautification costs when the City gets approval to perform the work.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-2g

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA2GX1

ORDER NUMBER

30009925

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets Operations - Structures
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Pedestrian and Other Structures
DESCRIPTION	Construction and maintenance of pedestrian bridges and other miscellaneous structures

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$65,000	\$ 0	\$0	\$0	\$65,000	\$65,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$25,000	Other Levels of Government			\$
Materials		\$25,000	Property Owners			\$
Equipment		\$	Other (specify below)			
Contract		\$				\$
Overhead		\$15,000				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$65,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

n/a

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment	.					

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

This program funds the construction, upgrade and maintenance of pedestrian and cyclist infrastructure such as small bridges, railings, retaining walls, traffic barriers and other minor projects

#### SCOPE OF WORK / DELIVERABLES

Construction of pedestrian or other small structures such as retaining walls and guard railing is required on an ongoing basis. Much of this work is related to maintenance and replacement of components. Typical projects that are completed with this funding may include (but not be limited to):

- Replacement and repair of retaining walls
- Major Maintenance of Pedestrian Structures (overpasses/stairs) - Handrail replacement/repairs, Fencing replacement/repairs
- Consultancies - Geotechnical (slope assessment, soil investigation)
- Slope stabilization work
- Major rehabilitation of docks.
- Guard railing and barrier replacement

#### OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)

n/a

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-2g

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA2GX1

ORDER NUMBER

30009925

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets Operations - Structures
PROGRAM	Infrastructure
SUB-PROGRAM / PROJECT	Pedestrian and Other Structures
DESCRIPTION	Construction and maintenance of pedestrian bridges and other miscellaneous structures

TIMELINE

Start (mm/yy)

April, 2007

Completion (mm/yy)

December, 2007

### IMPACT OF DELAY

Projects would not be completed in 2007. Some issues relating to access and safety would remain unaddressed and may leave the City vulnerable to liability concerns.



# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-2h

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA2HX1

ORDER NUMBER

30009926

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation
PROGRAM	Pedestrian and Bicycles
SUB-PROGRAM / PROJECT	Greenways
DESCRIPTION	Development of Citywide and Neighbourhood Greenways as part of the Council approved Greenways Plan

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$800,000	\$ 0	\$0	\$475,000	\$325,000	\$800,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$120,000	Other Levels of Government		\$	
Materials		\$100,000	Property Owners		\$	
Equipment		\$60,000	Other (specify below)			
Contract		\$400,000			\$	
Overhead		\$120,000			\$	
Other (specify below)					\$	
			\$		\$	
			\$		\$	
			\$800,000		\$ 0	

### COST SAVINGS & OTHER BENEFITS -

n/a

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$10,000	2009	\$25,000
Comment	Due to increased landscaping, pedestrian level lighting and other infrastructure, the related additional maintenance requires increases in future operating budgets.					

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>	
The Greenways Plan is a Council approved program which includes the development of Citywide and Neighbourhood Greenways.	
<b>SCOPE OF WORK / DELIVERABLES</b>	
Greenways and Neighbourhood Transportation will continue to develop and build ongoing and new greenway projects including but not limited to, finalising the Central Valley Greenway, design of the Eastside Crosscut, North Arm Trail and Neighbourhood Greenways as citizen consultation and participation processes are completed. Projects are multi-year projects and as such are in different phases of development. Funding requirements will be reported to Council later this year.	
<b>OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)</b>	
Greenways are developed as a coordinated plan with a combined team of staff from Engineering and Planning.	
<b>TIMELINE</b>	Start (mm/yy) April, 2007   Completion (mm/yy) May, 2008
<b>IMPACT OF DELAY</b>	
Implementation of greenways currently in consultation and design stages would not be completed. The coordination of work with other projects	

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-2h

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA2HX1

ORDER NUMBER

30009926

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation
PROGRAM	Pedestrian and Bicycles
SUB-PROGRAM / PROJECT	Greenways
DESCRIPTION	Development of Citywide and Neighbourhood Greenways as part of the Council approved Greenways Plan

such as redevelopments and the related cost savings would be lost.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-3a

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA3AX1

ORDER NUMBER

30009879

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation / Traffic Management
PROGRAM	Traffic Signals
SUB-PROGRAM / PROJECT	Signal Construction - New Pedestrian and Vehicular Signals
DESCRIPTION	Ongoing program for New Pedestrian and Vehicular Signal Installations

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$1,000,000	\$ 0	\$0	\$0	\$1,000,000	\$1,000,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$320,000	Other Levels of Government		\$0	
Materials		\$350,000	Property Owners		\$0	
Equipment		\$200,000	Other (specify below)			
Contract		\$0			\$	
Overhead		\$130,000			\$	
Other (specify below)					\$	
		\$			\$	
		\$			\$	
		\$1,000,000			\$ 0	

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
To install pedestrian or traffic signal controls at appropriate locations based on detailed studies that consider key users of the transportation systems such as pedestrians, cyclists, transit vehicles, trucks and automobiles.
<b>SCOPE OF WORK / DELIVERABLES</b>
There are 10 new signals and 2 new special crosswalks budgeted for 2007: 9 pedestrian signals with an average cost of \$90,000 per location, 1 vehicular signal with an average cost of \$100,000 per location, and 2 special crosswalks with an average cost of \$45,000 per location. Further details on this project will be reported as part of the 2007 Traffic Signal Program.
External funding may become available for this Program. Details will be included in the 2007 Traffic Signal Program report to Council.
<b>OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)</b>

<b>TIMELINE</b>	Start (mm/yy)	April, 2007	Completion (mm/yy)	April, 2008
<b>IMPACT OF DELAY</b>	Priority crossings identified through the Annual Signal Program would not be installed in 2007. Some of these are school crossings scheduled to			

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-3a

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA3AX1

ORDER NUMBER

30009879

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation / Traffic Management
PROGRAM	Traffic Signals
SUB-PROGRAM / PROJECT	Signal Construction - New Pedestrian and Vehicular Signals
DESCRIPTION	Ongoing program for New Pedestrian and Vehicular Signal Installations

be installed before the start of the school in September; delays could have safety implications for the public.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-3b

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA3BX1

ORDER NUMBER

30009880

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation / Traffic Management
PROGRAM	Traffic Signals
SUB-PROGRAM / PROJECT	Signal Construction - Modification of Existing Signals
DESCRIPTION	Modification, upgrade, and retrofitting existing pedestrian and traffic signals

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$365,000	\$ 0	\$0	\$0	\$365,000	\$365,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$120,000	Other Levels of Government			\$
Materials		\$153,000	Property Owners			\$
Equipment		\$50,000	Other (specify below)			
Contract		\$				\$
Overhead		\$42,000				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$365,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
This program provides funding for programs to modify or retrofit existing pedestrian and traffic signals to meet operational demands of the City street network.
<b>SCOPE OF WORK / DELIVERABLES</b>
<ul style="list-style-type: none"> <li>• Pedestrian Indicators</li> <li>• Left-turn Phasing</li> <li>• Audible Signals</li> <li>• Signal Modifications</li> <li>• Intelligent Transportation Systems</li> <li>• Tertiary Signal Heads</li> </ul> <p><u>Pedestrian Indicators</u></p> <ul style="list-style-type: none"> <li>• In 1991 Council began a program to retrofit existing signals with pedestrian indicators at traffic signals to improve visibility and safety for pedestrians. This modification program will continue in 2007.</li> </ul> <p><u>Left-turn Phasing</u></p> <ul style="list-style-type: none"> <li>• This program is for the many requests that the City receives to install left-turn flashing arrows at existing signals. Left-turn arrows</li> </ul>

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-3b

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA3BX1

ORDER NUMBER

30009880

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation / Traffic Management
PROGRAM	Traffic Signals
SUB-PROGRAM / PROJECT	Signal Construction - Modification of Existing Signals
DESCRIPTION	Modification, upgrade, and retrofitting existing pedestrian and traffic signals

which assist transit vehicles or reinforce designated truck routes are given priority for installation.

### Audible Signals

- Vancouver has been one of the leading cities in North America in terms of the provision of audible signals. The audible signal program provides for the retrofitting of audible signals to existing signals throughout the City. This provides essential information to the visually disabled community to allow safe crossing of an intersection. Current policy provides all new Pedestrian and Fully Activated signals with an audible signal.

### Tertiary Signal Heads

- Since 1994, tertiary heads were installed at high accident intersections to improve visibility of signal displays. This improvement has achieved significant reduction of traffic collisions at many intersections. The City, together with ICBC, will continue to install tertiary heads at high volume/high collision intersections in an effort to improve road safety. A number of locations will be cost shared with ICBC. At this time, ICBC's contribution in 2007 has not been determined.

### Minor Modifications

There are routine modifications required on the present signal system from time to time. Some examples are:

- minor modifications to hardware and software for the controllers and central control system
- modification of overhead signs
- adjustment of signal timings
- purchase of computer hardware and software to allow staff to better manage the existing signal system, utilize database software to inventory pedestrian and vehicle information, and to handle increasing requests from the public for traffic related data .

### Intelligent Transportation Systems

- Intelligent Transportation Systems are the application and use of technology to optimize the effectiveness of the existing street infrastructure. Intelligent Transportation Systems provide the technology to enable people to make smart travel choices. Initiatives which are being proposed in this program include: testing detection equipment, installation of permanent counting stations, and providing information to the City's public web page.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE

Start (mm/yy)

April, 2007

Completion (mm/yy)

April, 2008

IMPACT OF DELAY

Some of the modifications that are for safety improvement will not be addressed.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-3d

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA3DX1

ORDER NUMBER

30009881

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation / Traffic Management
PROGRAM	Traffic Signals
SUB-PROGRAM / PROJECT	Signal Construction - Replacing Aging Signal Plan
DESCRIPTION	Renovate and replacement of aging signal equipment at existing signalized intersections

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$1,000,000	\$165,000	\$0	\$0	\$835,000	\$835,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$250,000	Other Levels of Government			\$
Materials		\$510,000	Property Owners			\$
Equipment		\$110,000	Other (specify below)			
Contract		\$	TransLink - OMR			\$165,000
Overhead		\$130,000				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$1,000,000				\$165,000

### COST SAVINGS & OTHER BENEFITS -

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### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
This program will allow for the systematic renovation and replacement of Signal plant. Some of the traffic signals in the City were built in the early 1940's and the maintenance/repair costs (funded through operating budget) have been significantly higher than newer locations. With the proposed systematic renovation and replacement program, we do not expect an increase in operating budget requirements as a reflection of reduction in repair costs.
<b>SCOPE OF WORK / DELIVERABLES</b>
<ul style="list-style-type: none"> <li>• Rebuild Traffic Signal Intersection</li> <li>• Replace Rusty Traffic Signal Poles</li> <li>• Underground/Overhead Spans</li> <li>• Upgrade Signal Heads and Backboards</li> <li>• Replace Conflict Monitors/Racks/Loop Amplifiers</li> </ul> <p>Works to be undertaken for each sub program will be based on prioritization and availability of funding.</p>
<b>OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)</b>

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-3d

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA3DX1

ORDER NUMBER

30009881

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation / Traffic Management
PROGRAM	Traffic Signals
SUB-PROGRAM / PROJECT	Signal Construction - Replacing Aging Signal Plan
DESCRIPTION	Renovate and replacement of aging signal equipment at existing signalized intersections

TIMELINE	Start (mm/yy)	April, 2007	Completion (mm/yy)	April, 2008
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### IMPACT OF DELAY

Aging traffic signals scheduled to be rebuilt in 2007 would not be completed. This may result in an increase in operating costs to maintain these signals in operation.



# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-4a1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA4A1X

ORDER NUMBER

30009928

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation / Strategic Transportation Planning
PROGRAM	Strategic Transportation
SUB-PROGRAM / PROJECT	Clark/Knight Corridor: Transportation and Livability
DESCRIPTION	Implementation of the Clark/Knight Corridor Plan approved by Council in 2005

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	2007 ADVANCE FUNDING APPROVED
\$1,969,000	\$1,319,000	\$0	\$345,000	\$305,000	\$650,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$0	Other Levels of Government		\$	
Materials		\$0	Property Owners		\$0	
Equipment		\$0	Other (specify below)			
Contract		\$0	TransLink (Minor Cap)		\$1,319,000	
Overhead		\$196,900			\$	
Other (specify below)					\$	
Property Acquisition		\$1,772,100			\$	
		\$			\$	
		\$1,969,000			\$1,319,000	

### COST SAVINGS & OTHER BENEFITS -

Significant cost sharing funding for improved safety, livability and goods movement along the Clark/Knight Corridor.

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

To improve safety, livability and goods movement along the Clark/Knight corridor.

#### SCOPE OF WORK / DELIVERABLES

Completes 2007 property acquisition needs for left-turn bay on Knight Street at 33<sup>rd</sup> Avenue. Project also funded from 2006 Capital Budget.

The Clark/Knight corridor is a multi-year projects that requires funding over 2 to 3 capital plans. (Refer to RTS 5560-1, Clark/Knight Corridor Plan.) The City is currently implementing projects identified for the 03-05 and 06-08 Capital Plans.

The external funding listed above is part of the multi-year accrual of TransLink Minor Cap cost-sharing for the entire project; 2007 TransLink funding will go to the TransLink Board for approval later this year. In summary, the only costs that will be incurred this year will be on property acquisition, but the City will be looking to obtain TransLink block funding for the entire project. Based on current property cost estimates, the funding identified in our 2006 and 2007 capital budget submissions should complete the funding needed for this project for this capital plan. However, there is a chance that additional funding may be required for property purchase in 2008 due to cost escalation.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-4a1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA4A1X

ORDER NUMBER

30009928

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation / Strategic Transportation Planning
PROGRAM	Strategic Transportation
SUB-PROGRAM / PROJECT	Clark/Knight Corridor: Transportation and Livability
DESCRIPTION	Implementation of the Clark/Knight Corridor Plan approved by Council in 2005

TIMELINE	Start (mm/yy)	February, 2007	Completion (mm/yy)	May, 2008
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### IMPACT OF DELAY

Delayed improvements to intersection safety, flow of goods along the Clark/Knight corridor and neighbourhood livability. Lost opportunity to receive external funding.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-4a2

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA4A2X

ORDER NUMBER

30009930

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation / Traffic Management
PROGRAM	Strategic Transportation
SUB-PROGRAM / PROJECT	Arterial Improvements: Enhancements at Pedestrian Crossings
DESCRIPTION	Design and construction of geometric modifications to enhance pedestrian crossing conditions

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$187,500	\$ 0	\$0	\$0	\$187,500	\$187,500	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$73,000	Other Levels of Government		\$0	
Materials		\$34,000	Property Owners		\$0	
Equipment		\$43,000	Other (specify below)			
Contract		\$0			\$	
Overhead		\$37,500			\$	
Other (specify below)					\$	
		\$			\$	
		\$			\$	
		\$187,500			\$ 0	

### COST SAVINGS & OTHER BENEFITS -

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### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$2,000	2009	\$2,000
Comment	For upkeep and maintenance of improvements					

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
This program will provide funding for geometric and safety modifications that enhance pedestrian comfort and safety.
<b>SCOPE OF WORK / DELIVERABLES</b>
The 2007 funding is for pedestrian crossing sub-program. The modifications include pedestrian bulges, medians, and other similar geometric redesigns to help reduce pedestrians' exposure to traffic and increase visibility of pedestrians and motorists.
<b>OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)</b>
Strategic, Streets
<b>TIMELINE</b>
Start (mm/yy) April, 2007      Completion (mm/yy) April, 2008
<b>IMPACT OF DELAY</b>
Delays will continue to expose pedestrians and motorists to unsafe conditions.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-4a3

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA4A3X1

ORDER NUMBER

30009931

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation / Strategic Transportation Planning
PROGRAM	Strategic Transportation
SUB-PROGRAM / PROJECT	Geometric and Safety Improvements on Arterials
DESCRIPTION	Design and construct various geometric improvements

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$750,000	\$ 0	\$225,000	\$70,000	\$455,000	\$525,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$210,000	Other Levels of Government			\$0
Materials		\$210,000	Property Owners			\$0
Equipment		\$100,000	Other (specify below)			
Contract		\$100,000				\$
Overhead		\$105,000				\$
Other (specify below)						\$
Design (City of Burnaby)		\$25,000				\$
		\$				\$
		\$750,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>				
To improve safety at intersections and access to the surrounding community.				
<b>SCOPE OF WORK / DELIVERABLES</b>				
Geometric improvements such as eastbound 12 <sup>th</sup> Avenue to northbound Heather Street, and data collection and design work for geometric improvements on Boundary Road at Canada Way and the Stadium Precinct.				
The 2004 Capital Budget identified \$225,000 in external funding from VGH recoveries and we will be carrying forward that amount to 2007.				
<b>OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)</b>				
<b>TIMELINE</b>	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
<b>IMPACT OF DELAY</b>	Delayed improvements to intersection safety, loss of external funding and more disruptive construction impacts.			

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-4d

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA4DX1

ORDER NUMBER

30009933

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets and Transportation
PROGRAM	Transit and Safety
SUB-PROGRAM / PROJECT	Bus Pads and Passenger Landings
DESCRIPTION	Construction of Roadway Bus Pads and Passenger Landing Areas at Bus Stops

## SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$250,000	\$ 0	\$0	\$0	\$250,000	\$250,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$93,735	Other Levels of Government			\$
Materials		\$72,905	Property Owners			\$
Equipment		\$41,660	Other (specify below)			
Contract		\$				\$
Overhead		\$41,700				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$250,000				\$ 0

## COST SAVINGS & OTHER BENEFITS -

n/a

## IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment	n/a					

## SUB-PROGRAM / PROJECT INFORMATION -

### OBJECTIVES

To improve the roadway surface and passenger areas at bus stop locations to upgrade the transit infrastructure and encourage transit use.

### SCOPE OF WORK / DELIVERABLES

The program provides funds to upgrade the roadway surface and passenger areas at bus stops.

The bus pad program provides for replacing deteriorated pavement at transit stops with new bus pads. Concrete bus pads are installed in the roadway at bus stop locations where roadway surfaces fail due to bus traffic. Bus pads are typically installed in conjunction with major road works at locations identified by Streets staff. The installation of the pads improves transit operations and reduces road maintenance at bus stops. The proposed budget for the bus pad program is \$175,000 and will provide for the installation of up to eight standard length bus pads.

The passenger landing program provides passenger area improvements at bus stops. Concrete passenger landing areas are to be installed at existing bus stops and at new bus stops for transit changes as well as for the introduction of the wheelchair accessible trolley buses. The accessible trolley bus fleet is scheduled for implementation over a three year period and there is projected transit route expansion under the Vancouver/UBC Area Transit Plan. The installation of the passenger areas is planned in conjunction with road and sidewalk reconstruction projects. The proposed budget for the passenger landing area improvement program is \$75,000.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-4d

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA4DX1

ORDER NUMBER

30009933

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets and Transportation
PROGRAM	Transit and Safety
SUB-PROGRAM / PROJECT	Bus Pads and Passenger Landings
DESCRIPTION	Construction of Roadway Bus Pads and Passenger Landing Areas at Bus Stops

n/a

TIMELINE

Start (mm/yy)

January, 2007

Completion (mm/yy)

December, 2007

### IMPACT OF DELAY

This would delay the construction of the new pads which may affect transit operation and passenger rideability and increase road maintenance. This would also delay the construction of passenger landing areas which will reduce the number of bus stops to be designated accessible and reduce the level of service to the public.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-5a

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA5AX1

ORDER NUMBER

30009934

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation
PROGRAM	Local Area
SUB-PROGRAM / PROJECT	Neighbourhood Traffic Calming
DESCRIPTION	Neighbourhood traffic calming plans and local residential street-segment traffic calming measures are integral components of the Transportation Plan. These may include traffic circles, partial closures, corner bulges, diagonal and right-in right-out diverters, and speed humps.

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	2007 ADVANCE FUNDING APPROVED
\$750,000	\$ 0	\$0	\$0	\$750,000	\$750,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$217,500	Other Levels of Government			\$
Materials		\$225,000	Property Owners			\$
Equipment		\$135,000	Other (specify below)			
Contract		\$				\$
Overhead		\$172,500				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$750,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

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### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$	2008	\$8,000	2009	\$32,000
Comment	Due to the addition of traffic calming measures and streets infrastructure, the related additional maintenance requires increases in future operating budgets.					

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
To enhance the liveability and safety on local neighbourhood streets by developing neighbourhood traffic calming plans in consultation with residents and stakeholders. Also, to create a safer pedestrian environment for school children by managing school and playground traffic safety issues in consultation with the school community (staff and parents) and the Police.
<b>SCOPE OF WORK / DELIVERABLES</b>
Projects and programs include neighbourhood traffic calming plans such as Grandview-Woodlands, and annual programs such as the Speed Hump Program, which will be covered in separate report to Council. In addition, there are minor traffic calming improvements required that are not covered under annual programs or larger neighbourhood calming plans. External funding partners will continue to be explored for individual projects within this program.
<b>OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)</b>
Coordination of works occurs with many areas of the City including, Engineering Projects, the Sustainability office, through ideas raised in

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-5a

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA5AX1

ORDER NUMBER

30009934

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation
PROGRAM	Local Area
SUB-PROGRAM / PROJECT	Neighbourhood Traffic Calming
DESCRIPTION	Neighbourhood traffic calming plans and local residential street-segment traffic calming measures are integral components of the Transportation Plan. These may include traffic circles, partial closures, corner bulges, diagonal and right-in right-out diverters, and speed humps.

Planning's Visioning work, and with the Vancouver Police School Safety Patrol.

TIMELINE

Start (mm/yy)

May, 2007

Completion (mm/yy)

March, 2008

IMPACT OF DELAY

Safety benefits of this program would not be realized within the community. Lack of coordination with planned programs and development underway would increase costs to the City.



# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-5c

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA5CX1

ORDER NUMBER

30009935

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Local Improvements
SUB-PROGRAM / PROJECT	Residential Streets - Local Improvements
DESCRIPTION	Streets reconstruction and tree planting on residential streets

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$1,800,000	\$800,000	\$0	\$0	\$1,000,000	\$1,000,000	\$751,925
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$234,000	Other Levels of Government			\$
Materials		\$234,000	Property Owners			\$800,000
Equipment		\$144,000	Other (specify below)			
Contract		\$828,000				\$
Overhead		\$360,000				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$1,800,000				\$800,000

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
This program primarily deals with the improvement of streets in residential areas through the local improvement process. The projects include paving, curbing and installing trees in residential areas. Most of these projects have major maintenance problems and are based on petitions by property owners but there are some projects that are initiated by staff. These projects include unimproved flankage streets which are difficult to improve under the petition process.
<b>SCOPE OF WORK / DELIVERABLES</b>
Residential streets include but are not limited to: <ul style="list-style-type: none"> <li>Ash St: 16<sup>th</sup> - King Edward</li> <li>Pender: Penticton- Slocan</li> <li>Gladstone: 39<sup>th</sup>- 40<sup>th</sup></li> <li>Pr. Albert: 22<sup>nd</sup>-23<sup>rd</sup></li> </ul> <p>2007 Advance funding of \$751,925 was approved:</p> <ul style="list-style-type: none"> <li>November 7, 2006 Court of Revision (\$350,000 →RTS 6175 and \$201,925 →RTS6248)</li> <li>October 17, 2006 Court of Revision (\$200,000 → RTS 6312)</li> </ul>
<b>OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)</b>

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-5c

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA5CX1

ORDER NUMBER

30009935

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Local Improvements
SUB-PROGRAM / PROJECT	Residential Streets - Local Improvements
DESCRIPTION	Streets reconstruction and tree planting on residential streets

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TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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### IMPACT OF DELAY

There are currently number of local improvement projects that are planned for 2007. Failure to expedite this request will cause delays in the street construction schedule , increase maintenance costs, increase risk management concerns and disappoint the public initiating this work.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-5d

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA5DX1

ORDER NUMBER

30009812

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Local Improvements
SUB-PROGRAM / PROJECT	Higher Zoned Lanes - Local Improvements
DESCRIPTION	Lane Construction in industrial, commercial, multiple dwelling and higher use areas

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$500,000	\$450,000	\$0	\$0	\$50,000	\$50,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$150,000	Other Levels of Government			\$
Materials		\$145,000	Property Owners			\$450,000
Equipment		\$105,000	Other (specify below)			
Contract		\$				\$
Overhead		\$100,000				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$500,000				\$450,000

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

**OBJECTIVES**

This is primarily a staff initiative program which deals with the improvement of lanes in commercial, industrial and multiple dwelling areas. It addresses the need to replace lanes which are in poor condition, require increased maintenance and require improvements to bring them up to current standards. Paving of the lane avoids the long term deterioration of our infrastructure and provides improved drainage which prevents flooding.

**SCOPE OF WORK / DELIVERABLES**

Streets include but not limited to:

- Lane South of Hastings: Templeton- Garden Dr
- Lane West of Main: 15<sup>th</sup>-16<sup>th</sup>
- Lane South of 15<sup>th</sup>: Quebec -Main

**OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)**

**TIMELINE**

Start (mm/yy)                      January, 2007                      Completion (mm/yy)                      December, 2007

**IMPACT OF DELAY**

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-5d

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA5DX1

ORDER NUMBER

30009812

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Local Improvements
SUB-PROGRAM / PROJECT	Higher Zoned Lanes - Local Improvements
DESCRIPTION	Lane Construction in industrial, commercial, multiple dwelling and higher use areas

Concerns raised by the public will not be addressed and this will inconvenience the public. There may also be risk management concerns if there are any delays.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-5e

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA5EX1

ORDER NUMBER

30009811

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Local Improvements
SUB-PROGRAM / PROJECT	Residential Lanes - Local Improvements
DESCRIPTION	Lane construction in residential areas

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$1,500,000	\$1,000,000	\$0	\$0	\$500,000	\$500,000	\$130,000
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$465,000	Other Levels of Government			\$
Materials		\$450,000	Property Owners			\$1,000,000
Equipment		\$285,000	Other (specify below)			
Contract		\$				\$
Overhead		\$300,000				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$1,500,000				\$1,000,000

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

This program primarily deals with the improvement of lanes in residential areas. This is primarily a program that is petition based and responds to the requests of property owners to replace their unimproved lanes. These lanes could have problems with dust, potholes, drainage, etc.

Periodically, staff can initiate projects if there are some difficulties with petitions due to absentee landlords, if there are any specific drainage problems or increased maintenance concerns. Paving of the lane avoids the long term deterioration of our infrastructure and could provide improved drainage which prevents flooding.

Due to Council's direction in 2004, low cost centre strip paving is now offered as the standard treatment in residential areas. Country Lane treatment is also available, but with increased cost premiums. Long term maintenance issues with the Country Lane treatment are still being evaluated. This Capital Budget request is primarily to fund the City's share of the low cost centre strip paving petitioned or initiated projects. If any Country Lane projects are approved, this would substantially decrease the number of low cost centre strip paving projects that can be funded.

#### SCOPE OF WORK / DELIVERABLES

Petition based work includes but not limited to:

- Lane South of 49<sup>th</sup> at Wales
- Lane South of 54<sup>th</sup>: Tisdale- Ash

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-5e

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA5EX1

ORDER NUMBER

30009811

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Local Improvements
SUB-PROGRAM / PROJECT	Residential Lanes - Local Improvements
DESCRIPTION	Lane construction in residential areas

- Lane East of Yew: 53<sup>rd</sup>-54<sup>th</sup>

Advance Funding from November 7<sup>th</sup> Court of Revision ( RTS 6248).

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE

Start (mm/yy)

January, 2007

Completion (mm/yy)

December, 2007

IMPACT OF DELAY

Concerns raised by the public will not be addressed and this will inconvenience the public.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-5f

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA5FX1

ORDER NUMBER

30009936

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets
PROGRAM	Local Improvements
SUB-PROGRAM / PROJECT	Drainage Prior to Paving and Advance Utility Relocations
DESCRIPTION	Drainage improvements and utility relocations for street and lane paving projects

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	2007 ADVANCE FUNDING APPROVED
\$200,000	\$ 0	\$0	\$0	\$200,000	\$200,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour			\$84,000	Other Levels of Government		\$
Materials			\$76,000	Property Owners		\$
Equipment			\$	Other (specify below)		
Contract			\$			\$
Overhead			\$40,000			\$
Other (specify below)						\$
			\$			\$
			\$			\$
			\$200,000			\$ 0

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
This program funds drainage improvements and utility relocations for proposed street and lane paving projects and chronic drainage issues as required. The drainage and utility work for proposed projects requires to be initiated early to reduce lead times and avoid construction delays once projects are approved. Work would address concerns requiring attention regardless if the proposed paving projects proceed.
<b>SCOPE OF WORK / DELIVERABLES</b>
Specific projects are yet to determined but they may include various lane and streets projects from the 2006 May Court of Revision and or the 2006 November Court of Revision.
<b>OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)</b>
<b>TIMELINE</b>
Start (mm/yy) January, 2007      Completion (mm/yy) December, 2007
<b>IMPACT OF DELAY</b>
The construction schedule for the various street and lane projects will be impacted. The delays will increase construction costs and will inconvenience the public and businesses.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-5i

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA5IX1

ORDER NUMBER

30009937

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation
PROGRAM	Local Area
SUB-PROGRAM / PROJECT	Neighbourhood Collector Program
DESCRIPTION	In 1997 the Transportation Plan recommended that some low-volume Secondary Arterial streets be reclassified as Neighbourhood Collectors and that traffic calming be considered on Collectors and Secondary Arterial streets with less than 10,000 vehicles per day. Design, consultation and initiation of construction of calming devices on the next collector street will follow the approval of the "traffic calming toolkit" and priority ranking.

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$500,000	\$ 0	\$0	\$0	\$500,000	\$500,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$144,000	Other Levels of Government		\$	
Materials		\$150,000	Property Owners		\$	
Equipment		\$94,000	Other (specify below)			
Contract		\$			\$	
Overhead		\$112,000			\$	
Other (specify below)					\$	
		\$			\$	
		\$			\$	
		\$500,000			\$ 0	

### COST SAVINGS & OTHER BENEFITS -

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### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$2,500
Comment	Increased annual costs for maintaining new signage, road markings and landscaping constructed as part of the collector traffic calming.					

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
Council recently approved a traffic calming toolkit and ranking criteria to be used for Neighborhood Collector streets (Feb 2007). Staff are currently collecting data with which to complete the ranking for all such streets. When the data collection is complete, staff will report back with a recommendation regarding the next Collector street to receive traffic calming.
<b>SCOPE OF WORK / DELIVERABLES</b>
A traffic calming plan for the highest ranked Neighborhood Collector street segment.
<b>OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)</b>
The review and development of the neighbourhood collector program has been a coordinated program with Engineering and Planning.



## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-5i

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA5IX1

ORDER NUMBER

30009937

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation
PROGRAM	Local Area
SUB-PROGRAM / PROJECT	Neighbourhood Collector Program
DESCRIPTION	In 1997 the Transportation Plan recommended that some low-volume Secondary Arterial streets be reclassified as Neighbourhood Collectors and that traffic calming be considered on Collectors and Secondary Arterial streets with less than 10,000 vehicles per day. Design, consultation and initiation of construction of calming devices on the next collector street will follow the approval of the "traffic calming toolkit" and priority ranking.

TIMELINE

Start (mm/yy)

June, 2007

Completion (mm/yy)

June, 2008

#### IMPACT OF DELAY

Residents have been very involved in the ongoing work of the Neighbourhood Collector program. Delaying this program may cause concern with residents and neighbourhood groups.

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-6d

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA6DX1

ORDER NUMBER

30009938

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation
PROGRAM	Pedestrians & Bicycles
SUB-PROGRAM / PROJECT	Carrall Street Greenway
DESCRIPTION	Design and construction of the Carrall Street Greenway linking False Creek to Burrard Inlet. This innovation design will provide a connection through historic areas such as Chinatown and Gastown providing a route around the downtown core along Vancouver's Seawall.

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$3,721,500	\$221,500	\$0	\$300,000	\$3,200,000	\$3,500,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour			\$847,000	Other Levels of Government		\$221,500
Materials			\$876,500	Property Owners		\$
Equipment			\$526,000	Other (specify below)		
Contract			\$800,000			\$
Overhead			\$672,000			\$
Other (specify below)						\$
			\$			\$
			\$			\$
			\$3,721,500			\$221,500

### COST SAVINGS & OTHER BENEFITS -

n/a

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$76,500	2009	\$76,500
Comment	With increased landscaping, signage, road marking and lighting increased funding is required for future operating budgets.					

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

The completion of the Carrall Street Greenway will allow cyclists, rollerbladers and pedestrians to connect from the existing seawall from the future Creekside Park, Chinatown, Gastown and access Burrard Inlet. This water to water connection is a new and innovative design which will accommodate all seawall users along a mixed use path. Additional cost sharing opportunities with other levels of governments are currently sought for this project.

#### SCOPE OF WORK / DELIVERABLES

Carrall Street will be reconstructed to allow for the accommodation of all transportation modes currently utilising the seawall and provide access from False Creek to Burrard Inlet. Works proposed as part of this project include: utility relocation, street reconstruction, development of a multi-use path along Carrall Street, installation of street trees and public art. This funding will allow for construction of the greenway to be undertaken in 2007.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-6d

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA6DX1

ORDER NUMBER

30009938

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation
PROGRAM	Pedestrians & Bicycles
SUB-PROGRAM / PROJECT	Carrall Street Greenway
DESCRIPTION	Design and construction of the Carrall Street Greenway linking False Creek to Burrard Inlet. This innovation design will provide a connection through historic areas such as Chinatown and Gastown providing a route around the downtown core along Vancouver's Seawall.

The design of the Carrall Street Greenway involved a multi-departmental team including staff from Engineering, Planning and Park Board. Construction of the project is primarily the responsibility of Engineering however ongoing input is still required from both the Planning Department and Park Board.

TIMELINE

Start (mm/yy)

January, 2007

Completion (mm/yy)

December, 2007

IMPACT OF DELAY

A lengthy public process undertaken by a multi-departmental team has been underway for several years. Delays would postpone construction and may cause concern amongst those involved in the process.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-6j1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA6J1X1

ORDER NUMBER

30009940

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets Division/Streets Design Branch
PROGRAM	
SUB-PROGRAM / PROJECT	Granville Redesign Project
DESCRIPTION	Streetscape Design and Reconstruction of Granville Street Downtown

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$10,500,000	\$5,500,000	\$0	\$0	\$5,000,000	\$5,000,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$1,680,000	Other Levels of Government			\$
Materials		\$1,722,000	Property Owners			\$
Equipment		\$1,050,000	Other (specify below)			
Contract		\$4,200,000				\$
Overhead		\$1,848,000	Translink			\$5,500,000
Other (specify below)						\$
		\$				\$
		\$				\$
		\$10,500,000				\$5,500,000

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

The reconstruction of Granville Street would include a wide variety of changes to the sidewalk and roadway that would enhance the transit and pedestrian environment, and revitalize this centre of the downtown. The construction activity would be coordinated with the closure of Granville Street as required for Canada Line construction.

#### SCOPE OF WORK / DELIVERABLES

The scope of work for the project include:

- The retention of a landscape architect to develop public realm concepts for Granville Street
- A public consultation process that will consider input from both key business stakeholders and the general public to refine street design concepts
- Development of a final streetscape plan and production of construction drawings
- Reconstruction activities for Granville Mall
- Coordination of required and opportunistic utility work
- Coordination of street reconstruction efforts to coincide with Canada Line construction

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-6j1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA6J1X1

ORDER NUMBER

30009940

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets Division/Streets Design Branch
PROGRAM	
SUB-PROGRAM / PROJECT	Granville Redesign Project
DESCRIPTION	Streetscape Design and Reconstruction of Granville Street Downtown

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2008
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### IMPACT OF DELAY

The City may lose an opportunity to take advantage of street reconstruction efforts that coincide with Canada Line construction. This could result in increased costs.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-6j2

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA6J2X1

ORDER NUMBER

30009941

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets Division/Streets Design Branch
PROGRAM	
SUB-PROGRAM / PROJECT	Cambie Reconstruction
DESCRIPTION	Reconstruction, beautification and public realm improvements of Cambie Street following Canada Line Construction

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$12,000,000	\$6,500,000	\$0	\$0	\$5,500,000	\$5,500,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$3,900,000	Other Levels of Government			\$
Materials		\$3,900,000	Property Owners			\$
Equipment		\$2,400,000	Other (specify below)			
Contract		\$0	Translink			\$6,500,000
Overhead		\$1,800,000				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$12,000,000				\$6,500,000

### COST SAVINGS & OTHER BENEFITS -

Performing road rehabilitation, public realm improvements and beautification on Cambie Street following the construction of Canada Line related infrastructure will minimize the overall disruption felt by residents and businesses in the area as well as provide the opportunity for the City to leverage City funding through cost efficiencies related to coordinating this work.

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

Reconstruct and resurface portions of Cambie Street and perform public realm improvements and beautification following Canada Line construction.

#### SCOPE OF WORK / DELIVERABLES

The scope of work for the project includes:

- Asphalt resurfacing of Cambie Street from 2<sup>nd</sup> Avenue to SW Marine Drive
- Restoration of curb and gutters where modified to accommodate traffic diversions due to Canada Line construction
- Miscellaneous restoration works along the Cambie Heritage Boulevard .

The City will be developing streetscape/public realm plans for segments of the Cambie Street corridor. These segments encapsulate existing Neighborhood Centres and other areas where a major change in street geometry provides an opportunity to provide a public amenity.

Improvements may include, but are not limited to:

- Special pavement & sidewalk treatments

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

A-6j2

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EA6J2X1

ORDER NUMBER

30009941

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Streets Division/Streets Design Branch
PROGRAM	
SUB-PROGRAM / PROJECT	Cambie Reconstruction
DESCRIPTION	Reconstruction, beautification and public realm improvements of Cambie Street following Canada Line Construction

- Soft landscaping treatments
- Street Furniture
- Lighting
- Public Art
- Wayfinding and Signage
- Public Spaces.

The capital funding requested for this submission would be a reallocation from the funding approved in the 2006-2008 Capital Plan for the Granville Mall Reconstruction as a result of other governmental contributions.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2008
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### IMPACT OF DELAY

Delays will reduce the opportunity to leverage savings from the coordination of construction activities.

Engineering Capital Budget Submission Details

**ENGINEERING COMMUNICATIONS**

Project Number	Program 2007	Estimated Gross Budget \$(000)	External Funding \$(000)	*Capital Closeout Transfer \$(000)	DCL Funding \$(000)	Revenue/Debenture Funding \$(000)	Basic Capital Budget \$(000)
B2	UNDERGROUND CABLE REPLACEMENT	300	0	100	0	200	200
B3	UNDERGROUND CABLE EXPANSION	347	0	197	0	150	150
	DEBENTURE COSTS						
	TOTAL - 2007 COMMUNICATIONS CAPITAL BUDGET	647	0	297	0	350	350

\*Close-out balance will be transferred to 2007 Program subject to Council approval of 2003-2005 Capital Plan Close-outs.



# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

B-2

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EB2X1

ORDER NUMBER

30009883

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation/Traffic & Electrical Operations Branch
PROGRAM	Communications
SUB-PROGRAM / PROJECT	Underground Cable Replacement
DESCRIPTION	Program for replacing aging copper and upgrading fibre cable

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	2007 ADVANCE FUNDING APPROVED
\$300,000	\$ 0	\$100,000	\$0	\$200,000	\$200,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour			\$87,750	Other Levels of Government		\$
Materials			\$135,000	Property Owners		\$
Equipment			\$47,250	Other ( <i>specify below</i> )		
Contract			\$			\$
Overhead			\$30,000			\$
Other ( <i>specify below</i> )						\$
			\$			\$
			\$			\$
			\$300,000			\$ 0

### COST SAVINGS & OTHER BENEFITS -

The program provides an improved telephone service for voice communications and speed for data communications.

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

Funding is required to replace worn out copper cable with fibre cable. The program provides service for replacing and upgrading existing telephone circuits and cable, as well as service for the TSMS controlling the traffic signal system. The program assists Traffic Management and Information Services with traffic monitoring and surveillance as well as in improved telephone service for voice communications and speed for data communications.

#### SCOPE OF WORK / DELIVERABLES

This funding represents replacement of approximately 5% of the cable plant and related infrastructure. Locations are selected in conjunction with Information Services and Telecommunications companies.

2007 Budget allocation	\$200,000
*Closeout Transfer from 2003-2005 Capital Plan	\$100,000
2007 Gross budget	\$300,000

Staff will be recommending the transfer of \$100,000 from the 2003-2005 Capital Plan as part of the close-out process.

\*Unexpended closeout balance will be transferred to 2007 Program subject to Council approval of 2003-2005 Capital Plan Close-outs.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

B-2

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EB2X1

ORDER NUMBER

30009883

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation/Traffic & Electrical Operations Branch
PROGRAM	Communications
SUB-PROGRAM / PROJECT	Underground Cable Replacement
DESCRIPTION	Program for replacing aging copper and upgrading fibre cable

### OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

Information Services, Traffic Management

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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### IMPACT OF DELAY

The cable plant is ageing and requires ongoing replacement and upgrading. Delays increase service failures in communications due to cable breakdowns.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

B-3

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EB3X1

ORDER NUMBER

30009884

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation/Traffic & Electrical Operations Branch
PROGRAM	Communications
SUB-PROGRAM / PROJECT	Underground Communications - Cable Network Expansion
DESCRIPTION	Program for cable network expansion with fibre optic based service

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$346,790	\$ 0	\$196,790	\$0	\$150,000	\$150,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$121,500	Other Levels of Government			\$
Materials		\$95,290	Property Owners			\$
Equipment		\$90,000	Other (specify below)			
Contract		\$				\$
Overhead		\$40,000				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$346,790				\$ 0

### COST SAVINGS & OTHER BENEFITS -

Cost recovery in 18 months on the cost of installation versus using leased lines. In addition, this provides a more reliable, secure network, improvements in TSMS networks, no limitations on bandwidth use, fibre-optics system in place to provide VOIP telephone service, and the ability to handle the new City data storage site, as well as the demands anticipated by the 2010 Olympic games.

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

**OBJECTIVES**

This project provides fibre optic based service to new sites. It assists a joint private/ public partnership with other Telecomm service providers to expand the City owned fibre network. This program funds the expansion of conduit and fibre cable to new sites and buildings which provide service for TMS camera installations, additional telephone circuits and security camera monitoring. In conjunction with Information Services, planning to expand fibre optics is coordinated with other Telecomm providers (Urban Networks, Bell Canada).

**SCOPE OF WORK / DELIVERABLES**

We have completed installations to 91 sites, while 175 remain to be done. This will provide funding for approximately 25 sites to be connected in 2007. Funding source: 2007 budget allocation \$150,000 and \$196,790 funding transferred from closeout of the 2003-5 program, subject to Council approval of the closeout.

**OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)**

Information Services, Traffic Management

**TIMELINE**

Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

B-3

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EB3X1

ORDER NUMBER

30009884

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation/Traffic & Electrical Operations Branch
PROGRAM	Communications
SUB-PROGRAM / PROJECT	Underground Communications - Cable Network Expansion
DESCRIPTION	Program for cable network expansion with fibre optic based service

### IMPACT OF DELAY

Projects that are planned to expand fibre optic service with other Telecomm providers and Information Services would be unfunded. This would result in delays of service to new sites and buildings which would then have to lease lines from other Telecomm providers.

Engineering Capital Budget Submission Details

**ENGINEERING STREET LIGHTING**

Project Number	Program 2007	Estimated Gross Budget \$(000)	External Funding \$(000)	*Capital Closeout Transfer \$(000)	DCL Funding \$(000)	Revenue/ Debenture Funding \$(000)	Basic Capital Budget \$(000)
C1	RENOVATE AND REPLACE PLANT	1,782	0	100	0	1,682	1,682
C2	NEW LOCAL IMPROVEMENTS	278	228	0	0	50	50
	DEBENTURE COSTS						
	TOTAL - 2007 STREET LIGHTING CAPITAL BUDGET	2,060	228	100	0	1,732	1,732

\*Close-out balance will be transferred to 2007 Program subject to Council approval of 2003-2005 Capital Plan Close-outs.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

C-1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EC1X1

ORDER NUMBER

30009886

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation/Traffic & Electrical Operations Branch
PROGRAM	Street Lighting
SUB-PROGRAM / PROJECT	Renovate and upgrade plant
DESCRIPTION	Ongoing program to address issues related to the Street Light Plant

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	2007 ADVANCE FUNDING APPROVED
\$1,782,000	\$ 0	\$100,000	\$0	\$1,682,000	\$1,682,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$535,000	Other Levels of Government		\$0	
Materials		\$535,000	Property Owners		\$	
Equipment		\$273,500	Other ( <i>specify below</i> )			
Contract		\$100,000			\$	
Overhead		\$338,500			\$	
Other ( <i>specify below</i> )					\$	
		\$			\$	
		\$			\$	
		\$1,782,000			\$ 0	

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

This program involves upgrades and renovations to many aspects of the Street Lighting Plant. These include conduit replacement, splices along trolley routes, rusty pole replacements, service panel replacements, embedded pole replacements, luminaire replacements and improved lighting levels. The program objectives are to ensure that the existing plant is upgraded and maintained to a level that provides safe and effective operation to meet the needs of the City of Vancouver and its' residents.

#### SCOPE OF WORK / DELIVERABLES

C1A3) Junction Boxes \$70,000 CC2EC1A  
 This program is to address a safety concern: metal lids on street lighting junction boxes becoming energized as a result of deteriorating plant. Junction boxes are covered boxes in which electrical connections are made. This plan will incorporate the inspection of approximately 10,000 lids on street lighting junction boxes. Based on the outcome of the inspection, the program will make the necessary repairs to ensure safety to the public.

C1A5) Rusty Pole Replacement \$195,000 CC2EC1A  
 The estimated life of a pole is typically 50 years, but this varies according to its physical construction and location. This is an ongoing program which incorporates inspection and replacement of street lighting poles. There are approximately 25,000 anchor based street lighting poles in the City, in addition to decorative light poles, lights on trolley poles and lane lights. This budget represents the replacement of 75 poles. It also includes the annual inspection of the street lighting plant so that the worst poles are replaced.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

C-1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EC1X1

ORDER NUMBER

30009886

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation/Traffic & Electrical Operations Branch
PROGRAM	Street Lighting
SUB-PROGRAM / PROJECT	Renovate and upgrade plant
DESCRIPTION	Ongoing program to address issues related to the Street Light Plant

C1A6) Trolley Pole Replacement                      \$170,000                      CC2EC1A  
 Translink and the City are co-owners of the trolley poles used in the City. This budget represents the costs associated with the replacement of approximately 20 poles.

                    Trolley Pole Arm Inspection                      \$150,000                      CC2EC1A  
 There are approximately 10,500 trolley poles with street lights mounted on them. The street lights are mounted on pole arms owned by the City on trolley poles with shared ownership. Recently, significant rusting has been noticed on these support arms. This is a potential safety concern and should be addressed as soon as possible. The City needs to develop an inspection program for these pole arms and plan to replace the arms on a priority basis. This budget is to inspect the arms and to develop a replacement program.

C1A7) Service Panel Replacement                      \$180,000                      CC2EC1A  
 There are 1265 service panels in the City that distribute power to street lighting circuits. This is an ongoing program to replace service panels which are corroded and have exceeded their service life. The program includes inspections and replacements of 35 of the worst panels.

C1A8) Embedded Pole Replacement                      \$162,000                      CC2EC1A  
 This is an ongoing program to replace street light poles that have been installed by direct burial. These poles and their direct-buried, lead-sheathed wiring are some of the oldest street lighting plant in the City. These poles are corroding and underground wiring is fragile. They cannot be serviced when faults occur because the wires are not accessible. This program upgrades the poles to the City standard which consists of a pole base and a pole which can be removed as required as well as having holes to access the wires inside the poles. There are approximately 295 steel and 715 aluminium embedded poles which need replacement. This budget reflects the replacement of 26 poles.

C1A9) Luminaire Replacement                      \$ 70,000                      CC2EC1A  
 The City maintains approximately 30,000 luminaires along arterial routes. Previously, luminaire replacements were done to take advantage of technological improvements rather than reaching the end of their useful lives. The current fixtures were installed approximately 25 years ago and have exceeded the manufacturer's recommended life of 17 years. The City has been tracking ballast failures over the years, and has not noticed much increase in failure rates until very recently; however, there have been a significant and increasing number of failures in the last few months. Currently about 20 fixtures per week need to be replaced, but it is anticipated that this will increase significantly from this point on. In addition, newer luminaire designs also offer a solution to deal with growing public concerns over light pollution. This budget will allow replacement of 300 of the worst fixtures.

C1A12) Conduit Replacement                      \$500,000                      CC2EC1A  
 This is an ongoing program for the replacement of ageing street lighting conduit. During sidewalk construction or other roadway construction, opportunities are created to upgrade ageing street lighting conduit, rather than digging up the sidewalks to replace the conduit. The life expectancy of conduit is tied to the life expectancy of the sidewalks, which has been generally accepted as 50 years. The scope of the program is driven by the work done under the Streets program. This budget represents approximately 27 typical city blocks.

C1B) Facilities Management                      \$145,000                      CC2EC1B

2007 Budget allocation	\$45,000
*Closeout Transfer from 2003-2005 Capital Plan	<u>\$100,000</u>
<b>2007 Gross budget</b>	<b>\$145,000</b>

This program funds an EA as well as costs associated with managing the street lighting plant; it includes investigating the potential use of new lighting products, addressing safety concerns, technical standards and the development of computerized and other tools to assist in the effective management and development of our capital programs and plant. Staff will be recommending the transfer of \$100,000 from the 2003-2005 Capital Plan as part of the close-out process.

\*Unexpended closeout balance will be transferred to 2007 Program subject to Council approval of 2003-2005 Capital Plan Close-outs.

C1C) Infill Lighting                      \$140,000                      CC2EC1C

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

C-1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EC1X1

ORDER NUMBER

30009886

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation/Traffic & Electrical Operations Branch
PROGRAM	Street Lighting
SUB-PROGRAM / PROJECT	Renovate and upgrade plant
DESCRIPTION	Ongoing program to address issues related to the Street Light Plant

During roadway construction, an opportunity is created to add additional lighting in areas which are below recommended guidelines. Typically it has been on north/south running streets which have fewer lights. This ongoing program provides funding to take advantage of this opportunity. In addition, this ongoing problem funds lighting in areas requested by the Police department for areas where they feel lighting would improve safety and security.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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### IMPACT OF DELAY

The infrastructure is aging and major portions of it need upgrading. Delays increase the probability that citizens will be exposed to hazards due to falling poles or energized poles and panels.



# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

C-2

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EC2X1

ORDER NUMBER

30009887

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	Transportation/Traffic & Electrical Operations Branch
PROGRAM	Street Lighting
SUB-PROGRAM / PROJECT	Local Improvements
DESCRIPTION	This is an ongoing program to address local improvement petitions

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$278,000	\$228,000	\$0	\$0	\$50,000	\$50,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$94,000	Other Levels of Government			\$
Materials		\$118,000	Property Owners			\$228,000
Equipment		\$24,000	Other (specify below)			
Contract		\$0				\$
Overhead		\$42,000				\$
Other (specify below)						\$
		\$				\$
		\$				\$
		\$278,000				\$228,000

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

<b>OBJECTIVES</b>
Funding is to address ongoing local improvements for street, lane and pedestrian lighting which will be advanced during the period of 2006 - 08 in response to petition requests. The funding could be used by BIAs and other commercial groups as seed money for these types of projects through the local improvement process. This program helps create a more secure and pleasant environment for pedestrians and residents.
<b>SCOPE OF WORK / DELIVERABLES</b>
Projects will be advanced to the Court of Revision scheduled throughout 2007.
<b>OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)</b>
<b>TIMELINE</b>
Start (mm/yy) January, 2007 Completion (mm/yy) December, 2007
<b>IMPACT OF DELAY</b>
Projects that are approved through the Court of Revision would be unfunded.

Engineering Capital Budget Submission Details

**ENGINEERING SEWERS & DRAINAGE**

Project Number	Program 2007	Estimated Gross Budget \$(000)	External Funding \$(000)	*Capital Closeout Transfer \$(000)	DCL Funding \$(000)	Revenue/ Debenture Funding \$(000)	2007 Basic Capital Budget Request
<b>D1</b>	<b>SYSTEM REPLACEMENT/ SEPARATION</b>						
	1) Main Sewer Reconstruction	20,635	218	0	0	20,417	20,417
	2) Connection and Manhole	460	0	0	0	460	460
	3) Local Repairs & Catch Bains and Spur Reconstruction	300	200	0	0	100	100
	4) Upgrade and Replacement of Pump Stations	3,497	0	597	0	2,900	2,900
	<b>Subtotal - System Replacement/Separation</b>	<b>24,892</b>	<b>418</b>	<b>597</b>	<b>0</b>	<b>23,877</b>	<b>23,877</b>
<b>D2</b>	<b>System Management</b>						
	1) Television Inspection	230	0	0	0	230	230
	2) Investigation for Design	116	0	0	0	116	116
	<b>Subtotal - System Management</b>	<b>346</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>346</b>	<b>346</b>
<b>D3</b>	<b>Other Pollution Abatement</b>						
	1) Liquid Waste Management Plan	50	0	50	0	0	0
	2) Sewer Separation on Private Property	650	0	0	0	650	650
	3) Still Creek Environmental Initiatives	20	0	0	0	20	20
	<b>Subtotal - Other Pollution Abatement</b>	<b>720</b>	<b>0</b>	<b>50</b>	<b>0</b>	<b>670</b>	<b>670</b>
	<b>TOTAL before Cost Recovery Program</b>	<b>25,958</b>	<b>418</b>	<b>647</b>	<b>0</b>	<b>24,893</b>	<b>24,893</b>
<b>D 5</b>	<b>Public Sewer Connections</b>	<b>9,500</b>	<b>9,500</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	<b>TOTAL - 2007 SEWERS CAPITAL BUDGET</b>	<b>35,458</b>	<b>9,918</b>	<b>647</b>	<b>0</b>	<b>24,893</b>	<b>24,893</b>

\*Close-out balance will be transferred to 2007 Program subject to Council approval of 2003-2005 Capital Plan Close-outs.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED1

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	System Replacement/Separation
DESCRIPTION	This program consists of the renewal of sewer mains, connections, manholes, street drains, and pump stations

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$24,892,000	\$418,000	\$597,000	\$0	\$23,877,000	\$23,877,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$4,770,000	Other Levels of Government		\$418,000	
Materials		\$4,730,000	Property Owners		\$	
Equipment		\$4,700,000	Other (specify below)			
Contract		\$4,600,000			\$	
Overhead		\$2,260,000			\$	
Other (specify below)					\$	
Street cut, degradation fees, traffic control, dump charges etc.		\$3,832,000			\$	
		\$			\$	
		\$24,892,000			\$418,000	

### COST SAVINGS & OTHER BENEFITS -

Optimizes sewer maintenance budgets and reduces flow based GVS&DD levies.

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

To execute the strategic plan of continuous sewer replacement that spreads the costs of capital work more evenly among taxpayers over time and allows staff to maintain a stable, well-trained labor force in accordance with the City's goal of replacing 1% of the system annually based on an anticipated 100 year life for the new pipes being constructed. This strategic plan was approved by Council in 1981 as part of the Sewers Long Range Plan and reaffirmed by Council in 1991 as part of the City's Design and Service Level Standards. It was also approved in each subsequent Capital Plan and reaffirmed when Council endorsed the Liquid Waste Management Plan (LWMP) submission to the Province in 2000 and 2001. The City's commitments under the regional LWMP is to eliminate all combined sewer overflows by the year 2050.

#### SCOPE OF WORK / DELIVERABLES

This program is effective in preventing serious collapse of sewers and in addressing major flooding problems in the City. It also has a major environmental benefit by addressing Vancouver's sewage overflows to our local waters. As

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-1

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED1

ORDER NUMBER

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	System Replacement/Separation
DESCRIPTION	This program consists of the renewal of sewer mains, connections, manholes, street drains, and pump stations

this program progresses, sewage overflows will be reduced and eventually eliminated. It complies with Provincial policy and objectives for combined sewer overflow reduction and elimination, and are necessary to meet our commitments under the LWMP.

Vancouver's first sewers were constructed in about 1890, and the system has continued to expand over the last century to its present configuration. The first significant replacement of our original sewers began in the early 1960s. Throughout the 1970s, higher levels of annual replacement of up to 2% of the system occurred. For example during this busy period, much of the original West End sewers were reconstructed.

The table below summarizes the age of our sewer system:

<u>Age of the Sewers System</u>			
<u>Year of Construction</u>	<u>Length (kilometres)</u>	<u>Length (%)</u>	<u>Age*</u>
Pre-1930	612	30	over 76
1930-1959	514	26	47-76
1960 to date	885	44	0-46

\* many sewers built prior to 1930 have unknown ages, particularly those located in the former municipalities of South Vancouver and Point Grey

In selecting sewers to be replaced in our annual program, a number of factors are considered including the age, condition and capacity of the pipes, flooding risk reduction and pollution abatement benefits. Information from closed circuit television inspections, flow monitoring, and maintenance programs is used to identify sewers that need to be rebuilt due to physical deterioration or inadequate service. Engineering analysis such as computer flow modelling is also used to assess the system's capacity.

In conjunction with the replacement program, the sewer infrastructure is being changed from a combined system (single pipes which carry storm water and sewage mixed together) to a separated system (separate storm pipes and sanitary pipes). This reduces combined sewage overflows by either concentrating the sanitary sewage in the lines discharging to the sewage treatment plant or relieving the system by redirecting storm water from sanitary lines into the surrounding waters. Sewage that overflows into the local waters increases fecal coliform levels and other pollutants that can affect human health and marine life.

The City has also received funding under the Canada-B.C. Infrastructure Program to accelerate sewer separation in order to reduce combined sewer overflows in a shorter time frame. The Federal, Provincial and City governments equally fund these programs. This program started in May 2003; it was approximately 94% complete by the end of 2006. The remaining work will be completed before the end of March 2007.

Also included in the system replacement program are funds for the renewal of sewer connections and manholes,

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED1

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	System Replacement/Separation
DESCRIPTION	This program consists of the renewal of sewer mains, connections, manholes, street drains, and pump stations

repairs of catch basins and spurs, and the upgrading or replacement of pump stations

An additional source of funds for system replacement is sewer connection permit fees. Based on the level of building construction in the recent years, staff anticipate that fees of between \$7 million and \$10 million will be collected annually during the 2006 - 2008 Capital Plan. The City has approximately 100,000 sewer connections totalling over 900 kilometres in length, and funds from these connections will be used to rebuild lines between the main sewers and the properties being redeveloped.

### 1. Main Sewer Reconstruction

2007 Budget Allocation::	\$ 20,417,000
From Senior Governments:	<u>\$ 218,000</u>
2007 Gross Budget:	\$ 20,635,000

Summary of the 11 Basin Areas and their estimated 2007 budgets:

Basin Description	2007 Estimates
Fraser River	\$ 4,380,000
West Point Grey	\$ 0
Balaclava	\$ 4,360,000
Kitsilano/S. Granville	\$ 950,000
Cambie/Heather	\$ 2,420,000
Terminal Avenue	\$ 150,000
Downtown Peninsula	\$ 0
Grandview-Woodland	\$ 565,000
Hastings-Sunrise	\$ 1,640,000
China Creek	\$ 5,070,000
Still Creek	\$ 0
Canada BC Infrastructure Program (City + Senior Governments)	\$ 1,100,000

Total Budget: \$ 20,635,000

1A Fraser River \$ 4,380,000 CC2ED11AX1 Order Number: 30009893

The Fraser River drainage area is comprised of eight distinct basins covering approximately 10,000 acres of Vancouver, between Burnaby and the UEL, on the south slope of the City. The original sewers were built at various times starting in the 1910's (on the west side and in Marpole), right up to present day (Fraser Lands). Previous Capital Plans have provided for the replacement of many of the old combined sewers in Marpole and undersized and/or deteriorated sewers in miscellaneous basins. The long range plan for sewer replacement anticipates that the majority of the remaining sewers will need to be replaced in the first half of this century. Increase in funding

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-1

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED1

ORDER NUMBER

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	System Replacement/Separation
DESCRIPTION	This program consists of the renewal of sewer mains, connections, manholes, street drains, and pump stations

allowance was been made for the 2006-2008 Capital Plan to rebuild some of the original sewers in this basin.

2006 Replacement work and budget are very close to being on target with about 98% of the 2006 budget (\$3,400,000) expended. Several major sewer replacement jobs along West 41<sup>st</sup> Avenue have been carried out in coordination with the street paving schedules. 2007 replacement jobs planned in this basin are mainly driven by flooding, and local improvement street paving projects with sewers in poor condition identified along Blenheim Street and West 40<sup>th</sup> Avenue area. It is estimated that a budget allocation of \$4,380,000 will be required for this basin in 2007.

The following major replacement jobs are planned for 2007:

- 1) L/E Main; 54<sup>th</sup> - 57<sup>th</sup>
- 2) 57<sup>th</sup> Ave; Prince Edward - L/W Fraser
- 3) Easement west of Knight; 59<sup>th</sup> - 61<sup>st</sup>
- 4) Blenheim; 33<sup>rd</sup> - 37<sup>th</sup>
- 5) Blenheim; 37<sup>th</sup> - 41<sup>st</sup>
- 6) Blenheim; 41<sup>st</sup> - 43<sup>rd</sup>
- 7) W 40<sup>th</sup>; Blenheim - Collingwood

1B West Point Grey

\$ 0

CC2ED11BX1 Order Number:

The 1,300 acre West Point Grey basin lies generally north of 22nd Avenue, between the UEL and Waterloo Street, and is tributary to English Bay. The original sewers were built between 1908 and the mid 1920's, and will need to be replaced over the next 15 years. The current plan is to continue with the sewer reconstruction work that was started in the late 1980's for this area. In the 2006-2008 Capital Plan, major sewer replacement work is scheduled for this basin along West Broadway.

In 2006, delays obtaining video inspection information from a contractor resulted in the two smaller jobs originally planned for 2006 being postponed to 2007. As there is unused budget in the 2006 order group sufficient to cover these two jobs, no new budget is required for this basin in 2007.

1C Balaclava

\$ 4,360,000

CC2ED11CX1 Order Number: 30009894

The Balaclava sewer catchment drains more than 2,300 acres of the City's north slope parallel to Puget and Valley Drive. The oldest sewers in the basin, north of 12th Avenue and in Shaughnessy, were built between 1910 and 1916 and are in primarily fair to poor condition. Sewers in the remainder of the area were built during construction programs from the 1920's to the 1960's and will be replaced over the next 50 years. Reconstruction of the most deteriorated sewers began during the 1991-93 Plan. The 2006-2008 Capital Plan has an increased funding provision for sewer replacements in this basin due to a number of areas that are prone to backups from tree roots.

Replacement jobs planned for 2006 in this basin were dependent on the outcome of the City Traffic Study of UBC traffic flow along Blenheim which was not completed until November 2006. Therefore, these 2006 replacement



## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-1

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED1

ORDER NUMBER

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	System Replacement/Separation
DESCRIPTION	This program consists of the renewal of sewer mains, connections, manholes, street drains, and pump stations

redevelopments. Complete replacement of the remaining original sewers is planned over the next 40 years. Reconstruction during the 2006-2008 Capital Plan will focus on those areas which have been rezoned and redeveloped in recent years as well as on the most deteriorated pipes.

A recent reassessment of the sewer main replacement work plan in this basin revealed that it is beneficial to accelerate the main sewer pipe separation work in the Southeast False Creek area in coordination with an accelerated sewer separation on private property program in order to achieve the maximum environmental benefits in the False Creek area. Therefore, some of the jobs that were originally contemplated for the 2009-2011 Capital Plan are being moved to 2007. Staff recommend \$2,420,000 be allocated to this basin in 2007.

The following major replacement work are planned for 2007:

- 1) 8<sup>th</sup> Ave; Yukon - Alberta
- 2) Alberta; 6<sup>th</sup> - 3<sup>rd</sup>
- 3) 4<sup>th</sup> Ave; Columbia - Ontario
- 4) 5<sup>th</sup> Ave; Columbia - Ontario
- 5) 6<sup>th</sup> Ave; Columbia - Ontario

1F Terminal Avenue \$ 150,000 CC2ED11FX1 Order Number: 30009897

The Terminal Avenue outfall, located at the east side of False Creek, drains over 900 acres of the city. The drainage basin generally is bounded by 15th Avenue, Pender Street, Clark Drive and False Creek. The basin contains one of the oldest industrial areas of Vancouver and many of the original sewers have been replaced in the last 25 years. Subsequent to the 2006-2008 Capital Plan approval, a number of sewer replacements jobs previously not planned were identified for 2006 in coordination with street paving and accordingly \$1,100,000 was allocated to this basin in 2006. Our work plan indicates that there is no new job planned for 2007 and only \$150,000 is required in 2007 to complete the replacement jobs started in 2006.

1G Downtown Peninsula \$0 CC2ED11GX1 Order Number:

Reconstruction of the original sewer systems of the 1,300 acre Downtown Peninsula is almost complete. This program originally began approximately 30 years ago with the rezoning of the West End and continues during this Plan. Funding for this basin was increased for the 2006-2008 Capital Plan as more paving and sewer work activities are expected with completion of the Downtown Transportation Plan. The 2006 work plan for this basin included the relocation of the City's sewer main out of the Woodward's site (\$1,090,000) and some minor replacement work (\$260,000). All planned jobs have been completed with an unexpended budget of \$99,000 remaining in this account. No jobs are planned for this basin in 2007, and the unexpended budget can be used for minor emergency work in 2007 if necessary. Therefore no budget allocation is required in 2007 for this basin.

1H Grandview-Woodlands \$ 565,000 CC2ED11HX1 Order Number: 30009898

The original sewer system in the Grandview/Woodlands area was constructed around 1910 and today serves mostly



## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-1

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED1

ORDER NUMBER

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	System Replacement/Separation
DESCRIPTION	This program consists of the renewal of sewer mains, connections, manholes, street drains, and pump stations

dense industrial, commercial and multiple dwelling developments. This 1,630 acre basin is generally between Clark Drive and Nanaimo Street, and north of the Grandview Cut draining to Burrard Inlet. The area is also tributary to the Clark Drive outfall which is the largest combined sewer overflow point in the City. Sewer separation in this area is a high priority as it provides pollution reduction benefits at Clark Drive.

1I Hastings-Sunrise \$ 1,640,000 CC2ED11IX1 Order Number: 30009899

The 1,560 acre Hastings Sunrise basin lies east of Nanaimo Street and generally north of First Avenue and drains north to Burrard Inlet. Almost all of the original sewers, which were built at various times between about 1900 and the late 1920's, are still in service today. The sewer's long range plan projects the replacement of sewers in this area to be carried out over a 20 year period. Work in this area will reduce and eventually eliminate combined sewer overflows at the Cassiar outfall as well as provide environmental benefits at the Clark Drive outfall.

Staff recommend that \$1,640,000 be allocated to this basin for this sewer replacement job and a couple of minor jobs planned for 2007.

1J China Creek \$5,070,000 CC2ED11JX1 Order Number: 30009900

The China Creek basin comprises about 3,050 acres of mostly single family homes in an area bounded roughly by Main Street, 12th Avenue, Nanaimo and 41st Avenue. This north sloping area lies immediately west of the Still Creek basin and drains to Burrard Inlet through the Clark Drive outfall. The original sewers in the area were built at various times between the 1910's and the 1960's. Many sewers are damaged due to settlement of the peat found in pockets within the area.

In 2007, funds are required for the replacement of the deteriorated sewers along Knight Street and Nanaimo Street prior to street paving this summer. It is recommended that \$5,070,000 be allocated to this basin for sewer replacement work in these two areas.

The City's share of the Canada-B.C. Infrastructure Program is also funded in this budget. Staff estimate that a budget allocation of \$882,000 will be required to fund the City's share of the Canada-B.C. Infrastructure Program in 2007. The 2007 work plan for the Canada-B.C. Infrastructure Program can be found in 1L.

1K Still Creek \$ 0 CC2ED11KX1 Order Number:

This 2,350 acre separated sewer area drains the extreme east side of Vancouver between the Burrard Inlet and Fraser River watersheds with the area's storm sewer system draining to Still Creek. Except for the Kingsway corridor built in the 1920's and 30's, most of the area's sewer system was built in the 1950's and should be adequate for another 30 to 40 years. In late 2004, through routine inspection, sewer inspector discovered a block of Cecil/Euclid South that could potentially flow into Still Creek. Staff has since made plans to carry out sewer separation work to eliminate the risk of contaminating the creek. \$300,000 was allocated to this basin in 2006 to carry out this Cecil/Euclid South sewer separation job. However, staff were not able to obtain the connection

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED1

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	System Replacement/Separation
DESCRIPTION	This program consists of the renewal of sewer mains, connections, manholes, street drains, and pump stations

permit approval from the GVRD in 2006 and as a result this sewer separation work will need to reschedule for the latter part of the 2006-2008 Capital Plan. No new jobs are planned for 2007 in this basin.

1L Canada-B.C. Infrastructure Program                      \$ 1,100,000                      CC1ED11AX1 Order Number: 30009901

2007 Budget Allocation:	\$ 882,000
Senior Governments:	<u>\$ 218,000</u>
2007 Gross Budget:	\$ 1,100,000

In 2003 the City was given a \$27.4 million Canada-B.C. Infrastructure Program Award for additional sewer separation for three Canoe Creek projects in the China Creek basin. Under the agreement of the Canada-B.C. Infrastructure Program, the Federal, Provincial and the City equally fund this program with a total contribution from the two senior governments at \$18.26 million and the remaining \$9.14 from the City. The City's share is provided in the annual budget allocations for the China Creek area over the term of the Infrastructure Program.

The City started the Canada-B.C. Infrastructure Program Canoe Creek Sewer Separation work in May 2003. As of December 31, 2006, about 94% of the work was completed. It is expected that the remaining work will be carried out by March 31, 2007.

Total 2007 construction cost is estimated at \$1.1 million. It is expected that after claiming an additional \$218,000 funding from the Senior Governments in 2007, the City will reach the maximum amount of \$18.28 million grant provision from the senior governments for the Canada- B.C. Infrastructure Program. The City will fund \$882,000 in this budget to cover the City's share of the Infrastructure Program and the costs beyond the scope of the Canada-B.C. Infrastructure Program budget.

Sub-Total Main Sewer Reconstruction: Net City funded: \$ 20,417,000/ Gross: \$ 20,635,000

2. Connection and Manhole Reconstruction                      \$ 460,000                      CC2ED12X1 Order Number: 30009902

The City has approximately 100,000 sewer connections totalling about 935 kilometres in length. Many of these have structurally failed or have been blocked by penetrating tree roots. This results in sewage backing up into homes on a periodic basis causing major inconveniences to home owners as well as health concerns and potential liability for the City. Through our public sewer connection permits fees, many of the old and inadequate connections are rebuilt when new buildings are constructed or substantial renovations are undertaken. However, a number of old connections to existing houses that are not being redeveloped experience blockages that cannot be dealt with cost effectively with preventative maintenance. This program provides funding to reconstruct connections to these properties.

In addition to connections, the City also has over 25,000 sewer manholes. While they are replaced at the time of main sewer reconstruction, there is an ongoing need to repair or construct existing manholes in areas not scheduled for main sewer replacement. Approximately 5% of the program funds are for manhole reconstruction.

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-1

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED1

ORDER NUMBER

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	System Replacement/Separation
DESCRIPTION	This program consists of the renewal of sewer mains, connections, manholes, street drains, and pump stations

The 2006 program is very close to on target with a 5% unspent balance at the end of the year. However, due to the shortage of manpower and increasing difficulties in retaining and recruiting skilled workers in recent months, staff plan to scale down the connection and manhole reconstruction program in 2007. According to our revised work plan, much of the less critical reconstruction work in the connection and manhole reconstruction program will be delayed to future years so the available manpower resources can be directed to maintain the three large construction crews for the main sewer replacement program and other higher priority projects. It is projected that \$460,000 will be sufficient to cover the revised work plan for this program in 2007.

**3. Local Repairs: Catch Basins and Spurs      \$ 300,000      CC2ED13X1 Order Number: 30009903**

2007 Budget Allocation:	\$ 100,000
Translink (OMR):	\$ <u>200,000</u>
2007 Gross Budget:	\$ 300,000

There are about 45,000 catch basins in the City and about 320 kilometres of spur sewers that connect them to the mains. This street drainage system has been developed (since 1900) in conjunction with our street paving program and some of it is starting to fail with resulting street drainage problems. This results in increased liability for flooding which can cause property damage and hazards to vehicle travel. Poor drainage also permits water penetration into the road base which causes a weakening and deterioration of the road structure. Repairs have extended the life of some sections, but replacement or relining of the worst sections is necessary as they become apparent.

Vehicle impact loading, deterioration due to age and tree roots are the main causes of catch basin drain failures. In the past, we have only been able to address the most critical failures. We are finding that it is better to repair more of the problem areas now than it is to leave them as ongoing maintenance problems. The 2006-2008 Capital Plan has made a gross budget provision of \$1,255,000 for the core work with \$600,000 funding expected from Translink through the Major Road Network (MRN) Operation, Maintenance and Repair (OMR) program and an additional budget provision of \$450,000 for upgrading and redirecting certain City drainage facilities in specific situations.

Due to the limitation in the number of skilled workers in 2006, only the most critical failure drains were selected for repair/rebuild. As a result, only one half of the 2006 planned work was carried out and about 50% of the 2006 budget remains unspent. Similar to the connection and manhole reconstruction program, due to the shortage of manpower and increasing difficulties in retaining and recruiting skilled workers forecasted for the coming year, staff have scaled down the local repair program in 2007. According to the revised work plan, many of the less critical repairs for catch basin and spurs work will be delayed to future years so the available resources can be directed to maintain the three large construction crews for the main sewer replacement program and other higher priority projects in 2007. It is estimated that the 2006 unspent budget of \$325,000 along with a budget allocation of \$100,000 and the \$200,000 expected from Translink through the Major Road Network (MRN) Operation, Maintenance and Repair (OMR) program in 2007 will be sufficient to cover the revised 2007 work plan. Therefore staff recommend \$100,000 be allocated to this program in 2007.

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-1

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED1

ORDER NUMBER

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	System Replacement/Separation
DESCRIPTION	This program consists of the renewal of sewer mains, connections, manholes, street drains, and pump stations

**4. Upgrade and Replacement of Pump Stations                      \$ 3,497,000                      CC2ED14X1 Order Number: 30009904**

2007 Budget Allocation:	\$2,900,000
*Closeout Transfer from 2003-2005 Capital Plan:	<u>\$ 597,000</u>
2007 Gross Budget:	\$3,497,000

There are 26 sanitary sewage-pumping stations of various capacities and sizes within the City's sewage collection system. In the course of normal operations, partial or complete replacement of pumps and valves, as well as other mechanical, electrical, control and instrumentation equipment is required as they wear out over time.

A comprehensive assessment of stations conducted in 2003 identified that ten out of the twenty-six stations are near the end of their service lives. Because of the age of these stations as well as the need for increased pumping capacity due to growth, a number of pump stations need to be replaced over the next ten years.

The 2006-2008 Capital Plan has a budget provision for a total of five pumping station replacements and the replacements of worn equipment at various stations, structural stability and integrity testing of all old force mains, as well as an upgrade of the Supervisory Control and Data Acquisition (SCADA) system.

The 2007 work plan includes the design and construction of two major new pumping stations and some minor system upgrades and studies. The two pumping stations scheduled for replacement in 2007 are the Granville Pumping Station and the Boundary and 1<sup>st</sup> Pumping Station. Staff recommend that \$2,900,000 be allocated to this program in 2007.

\*Unexpended closeout balance will be transferred to 2007 Program subject to Council approval of 2003-2005 Capital Plan Close-outs.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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**IMPACT OF DELAY**

Delays would restrict the City's ability to continually reduce Combined Sewer Overflows (CSOs) and to eliminate them by 2050, per City commitment in the Liquid Waste Management Plan.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-2

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED2

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	System Management
DESCRIPTION	Projects, data collection and analysis necessary to support cost efficient work programs

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	2007 ADVANCE FUNDING APPROVED
\$346,000	\$ 0	\$0	\$0	\$346,000	\$346,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$78,000	Other Levels of Government			\$
Materials		\$10,000	Property Owners			\$
Equipment		\$35,000	Other (specify below)			
Contract		\$185,000				\$
Overhead		\$31,000				\$
Other (specify below)						\$
Mic Charges		\$7,000				\$
		\$				\$
		\$346,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

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### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

The system management program provides funds to support information gathering and research projects. This provides key information that is used to prioritize our 1% replacement program and establish routine maintenance programs.

#### SCOPE OF WORK / DELIVERABLES

**1 TV INSPECTION OF SEWERS**                      \$ 230,000      CC2ED21X1 Order Number: 30009905

The ongoing closed-circuit television inspection program allows us to visually inspect and assess the condition of our sewers from the inside. It provides essential information for planning sewer design and maintenance programs and in establishing priorities for the reconstruction program. This inspection allows us to optimize our replacement program by potentially preventing the collapse of some sewers and extending the useful life of others.

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-2

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED2

ORDER NUMBER

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	System Management
DESCRIPTION	Projects, data collection and analysis necessary to support cost efficient work programs

Additionally, this visual inspection enables us to optimize our maintenance programs by determining which sewers are prone to maintenance problems. Maintenance problems such as tree-root clogged sewers can go undetected until problems, such as flooding, occur.

2007 work plan is in place and it is recommended that \$230,000 be allocated to this program in 2007.

**2 INVESTIGATION FOR DESIGN                      \$ 116,000                      CC2ED22X1 Order Number: 30009906**

This program provides funds for a variety of tools that support cost-effective capital work programs. Tools consistently used for this purpose include sewer system modeling, field monitoring of sewer flows, construction site exposures, soundings of underground facilities, and investigation of new products and technical standards for sewer design and construction and the improvement of field survey and data collection methods. This work often requires consultants to provide current technical expertise in the field of structural, environmental, and municipal engineering.

Designers also rely on facilities management tools to monitor the changes in the capacity of the sewer system caused by new development and/or blockages in the system. Past flooding events in the City highlighted the need for more effective data collection and retrieval methods to ensure limited capital resources are applied most cost-effectively to maintain system capacity.

Staff recommend that \$116,000, which is one half of the remaining budget approved for this program in the 2006-2008 Capital Plan, be allocated in 2007.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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#### IMPACT OF DELAY

These programs need to be performed in order to support system replacement/Separation D1; delays would restrict the City's ability to continually reduce Combined Sewer Overflows (CSOs) and to eliminate them by 2050, per City commitment in the Liquid Waste Management Plan.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-3

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED33

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	Other Pollution Abatement
DESCRIPTION	Pollution abatement achieved through Liquid Waste Management Plan and Sewer Separation on Private Property

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$720,000	\$ 0	\$50,000	\$0	\$670,000	\$670,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$252,000	Other Levels of Government			\$
Materials		\$143,000	Property Owners			\$
Equipment		\$158,000	Other (specify below)			
Contract		\$36,000				\$
Overhead		\$66,000				\$
Other (specify below)						\$
Misc Charges		\$65,000				\$
		\$				\$
		\$720,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

This program compliments the City's combined sewer reduction initiatives by providing immediate separation benefits. This program is particularly important because of the Provincial requirements to reduce and eventually eliminate combined sewer overflows by the year 2050 and because of the 1995 change in the GVRD's cost allocation method.

#### SCOPE OF WORK / DELIVERABLES

- LIQUID WASTE MANAGEMENT PLAN** \$ 50,000  
 2007 Budget Allocation: \$ 0  
 \*Closeout Transfer from 2003-2005 Capital Plan: \$ 50,000  
 2007 Gross Budget: \$ 50,000

The Liquid Waste Management Plan (LWMP) was approved by the Province in 2002. This plan establishes

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-3

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED33

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	Other Pollution Abatement
DESCRIPTION	Pollution abatement achieved through Liquid Waste Management Plan and Sewer Separation on Private Property

commitments for sewage treatment, combined sewer overflows, and storm water management for both Regional and municipal systems under the Province's Waste Management Act. The City and the GVRD are now working on implementing key commitments outlined in the Plan for Vancouver.

During 2007, the City will be required to continue analyzing and developing detailed planning scenarios for our sewer system to support the work program which has been outlined in the LWMP. This includes additional joint GVRD and City studies examining combined sewer overflow reduction methods and strategies with the aid of computer modelling as well as the development of an Integrated Storm water Management Plans for the Vancouver Drainage Basins. While we have been successful over the past several years in supporting the LWMP efforts without additional staff, some non-professional technical assistance may be required in 2007. In previous Capital Budgets, approval was given for a temporary Engineering Assistant II. It is proposed that this position be extended in 2007. The unspent budget in the amount of approximately \$50,000 from previously approved LWMP budgets can be used for this work.

\*Unexpended closeout balance will be transferred to 2007 Program subject to Council approval of 2003-2005 Capital Plan Close-outs.

**2. SEWER SEPARATION ON PRIVATE PROPERTY      \$ 650,000      CC2ED3X1 Order Number: 30009908**

This program was established by Council in 1978 in order to achieve the pollution control benefits of a separated sewer system. This program also allows for a maximum \$1,000 reimbursement towards the cost of plumbing alterations on private property and provides for a separated connection to the main sewer. The program has mainly focused on the False Creek area and the West End and to a lesser degree on the Downtown Eastside/Strathcona, Still Creek and Fraser River areas. The major benefit of the program has been a reduction in the fecal coliform levels in adjacent waters, as well as the removal of other industrial pollutants which may inadvertently be discharging through the storm sewer system.

Today, there are additional benefits from this program. The approved LWMP requires the reduction and elimination of combined sewer overflows in Vancouver by the year 2050. This program is needed to achieve these goals and minimize Provincial requirements for more costly short-term improvements to reduce Vancouver's sewage overflows.

In addition, because the program helps to reduce dry weather flows to the Iona Sewage Treatment Plant, it will help offset the Regional District's annual sewerage levy to Vancouver.

In 1995, sewer separation was completed in the Yaletown drainage basin resulting in the elimination of the Drake Street combined sewer overflow. Similarly, in 1999 sewer separation was completed in the downtown South Granville area resulting in the elimination of the Granville Street combined sewer overflow. In 2000 and 2001 considerable separation work occurred west of Granville Street in the West End eliminating the Parklane CSO and reducing combined sewer overflows at the Denman Street outfall.



# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-3

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED33

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	Other Pollution Abatement
DESCRIPTION	Pollution abatement achieved through Liquid Waste Management Plan and Sewer Separation on Private Property

The 2006-2008 program includes elimination of the Denman Street CSO and continued separation work along the Burrard Street corridor in the Downtown area which will reduce sewage overflows to Vancouver Harbour as well as to reduce dry weather flows to the treatment plant. This work is expected to eliminate the Burrard Street combined overflow. The 2006-2008 program will also focus in the south east False Creek area to reduce combined overflows to False Creek. In addition, the program will focus in other areas to compliment the main sewer separation program. For example, separation in the Fairview slopes area will reduce combined sewer overflows to False Creek. Separation in the Tatlow Park area will help to reduce flows to the plant as well as to help restore the original stream through this park.

In 2006, we did slightly more separation work than the 2006 allotment of \$554,000. According to the 2007 work plan, a budget of \$650,000 is required to cover the 2007 separation work and the over-expenditure in 2006 for the purpose of achieving a balance position at the end of the second year of the 2006-2008 Capital Plan.

### 3. STILL CREEK ENVIRONMENTAL PROGRAM      \$20,000 CC2ED35X1 Order Number: 30009909

The City, in conjunction with Burnaby and the GVRD, have been working on developing an Integrated Storm Water Management Plan for the Still Creek drainage basin. This plan examines initiatives in the basin to reduce flooding risks, protect and enhance the environment and improve the social value of the Still Creek corridor. Recommendations in the plan include initiatives or pilot projects to: reduce stream flooding, increase permeability, reduce pollutant discharges, provide public education, add walking and cycling routes, and enhance greenways, trails, view points, and other public amenities.

This work complements the sustainability principle requiring "integrated decision-making that takes into account economic, ecological and social impacts as a whole", adopted by Council in 2002. It also compliments the CityPlan directions for "Clean Air and Water", "Vancouver and the Region", "New and More Diverse Places", and "Transit, Walking, & Biking as a Priority" by enhancing the Still Creek corridor as described above. Furthermore, it also follows the Provincially approved Liquid Waste Management Plan requiring integrated stormwater management plans to be developed.

Due to the longer than expected development of the Still Creek Integrated Management Plan, the Report for the implementation of the plan was not approved by City Council until December 2006. Staff expect that implementation can start in 2007 and recommended that the \$32,000 unused 2006 budget along with a new budget of \$20,000 in 2007 be spent on the Still Creek Integrated Management Plan in 2007.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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#### IMPACT OF DELAY

This is an integral part of System Replacement/Separation (D1) to continually reduce and eliminate CSOs in important water bodies (e.g. False Creek).

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

D-5

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2ED5

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Sewers & Drainage
SUB-PROGRAM / PROJECT	Public Sewer Connection
DESCRIPTION	Installation of public sewer connections on residential and commercial properties

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$9,500,000	\$9,500,000	\$0	\$0	\$ 0	\$ 0	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour		\$2,850,000	Other Levels of Government			\$
Materials		\$1,424,000	Property Owners			\$9,500,000
Equipment		\$2,090,000	Other ( <i>specify below</i> )			
Contract		\$				\$
Overhead		\$1,093,000				\$
Other ( <i>specify below</i> )						\$
Street cut, street degradation fees, traffic control, dump charges, etc.		\$2,043,000				\$
		\$				\$
		\$9,500,000				\$9,500,000

### COST SAVINGS & OTHER BENEFITS -

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

OBJECTIVES				
Perform the install of approximately \$9.5 million worth of public sewer connections and cover the costs of this work are recovered from public sewer connection fees charged to developers and builders.				
SCOPE OF WORK / DELIVERABLES				
OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED ( <i>if applicable</i> )				
TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
IMPACT OF DELAY	Developments will face delays in becoming operable.			

Engineering Capital Budget Submission Details

**ENGINEERING WATERWORKS**

Project Number	Program 2007	Estimated Gross Budget \$(000)	External Funding \$(000)	*Capital Closeout Transfer \$(000)	DCL Funding \$(000)	Revenue/Debenture Funding \$(000)	2007 Basic Capital Budget Request
<b>E-1</b>	<b>AGING INFRASTRUCTURE</b>						
	a) Distribution Main Replacement	10,039	0	0	0	10,039	10,039
	b) Transmission Main Replacement	2,654	0	0	0	2,654	2,654
	c) Replacement of Meters & Services	2,468	0	0	0	2,468	2,468
	d) Replacement of Fire Hydrants	184	0	0	0	184	184
	e) PRV Stations	10	0	0	0	10	10
	<b>SUBTOTAL: AGING INFRASTRUCTURE</b>	<b>15,355</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15,355</b>	<b>15,355</b>
<b>E-2</b>	<b>ADDRESSING GROWTH</b>						
	a) Transmission Capacity	0	0	0	0	0	0
	b) Fire Upgrading for Development	167	0	81	0	86	86
	c) Conservation Capital	0	0	0	0	0	0
	d) New Meters & Services	270	0	0	0	270	270
	e) Minor Improvements to the System	0	0	0	0	0	0
	<b>SUBTOTAL: ADDRESSING GROWTH</b>	<b>437</b>	<b>0</b>	<b>81</b>	<b>0</b>	<b>356</b>	<b>356</b>
<b>E-3</b>	<b>EMERGENCY PLANNING</b>						
	a) Dedicated Fire Protection System	251	0	100	0	151	151
	b) Emergency Supplies	170	0	170	0	0	0
	<b>SUBTOTAL: EMERGENCY PLANNING</b>	<b>421</b>	<b>0</b>	<b>270</b>	<b>0</b>	<b>151</b>	<b>151</b>
<b>E-4</b>	<b>INVESTIGATION, MONITORING, &amp; CONTROL</b>						
	a) Telemetry System	50	0	0	0	50	50
	b) Engineering Site Investigation	155	0	0	0	155	155
	<b>SUBTOTAL: INVESTIGATION, MONITORING, &amp; CONTROL</b>	<b>205</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>205</b>	<b>205</b>
<b>E-5</b>	<b>WATER QUALITY PROJECTS</b>						
	a) Miscellaneous Water Quality Projects	667	0	0	0	667	667
	<b>SUBTOTAL: WATER QUALITY PROJECTS</b>	<b>667</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>667</b>	<b>667</b>
	<b>TOTAL - 2007 WATERWORKS CAPITAL BUDGET</b>	<b>17,085</b>	<b>0</b>	<b>351</b>	<b>0</b>	<b>16,734</b>	<b>16,734</b>

\*Close-out balance will be transferred to 2007 Program subject to Council approval of 2003-2005 Capital Plan Close-outs.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EE1

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Aging Infrastructure Replacement
DESCRIPTION	Replacement of the City's Aging Distribution and Transmission Mains, Meters, and Services and Fire Hydrants

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$15,355,000	\$ 0	\$0	\$0	\$15,355,000	\$15,355,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$3,199,000	Other Levels of Government			\$
Materials		\$3,199,000	Property Owners			\$
Equipment		\$2,175,000	Other (specify below)			
Contract		\$2,000,000				\$
Overhead		\$2,559,000				\$
Other (specify below)						\$
Street cut, degradation fees, traffic control, dump charges, etc.		\$2,223,000				\$
		\$				\$
		\$15,355,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

Prevent leak and break repair costs from increasing. Reduces cost of purchasing water that leaks from the system, and reduces damages to other utilities and private property. Increase reliability of water system to provide safe drinking water and adequate flow for fire protection.

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

A key strategic objective of the Waterworks Long Range Plan is to manage infrastructure proactively. The City's water system has an estimated replacement value of \$1.5 billion. It consists of approximately 1440 km of water mains, plus associated facilities such as pressure regulating stations, and appurtenances such as valves, fire hydrants, and service connections. With such an extensive system, it is important to use a life-cycle replacement program to eliminate unmanageably large short-term capital expenditures, minimize risk, and control operating costs.

#### SCOPE OF WORK / DELIVERABLES

This program provides funding to renew aging water system infrastructure in a sustainable manner. As water system infrastructure ages, corrosion and mechanical wear increase the probability of failure. These failures

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-1

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EE1

ORDER NUMBER

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Aging Infrastructure Replacement
DESCRIPTION	Replacement of the City's Aging Distribution and Transmission Mains, Meters, and Services and Fire Hydrants

reduce the reliability of the water system, increase operating costs, and sometimes cause extensive property damage. Using the Waterworks Long Range Plan as a guide, this program conducts infrastructure renewal activities at a sustainable rate, replacing water system components at the end of life-cycle expectancy.

The recommended 2007 allocations are as follows:

1a) Distribution Main Replacement: \$10,039,000                      CC2EE1AX1 Order Number: 30009943

This funding is for the systematic replacement and rehabilitation of aging distribution mains. The City's distribution main network covers virtually every street in the City of Vancouver, moving water from transmission pipelines to customer connections. This program reduces pipeline maintenance costs and system leakage, limits damage to City and private property caused by water main failures, and helps to ensure continued safe and reliable water service to customers. Since 1994, Waterworks has replaced numerous watermains to prevent breaks or correct other deterioration problems such as heavy tuberculation (internal corrosion). As a result, the annual number of watermain breaks is now declining, from a peak of about 70 breaks per year in the early 1990's, to an average of about 55 breaks per year, or about 4 breaks/100km of pipe per year. This break rate is considered good for a system the size and age of Vancouver's.

In 2006, 90% of the Distribution Main replacement budget was expended. An additional 5% (95% total) of work would have been completed, but a reallocation of crew resources for Distribution Looping projects in the Miscellaneous Water Quality programs (E5a) took priority due to low chlorine residuals. Also in 2006, crew resources were diverted to Canada Line projects. In 2007, Canada line work will continue and some manpower resources will be directed to the Canada Line projects accordingly.

Staff recommend that a budget of \$10,039,000 be allocated to this program in 2007. The following major replacement work are planned for 2007:

- Musqueam Reserve main replacement
- SW Marine, Blenheim - Cedarhurst
- W 12th Ave, Collingwood St. - Trafalgar St. (Concrete Road Surface)
- Cedarhurst, SW Marine - W 45th Ave
- Wales, E 38th - 45th Ave
- Kerr St, Distribution Main upgrades - various locations
- W 45th Ave, Balaclava - MacDonald
- Nanaimo, E 24th - 26th Avenue
- E 44th Ave, Killarney - Wales
- SW Marine, Camosun - Salish
- W 46th Ave, Crown - Olympic St (Directional Drill Holland - Crown)
- W 48th Ave, Blenheim - SW Marine
- W 16th Ave, Blenheim St. - Balaclava St.
- W 16th Ave, Oak - Laurel
- Ontario St, E 57th Ave. - E 60th Ave.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-1

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EE1

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Aging Infrastructure Replacement
DESCRIPTION	Replacement of the City's Aging Distribution and Transmission Mains, Meters, and Services and Fire Hydrants

Holland St., SW Marine - 46th Ave  
 E 17th Ave, St. Catherine Street - Glen Dr.  
 E 17th Ave, Inverness - Knight St.  
 Heather St, 11th - 13th (coord. w/VGH, left turn bay & Canada Line work)  
 Olympic St., South through Musqueam Park (Directional Drill)  
 W 48th Ave, Wallace to Alma (Directional Drill through Musqueam Park)

1b) Transmission Main Replacement:           \$ 2,654,000    CC2EE1BX1 Order Number: 30009944

This funding is for the systematic replacement and rehabilitation of aging transmission mains. The City's transmission pipelines serve as the backbone of the water system, moving bulk water from the GVRD system to feed the distribution mains. As a single transmission watermain typically serves tens of thousands of customers, the tolerance of failures resulting in loss of service is very low. Therefore, this program provides funding for the proactive renewal and rehabilitation to minimize the occurrence of failures.

9% of the City's aging transmission main inventory consists of welded steel pipe. This type of pipe is very strong, but as it ages it suffers from corrosion which results in holes and leakage. The service life of the pipe can be increased by adding sacrificial anodes to prevent further corrosion, or adding a liner to bridge the corrosion holes.

34% of the City's aging transmission inventory consists of riveted steel pipe. Most of this piping began to experience failures in the 1960's and 70's, and was subsequently lined with cement. While this rehabilitation work succeeded by extending the lifespan of pipes by an additional 30 to 40 years, much of this inventory suffers extensive corrosion and must be replaced.

Staff estimated that a 2007 budget allocation of \$2,654,000 along with the unexpended budget balance of \$346,000 from 2006 will be sufficient to fund the major Transmission Main upgrade project on Kerr Street, from East 45<sup>th</sup> Avenue to SE Marine planned for the Fall of 2007. Preliminary estimate of the cost of this project is \$3.0 million.

1c) Aging Water Meter & Service Replacement:       \$2,468,000

1c-1) Aging Water Service Replacement:           \$2,401,000                           CC2EE1D2X1 Order Number: 30009947

The City has approximately 105,000 water service pipes, valued at about \$300 million, that connect our customers to water distribution mains. The 1950's and 1960's were a period of massive construction in the City. Many of the services installed at this time are now beginning to fail, and the Waterworks Long Range Plan recommends a program of proactive renewal to minimize both the life cycle costs of this inventory and the inconvenience to customers. It is recommended that steady repair and replacement work be carried out throughout the 2006-2008 Capital Plan with a \$2,401,000 budget allocation for 2007.

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-1

**TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION**

ORDER GROUP

CC2EE1

ORDER NUMBER

**TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH**

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Aging Infrastructure Replacement
DESCRIPTION	Replacement of the City's Aging Distribution and Transmission Mains, Meters, and Services and Fire Hydrants

1c-2) Aging Water Meter Replacement: \$67,000

CC2EE1D1X1 Order Number: 30009946

The City has approximately 14,000 metered water services. As water meters age, they typically under-read water consumption, resulting in lost revenue for the City. The average life of a water meter is 10 to 15 years, depending on size and type. This ongoing program replaces worn out meters on a regular basis to ensure accurate and equitable billing of the City's metered customers. In addition, the replacement of deteriorating meter chambers that are located in the downtown core will also take place during the 2006-2008 Capital Plan. To fund this work, \$67,000 is recommended to be allocated for 2007.

1d) Aging Fire Hydrant Replacement: \$184,000

CC2EE1E1X1 Order Number: 30009948

The City owns approximately 6,200 fire hydrants, some with installation dates as early as the 1920's. As hydrants age, corrosion and mechanical wear can result in failures, and unserviceable leakage can be a problem. In addition, older fire hydrants are not as hydraulically efficient as contemporary models, and their unlined connections become constricted by tuberculation. In areas of the City with below average water pressure, some of these hydrants are inadequate by current Fire Underwriters' guidelines.

Approximately 50 hydrants (0.9% of the total inventory), are replaced annually as part of the distribution main replacement program. Using the Waterworks Long Range Plan as a guide, the 2006-2008 Capital Plan also includes funds to replace 0.5% of the hydrant inventory in response to failures and unserviceable leaks. To fund this work, \$184,000 is recommended to be allocated in 2007.

1e) PRV Stations : \$10,000

CC2EE1CX1 Order Number: 30009945

The City water system has 30 Pressure Reducing Valve (PRV) stations that regulate pressures to control pipe failures and leakage. The PRV station inventory was studied in 2005 and 18 sites were identified that did not meet modern standards. The study included PRV stations with operator safety and accessibility issues, SCADA communication system incompatibilities, corroding mechanical components and poor reliability. To address these issues, capital improvement work will begin in 2007, with modernization of the entire inventory to be completed by 2014.

In 2007, \$10,000 is required to be added to existing funds of \$80,000 from 2006 to decommission four aging stations that are no longer needed.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE

Start (mm/yy)

January, 2007

Completion (mm/yy)

December, 2007

IMPACT OF DELAY

This program proactively replaces aging infrastructure to prevent water system failures. A delay to this program would reduce the City's ability to provide a safe and reliable water service to customers and would result in higher property damage and maintenance costs.



# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-2

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EE2

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Addressing Growth
DESCRIPTION	Addresses increased domestic and firefighting water demands created by population growth, including metering and conservation to manage the resulting demands

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$437,000	\$ 0	\$81,000	\$0	\$356,000	\$356,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$108,000	Other Levels of Government			\$
Materials		\$100,000	Property Owners			\$
Equipment		\$74,000	Other (specify below)			
Contract		\$0				\$
Overhead		\$73,000				\$
Other (specify below)						\$
Street cut, degradation fees, traffic control, dump charges, etc.		\$82,000				\$
		\$				\$
		\$437,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

This program ensures that the City's water system meets new water demand requirements caused by population growth, and addresses existing flow and reliability shortcomings. Water conservation programs reduce bulk water purchase costs and allow for the deferral of transmission watermain construction and the need for additional storage capacity.

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

This section of the Capital Plan addresses increased domestic and fire fighting water demands created by population growth, including metering and conservation to manage the resulting demands.

Population growth within the City increases domestic water demand, which affects primarily the water transmission system (City and GVWD large mains, storage, and pumping). Local densification results in higher fire-flow demands, which affects the (smaller) water distribution mains in the immediate neighbourhood of the development. New developments also require new water services and meters.

Vancouver's population growth has slowed somewhat from previous Plans and there have been few instances of large scale densification. The water system is reasonably robust at this point in time and capacity upgrades are

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-2

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EE2

ORDER NUMBER

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Addressing Growth
DESCRIPTION	Addresses increased domestic and firefighting water demands created by population growth, including metering and conservation to manage the resulting demands

not anticipated. Water conservation and customer equity have become primary concerns and the 2006-2008 Capital Plan has provision for funding a number of programs to address these concerns.

#### SCOPE OF WORK / DELIVERABLES

2a) Transmission Capacity Program: \$0 CC2EE2AX1 Order Number:

The 2006-2008 Capital Plan includes a funding provision for the construction of connection piping to link the City transmission system with the GVRD's new Boundary No.5 supply main. The construction work planned for 2006 in this program was dependent on the GVRD construction completion which was delayed to the Spring of 2007. Therefore, the 2006 construction work in this program is being postponed to 2007. Staff project that the unspent budget in 2006 will be sufficient to cover the work in 2007 and therefore no new budget is required for this program.

2b) Fire Upgrading for Developments: \$167,000 CC2EE2BX1 Order Number: 30009950

2007 Budget Allocation:	\$ 86,000
*Closeout Transfer from 2003-2005 Capital Plan::	<u>\$ 81,000</u>
2007 Gross Budget:	\$167,000

This program funds the local system improvements that are necessary to accommodate the increases in fire-flow water demand brought by new high density development projects. The City's practise is to seek cost-sharing from developers for any upgrades required. In areas where a deficiency exists prior to redevelopment, the City funds the upgrades to eliminate the current deficiency and the developer is charged for the additional work that is required because of the redevelopment. This program provides funding for the City's share of the water system upgrade cost.

In Spring 2007, a fire upgrade for the Beulah Garden development will begin at a cost of \$180,000, the cost to the city is \$100,000 and the developer portion is \$80,000. The project was originally funded in the 2003-2005 Capital Plan. Accordingly, staff recommend \$81,000 from the unspent budget be transferred from 2003-2005 Capital to 2007 to cover this work.

Projects in this program are difficult to predict. It all depends upon the amount and timing of development activity in the City and the specific locations of those developments. Staff recommend that a budget of \$86,000 is a good estimate for this program in 2007.

\*Unexpended closeout balance will be transferred to 2007 Program subject to Council approval of 2003-2005Capital Plan Close-outs.

2c) Conservation Capital Projects: \$ 0

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-2

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EE2

ORDER NUMBER

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Addressing Growth
DESCRIPTION	Addresses increased domestic and firefighting water demands created by population growth, including metering and conservation to manage the resulting demands

This program funds projects that provide economic savings through reductions in the amount of bulk water purchased from the GVRD. Water conservation is a key element in the GVRD and City strategies to support the sustainable use of regional water resources.

Water conservation now provides significant economic benefits. In recent years, conservation initiatives such as summertime sprinkling regulations has allowed for significant per capita water demand reductions, and has resulted in significant savings through the avoidance and deferral of regional and City infrastructure capacity increasing projects. In addition, the City's bulk water cost is increasing significantly due to large scale GVRD water quality enhancing projects such as the Seymour-Capilano Filtration Plant. The cost of bulk water has increased by 64% since the year 2000, and in 2006 the City will spend approximately \$37.6 million on water purchases from the GVWD.

There are a number of potential opportunities for the City to save drinking water through water reduction initiatives for civic facilities. Recent projects have resulted in significant economic savings through water use reductions at Trout Lake and Charleson Park. Most work for this program originally planned for 2006 was delayed to 2007. Work plan for 2007 is in place to carry out campaigns to encourage individuals and businesses to adopt resource efficient behaviours. It is expected that the unspent budget in 2006 is sufficient to cover the work planned for 2007. Therefore, no new budget allocation is required for this program in 2007.

2d) New Meters & Services \$270,000

The regular new meter and services program covers the following three sub-programs:

2d-1) Additional AMR installations: \$50,000 CC2EE2D2X1 Order Number: 30009951

In 2005, the City began testing radio read technologies for the water metering system. The intent of the program is to implement the technology that meets the City's need to provide radio reading for the most "difficult-to-access" water meters. This program proposes to add another 2000 AMR units to commercial water meter inventories in this capital plan. It is recommended that \$50,000 be allocated to this program in 2007.

2d-2) Park Board Metering: \$10,000 CC2EE2D3X1 Order Number: 30009952

With the exception of revenue generating facilities, the majority of Parks Board water connections are unmetered. Initial estimates indicate that the parks consume approximately 3-4% of the total City water purchased from the GVRD.

In 2005, a water conservation program was initiated in partnership with the Parks Board. To find opportunities for water use reductions, this program installs meters to measure and understand consumption for irrigation and ornamental water features. It is recommended that \$10,000 be allocated to this program in 2007.

2d-3) New Meter Purchase and City Funded Services: \$210,000 C2EE2D4X1 Order Number: 30009953

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-2

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EE2

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Addressing Growth
DESCRIPTION	Addresses increased domestic and firefighting water demands created by population growth, including metering and conservation to manage the resulting demands

The City owns the water meters used to measure our customers' water consumption. These meters are also used to estimate and bill for sewage discharge. This program provides funding to purchase meters for new metered services. The City recovers these purchase costs through the rental of the meter to the building owner. This program also funds water service upgrades associated with the construction for legal secondary suite. Staff recommend \$210,000 be allocated to this program in 2007.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE

Start (mm/yy)

January, 2007

Completion (mm/yy)

December, 2007

IMPACT OF DELAY

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-3

**TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION**

ORDER GROUP

CC2EE3AX1

ORDER NUMBER

30009954

**TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH**

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Emergency Planning
DESCRIPTION	Dedicated Fire Protection System

**SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -**

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$421,000	\$ 0	\$270,000	\$0	\$151,000	\$151,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$42,000	Other Levels of Government			\$
Materials		\$104,000	Property Owners			\$
Equipment		\$50,000	Other (specify below)			
Contract		\$0				\$
Overhead		\$70,000				\$
Other (specify below)						\$
		\$155,000				\$
		\$				\$
		\$421,000				\$ 0

**COST SAVINGS & OTHER BENEFITS -**

**IMPACT ON OPERATING BUDGET -**

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

**SUB-PROGRAM / PROJECT INFORMATION -**

**OBJECTIVES**

The Dedicated Fire Protection System (DFPS) construction began in 1993, and was completed in 2003. The pumping stations are now 10 years old and some equipment needs to be replaced.

**SCOPE OF WORK / DELIVERABLES**

3a) Dedicated Fire Protection System: \$ 251,000

2007 Budget Allocation: \$ 151,000

\*Closeout Transfer from 2003-2005 Capital Plan: \$ 100,000

2007 Gross Budget: \$ 251,000

A work plan is in place to repair damaged architectural features, and to repair valves, piping, and hydrants. Staff recommend \$151,000 be allocated to this program in 2007.

The DFPS Directional Drill Crossing project carried out in the 2003-2005 Capital Plan has an outstanding legal claim.

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-3

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EE3AX1

ORDER NUMBER

30009954

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Emergency Planning
DESCRIPTION	Dedicated Fire Protection System

Staff recommend that \$100,000 of the unspent budget be transferred from the 2003-2005 Capital Plan to 2007 to fund any potential future legal claim settlement.

3b) Emergency Supplies \$170,000

2007 Budget Allocation:	\$ 0
*Closeout Transfer from 2003-2005 Capital Plan:	<u>\$ 170,000</u>
2007 Gross Budget:	\$ 170,000

There is an unexpended balance in Emergency Supplies of \$170,000 in the 2003-05 Capital Plan. This \$170,000 budget was a carry-forward from the 2000-2002 Capital Plan which related to the VGH emergency water connection installation. The installation work is dependent on VGH construction completion which has been deferred to 2007. Accordingly, staff recommends this amount be transferred to 2007.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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#### IMPACT OF DELAY

Delays in repair and replacement work will increase the risk of the pumping stations not working properly in responding to emergency situations.

# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-4

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EE4AX1/4BX1

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Investigation, Monitoring, & Control
DESCRIPTION	This program gathers Waterworks information for system design and control. It also provides for funding for investigation of new materials and technologies.

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$205,000	\$ 0	\$0	\$0	\$205,000	\$205,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET		EXTERNAL FUNDING				
Direct Labour		\$30,000	Other Levels of Government			\$
Materials		\$12,000	Property Owners			\$
Equipment		\$10,000	Other (specify below)			
Contract		\$0				\$
Overhead		\$34,000				\$
Other (specify below)						\$
Misc charges		\$119,000				\$
		\$				\$
		\$205,000				\$ 0

### COST SAVINGS & OTHER BENEFITS -

Provides funds for research and investigation of new products, materials and technology that may lead to greater efficiency.

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

This program gathers information for water system system design and control. It also provides funding for investigation of new materials and technologies. This program funds the waterworks telemetry system, as well as other engineering and site investigations, including new waterworks technologies.

#### SCOPE OF WORK / DELIVERABLES

4a) Telemetry System: \$50,000 CC2EE4AX1 Order Number: 30009955

This is an ongoing program to upgrade and expand telemetry infrastructure, which relies on computer and communications systems to monitor water system operations. This information is used to alert staff to potential water quality problems, minimize damage due to pipeline failures, and optimize operations and planning activities. The information that is collected and stored by the telemetry system is essential for monitoring water demands, system breaks, and system performance, as it alerts staff to problem areas.

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-4

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EE4AX1/4BX1

ORDER NUMBER

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Investigation, Monitoring, & Control
DESCRIPTION	This program gathers Waterworks information for system design and control. It also provides for funding for investigation of new materials and technologies.

The Waterworks Long Range Plan outlines a work plan for the telemetry system that requires funding for hardware and software upgrades, and the installation of new monitoring sites. These upgrades are needed to replace obsolete technological components and improve reliability. New monitoring sites are needed in critical locations where water pressure is likely to decrease due to new building development and population growth.

In 2007, a new SCADA system is being developed. To fund this work project, an additional \$50,000 is required to be added to existing 2006 funds of \$133,000.

4b) Engineering and Site Investigation: \$155,000 CC2EE4BX1 Order Number: 30009956

This program funds investigations aimed at improving construction processes, evaluating emerging technologies, planning of water system improvements and testing of waterworks materials.

Funds are requested annually to provide for various engineering investigations, such as product evaluations, materials testing, soils testing, bacterial monitoring, computer design tools, and pilot tests of new rehabilitation tools.

It is recommended that \$155,000 be allocated to this program in 2007. Some projects to be carried out in 2007 include: a Water System Hydraulic Model Upgrade, an infrastructure evaluation for Acoustic Monitoring of concrete mains, and a Demand Management Area (District Metered Area) Study.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED (if applicable)

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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#### IMPACT OF DELAY

Delays to this program would reduce the City's ability to plan improvements to ensure continued acceptable service levels, and provide real-time alerts to problems with the water system.



# 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-5

## TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EE5BX1

ORDER NUMBER

## TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Water Quality Projects
DESCRIPTION	Capital Projects that reduce the number of dead end, low flow and tuberculated watermains

### SUB-PROGRAM / PROJECT BUDGET & SOURCES OF FUNDING -

GROSS BUDGET	EXTERNAL FUNDING	CARRIED FORWARD FUNDING	2007 BASIC CAPITAL BUDGET REQUEST			2007 ADVANCE FUNDING APPROVED
			DCL/CAC FUNDING	REVENUE / DEBENTURE FUNDING	TOTAL (incl. Advance Funding)	
\$667,000	\$ 0	\$0	\$0	\$667,000	\$667,000	\$0
GROSS SUB-PROGRAM / PROJECT BUDGET			EXTERNAL FUNDING			
Direct Labour			\$156,000	Other Levels of Government		\$
Materials			\$122,000	Property Owners		\$
Equipment			\$156,000	Other (specify below)		
Contract			\$0			\$
Overhead			\$111,000			\$
Other (specify below)						\$
Street cut, degradation fees, traffic control, dump charges, etc.			\$122,000			\$
			\$			\$
			\$667,000			\$ 0

### COST SAVINGS & OTHER BENEFITS -

Improving water quality to adhere to Canadian Drinking Water Guideline limits.

### IMPACT ON OPERATING BUDGET -

Added Basic	2007	\$0	2008	\$0	2009	\$0
Comment						

### SUB-PROGRAM / PROJECT INFORMATION -

#### OBJECTIVES

The provision of clean, safe drinking water is critical for public health. Under operating permits issued by Vancouver Coastal Health, drinking water quality is a joint responsibility of the City of Vancouver and the GVRD. The GVRD delivers bulk treated water to the Vancouver system, and the City is responsible for maintaining high quality within the local distribution network. In North America, it is estimated that 50% of waterborne disease outbreaks have originated in distribution systems. Therefore, it is critical that the City of Vancouver have a proactive program in place to ensure high quality safe drinking water.

#### SCOPE OF WORK / DELIVERABLES

The City purchases its water from the GVWD, who is responsible for source protection and primary water treatment. However, the issues within the local distribution system are the City's responsibility. These include maintaining adequate chlorine residuals, addressing areas with chronic low flows, providing suitable monitoring, addressing cross-connection risks, and other distribution system issues which create water quality

## 2007 BASIC CAPITAL BUDGET REQUEST

REFERENCE #

E-5

### TO BE COMPLETED BY CORPORATE BUDGET SERVICES OR ENGINEERING BUDGETS & ADMINISTRATION

ORDER GROUP

CC2EE5BX1

ORDER NUMBER

### TO BE COMPLETED BY DEPARTMENT / DIVISION / BRANCH

DEPARTMENT	Engineering
DIVISION / BRANCH	WATER & SEWERS
PROGRAM	Waterworks
SUB-PROGRAM / PROJECT	Water Quality Projects
DESCRIPTION	Capital Projects that reduce the number of dead end, low flow and tuberculated watermains

concerns.

This program funds minor capital improvements which will improve water quality, and provides contingency funding for the construction of additional rechlorination stations if and when they are required.

5a) Miscellaneous Water Quality Projects: \$667,000      CC2EE5BX1 Order Number: 30009957

In areas where building density and demand is low, a water system built to provide high volume flows for fire fighting can experience stagnation problems. This can adversely affect taste and odour of drinking water and leave little residual chlorine for protection against contaminants. To address this, the Waterworks Long Range plan recommends a proactive program of capital works oriented towards improving flow circulation and water freshness in the low demand end-nodes of the water system.

In 2006, this program was over-expended as more work was done on looping projects which became a priority since lower chlorine residuals were detected. In 2007, \$667,000 is recommended to fund the remainder of the program in the 2006-2008 Capital Plan.

OTHER DEPARTMENTS / DIVISIONS / BRANCHES INVOLVED *(if applicable)*

TIMELINE	Start (mm/yy)	January, 2007	Completion (mm/yy)	December, 2007
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#### IMPACT OF DELAY

Delays to this program would inhibit the City's ability to reduce stagnation in low flow areas of the water system and ensure the City's long term compliance with Canadian Drinking Water Quality Guidelines.



# Engineering Capital Closeouts

City of Vancouver

April 2007



## INTRODUCTION

The following section summarizes the capital closeouts of programs/projects funded from the 2003-2005 Capital Plan and the proposed allocation of the funding balance.

### Closeouts

This closeout process for the 2003-2005 Capital Plan will involve complete program closeouts for Street Lighting and Sewers & Drainage, and partial program closeouts for Streets, Communications, Waterworks and Yards.

A summary of the account closeout for each program area is provided in this report. The account summaries are based on the SAP Capital Statements generated as of February 28, 2007. Council authority is required to close capital accounts with a variance of more than 15% and \$50,000 of the approved budget, and to reallocate capital funding of more than \$50,000. Explanations for each account with a significant variance are provided for Council's information.

The net overall closeout balance in each area is summarized below and in most cases, the overall Capital Programs have unexpended balances. In the case where a group of accounts will be closed with a deficit, funding allocation from the 2007 Budget have been identified to cover the shortfall and presented for Council approval. Details of the closeout balance and the proposed allocation in each program area are shown on the following pages.

A summary of the closeout position for each area is as follows:

Table 1: Closeout Position by Program Area

PROGRAM AREA	BASIC CAPITAL BUDGET (\$)	CLOSEOUT BALANCE (\$)
Streets	10,162,963	682,144
Communications	2,297,231	296,790
Street Lighting	5,215,466	112,682
Sewers - Capital	59,514,447	1,173,561
Sewers - Cost Recovery	1,471,994	188,016
Waterworks - Capital	45,021,991	843,076
Waterworks - Cost Recovery	4,957,765	(384,955)
Yards	820,000	7,135
<b>TOTAL</b>	<b>129,462,857</b>	<b>2,918,448</b>

### Streets Capital Account Closeout Summary

The purpose of this summary is to close and balance accounts for completed Streets programs in the 2003-2005 Capital Plan; this includes projects from the Infrastructure and Pedestrians and Bicycles Programs totaling \$10.2 million. The net balance resulting from the closeout is \$682,144 which is 7% of the total budget. It is recommended that this surplus be transferred to the 2006-2008 Streets Capital Program.

Table 2: Streets Account Closeout Summary

Program or Project Description	Budget (\$)	Actual (\$)	Balance (\$)	Variance (%)
CBEA1A-ALT: Arterial Reconstruction	5,542,006	4,986,954	555,052	10%
CBEA2B: Sidewalk Reconstruction*	801,821	929,558	(127,737)	(16%)
CBEA2C: Sidewalk Partial Block	2,815,000	2,520,795	294,205	10%
CBEA2D: Curb Ramp Program	1,004,136	1,043,512	(39,376)	(4%)
<b>NET UNEXPENDED BALANCE/(DEFICIT)</b>	<b>10,162,963</b>	<b>9,402,067</b>	<b>682,144</b>	<b>7%</b>

\*Indicates Program that has projects with a variance of more than 15% and \$50,000. See Table 4 for explanations.

Table 3: Allocation of Closeout Balance

Allocation of Closeout Balance	Budget (\$)
2007 Arterial Reconstruction	555,052
2007 Sidewalk Reconstruction	166,468
<b>Subtotal</b>	<b>721,520</b>
<b>Funding Source from 2007 Budget</b>	
Curb Ramp Program	(39,376)
<b>Subtotal</b>	<b>(39,376)</b>
<b>TOTAL</b>	<b>682,144</b>

Table 4: Variance Explanation

Order Group	Program	Budget (\$)	Actual (\$)	Balance (\$)	Variance (%)
CBEA2B	Sidewalk Reconstruction	801,821	929,558	(127,737)	(16%)
The deficit in this Program is due to rising construction and material costs combined with more extensive rehabilitation required for the Commercial Drive and Robson Street sidewalk reconstruction projects.					

### Communications Account Closeout Summary

The purpose of this summary is to close and balance accounts for completed Communications Programs in the 2003-2005 Capital Plan, which include the above ground terminals, underground cable and network programs totalling \$2.3 million. The net balance resulting from the close-out is \$296,790, which is 13% of the total budget. It is recommended that this surplus be transferred to the 2006-2008 Communications Capital Plan.

Table 5: Communications Account Closeout Summary

Program or Project Description	Budget (\$)	Actual (\$)	Balance (\$)	Variance (%)
CBEB1-ALT: Above Ground Terminals	125,000	92,887	32,113	26%
CBEB2-ALT: Underground Cable replacement	600,000	622,429	(22,429)	4%
CBEB3-ALT: Underground Network Expansion	1,200,000	1,252,677	(52,677)	(4%)
CBEB6-ALT: Communications Unallocated*	372,231	32,448	339,783	91%
<b>NET UNEXPENDED BALANCE/(DEFICIT)</b>	<b>2,297,231</b>	<b>2,000,441</b>	<b>296,790</b>	<b>13%</b>

\*Indicates Program that has projects with a variance of more than 15% and \$50,000. See Table 7 for explanations.

Table 6: Allocation of Closeout Balances

Allocation of Closeout Balance	Budget (\$)
2007 Underground Cable Replacement	100,000
2007 Underground Network Expansion	196,790
<b>TOTAL</b>	<b>296,790</b>

Table 7: Variance Explanation

Order Group	Program	Budget (\$)	Actual (\$)	Balance (\$)	Variance (%)
CBEB6-ALT	Other Charges	372,231	32,448	339,783	91%
This account captures unallocated balances from prior plans. Part of the funding will be applied to offset the shortfall in some of the 2003-2005 Communications programs. Staff recommend that the remaining balance of \$296,790 be transferred to the 2006-2008 Plan to provide funding for the 2007 Communications Capital Program.					

### Street Lighting Capital Account Closeout Summary

All the Street Lighting Programs funded from the 2003-2005 Capital Plan are complete and included in this closeout. The total budget for the 2003-2005 Street Lighting programs is \$5.2 million and the net balance resulting from the closeout is a surplus of \$112,682 which is 2% of the total budget. It is recommended that this surplus be transferred to the 2006-2008 Street Lighting Capital Plan.

Table 8: Street Lighting Accounts Closeout Summary

Program or Project Description	Budget (\$)	Actual (\$)	Balance (\$)	Variance (%)
CBEC1-ALT: Renovate and Replace Plant	5,029,111	5,043,288	(14,177)	(0.3 %)
CBEC2-ALT: Local Improvements*	126,355	(3,401)	129,756	103 %
CBEC4-ALT: Street Lighting Other Charges	60,000	62,897	(2,897)	(5%)
<b>NET UNEXPENDED BALANCE/(DEFICIT)</b>	<b>5,215,466</b>	<b>5,102,784</b>	<b>112,682</b>	<b>2 %</b>

\*Indicates Program that has projects with a variance of more than 15% and \$50,000. See Table 10 for explanations.

Table 9: Allocation of Closeout Balance

Allocation of Closeout Balance	Budget (\$)
2007 Renovate and Replace Plant	112,682
<b>TOTAL</b>	<b>112,682</b>

Table 10: Variance Explanation

Order Group	Program	Budget (\$)	Actual (\$)	Balance (\$)	Variance (%)
CBEC2-ALT	Local Improvements	126,355	(3,401)	129,756	103 %
Local Improvements to install lane lights are carried out at the request of residents and are cost shared with the City. Between 2003 and 2005 there were fewer local improvements requested than anticipated, which resulted in the under expenditure in this area. Staff recommend that the surplus in this account be transferred to the 2006-2008 Capital Plan for the Renovate and Replace Plant Program to assist with the inspection and replacement of trolley arms that have surpassed their service life.					

### Sewer Capital Account Closeout Summary

Sewer capital work can be divided into two major components: (1) programs that are funded by the Basic Capital Budget (mainly from debt financing and a small percentage from government grants and cost sharing with developers), and (2) programs that are funded by cost recovery from public sewer connections and services.

All the Sewer Capital Programs funded from the 2003-2005 Capital Plan are included in this closeout. The total program budget is \$ 59.5 million and the net balance resulting from the closeout is a surplus of \$1,173,561 which is 2% of the total budget. It is recommended that this surplus be transferred to the 2006-2008 Capital Plan as outlined in Table 13.

Sewer Cost Recovery Programs were very close to an overall balance position at the end of the 2003-2005 Capital Plan. With the exception of some deferred revenues related to some sewer connection work, all jobs in the Cost Recovery programs were completed and the remaining deficits and surpluses in these programs are to be off-set with each other. It is therefore recommended that the surplus of \$188,016 related to public sewer connections be transferred to the 2006-2008 Capital Plan as outlined in Table 14.

Table 11: Sewers Capital Account Closeout Summary

Program or Project Description	Budget (\$)	Actual (\$)	Balance (\$)	Variance (%)
<b>System Replacement/Separation</b>				
CBED11A-DC Fraser River Basin	4,005,000	3,829,862	175,138	4%
CBED11B-DC West Pt Grey Basin	8,982,000	7,729,955	1,252,045	14%
CBED11C-DC Balaclava Basin*	6,717,000	5,460,699	1,256,301	19%
CBED11D-DC Kitsilano Basin	2,595,125	2,621,630	(26,505)	(1%)
CBED11E-DC Cambie/Heather Basin*	7,005,000	8,859,353	(1,854,353)	(27%)
CBED11F-DC Terminal Ave Basin	620,000	657,418	(37,418)	(6%)
CBED11G-DC Downtown Basin*	750,000	923,906	(173,906)	(23%)
CBED11H-DC Grandview-Woodland Basin	3,329,000	3,253,375	75,625	2%



CBED11I-DC Hastings-Sunrise Basin*	2,397,000	1,414,593	982,407	41%
CBED11J-DC China Creek Basin	15,000,000	16,178,661	(1,178,661)	(8%)
CBED11K-DC Still Creek Basin*	527,000	399,718	127,282	24%
CBED11L-DC CB/Spurs Repair	-	(14,865)	14,865	No Budget
CBED1A-DC Canada-BC Infrastructure Program	-	-	-	N/A
CBED12-ALT Connection & Manhole Reconstruction	2,173,000	2,480,022	(307,022)	(14%)
CBED13-ALT Local Repair/CB/Spur Reconstruction	890,000	772,812	117,188	13%
CBED14-ALT Upgrade & Replace Pump Stations*	1,256,077	658,716	597,361	48%
<b>Subtotal</b>	<b>56,246,202</b>	<b>55,225,854</b>	<b>1,020,348</b>	<b>2%</b>
<b>System Management</b>				
CBED21-ALT 2003-5 TV Inspection	470,300	504,341	(34,041)	(7%)
CBED22-ALT 2003-5 Investigation for Design*	317,700	408,402	(90,702)	(29%)
<b>Subtotal</b>	<b>788,000</b>	<b>912,743</b>	<b>(124,743)</b>	<b>(16%)</b>
<b>Other Pollution Abatement</b>				
CBED31-ALT 2003-5 Liquid Waste Management	153,700	103,935	49,765	32%
CBED33-ALT 2003-5 Sewer Separation-Private	1,366,000	1,484,570	(118,570)	(9%)
<b>Subtotal</b>	<b>1,519,700</b>	<b>1,588,505</b>	<b>(68,805)</b>	<b>(5%)</b>
<b>System Expansion</b>				
BC/Pacific Place Sewers (from 2000-02 Plan)	212,545	211,882	663	0.3%
<b>Subtotal</b>	<b>212,545</b>	<b>211,882</b>	<b>663</b>	<b>0.3%</b>
<b>Sewer Other Charges</b>				
CBED6B-ALT Sewer - Debenture Discount*	748,000	401,902	346,098	46%
<b>Subtotal</b>	<b>748,000</b>	<b>401,902</b>	<b>346,098</b>	<b>46%</b>
<b>NET UNEXPENDED BALANCE/(DEFICIT)</b>	<b>59,514,447</b>	<b>58,340,886</b>	<b>1,173,561</b>	<b>2%</b>

\*Indicates Programs that have projects with variances of more than 15% and \$50,000. See Table 15 for explanations.

Table 12: Sewers Cost Recovery Account Summary\*\*

Program or Project Description	Carry Forward (\$)	Revenue (\$)	Expenditure (\$)	Balance (\$)	Variance (%)
2003- 2005 Sewer Cost Recovery	126,498	1,471,994	(1,410,477)	188,015	13%
<b>NET SURPLUS/(DEFICIT)</b>	<b>126,498</b>	<b>1,471,994</b>	<b>(1,410,477)</b>	<b>188,015</b>	<b>13%</b>

\*\*Cost Recovery Programs are not assigned a budget.

Table 13: Allocation of Closeout Balance for Capital Programs

Program or Project Description	Budget (\$)
2007 Hastings-Sunrise Basin	180,338

2007 Upgrade & Replace Pump Stations	597,361
2007 Liquid Waste Management	49,765
2007 Sewer - Debenture Discount	346,097
<b>TOTAL</b>	<b>1,173,561</b>

Table 14: Allocation of Closeout Balance for Cost Recovery Programs

Program or Project Description	Budget (\$)
2007 Residential B Permits	(25,147)
2007 Commercial C Permits	213,162
<b>TOTAL</b>	<b>188,015</b>

Table 15: Variance Explanation

Order Group	Program	Budget (\$)	Actual (\$)	Balance (\$)	Variance
CBED11C-DC	Balaclava Basin	6,717,000	5,460,699	1,256,301	19%
A number of sewer replacement jobs originally scheduled for Blenheim Street in 2005 were postponed to 2007 coincide with the revised street reconstruction schedule. Resources were redeployed to the Canada/BC Infrastructure Program, and as a result, the Balaclava Basin had a positive variance. Sewer replacement work plan for this basin will be carried out with the local improvement street paving activities in 2007. The positive variance in this basin can be used to offset negative variances in other basins.					
CBED11E-DC	Cambie/Heather Basin	7,005,000	8,859,353	(1,854,353)	(27%)
Due to the complexity of the overall Canada Line construction schedule, more sewer replacement work was done in the Cambie/Heather Basin in 2005 than was originally planned. This over-expenditure is offset by the under expenditure in the West Point Grey and Balaclava Basins					
CBED11G-DC	Downtown Basin	750,000	923,906	(173,906)	(23%)
The over-expenditure in this program is mainly because of the need to do some unplanned sewer replacement work on Burrard Street in 2005. This sewer work was required prior to street paving and installing a new bike lane, both of which were outside of the original work plan.					
CBED11I-DC	Hastings-Sunrise Basin	2,397,000	1,414,593	982,407	41%
The Penticton sewer replacement job, originally scheduled for 2005, was not started until late December 2005 with the majority of the costs incurred in 2006. The entire job was therefore accounted for in 2006. Staff recommend that under-expenditure in this program be used to help balance the overall 2003-2005 sewer capital plan budget with the excess positive variance of \$180,338 be transferred to the Hastings-Sunrise Basin in the 2006-2008 Plan.					
CBED11K-DC	Still Creek Basin	527,000	399,718	127,282	24%
The Cecil/Euclid South sewer replacement job originally scheduled for 2005 was postponed to 2007 in order to allow labour resources being diverted to carry out more urgent sewer replacement jobs. The positive variance in this basin can be used to offset negative variances in other basins.					
CBED14-ALT	Upgrade & Replace Pump Stations	1,256,077	658,716	597,361	48%
Capital budget allocated to this Program in the 2003-2005 Capital Plan related to the replacement of worn equipment at the City's 26 sanitary sewerage pumping stations, integrity testing of all old force mains and upgrade of the Supervisory Control and Data Acquisition system. As some of the pump stations might be included in the pump station replacement program for total reconstruction, some work was curtailed in the 2003-2005 Capital Plan awaiting for finalization of the overall assessment of the Pump Station Replacement Program. The assessment was completed in late 2005 and design and replacement work for three pump stations began in 2006. Staff recommend that the positive variance in this program be transferred to the 2006-2008 Capital Plan.					

CBED22-ALT	Investigation for Design	317,700	408,402	(90,702)	(29%)
The budget for this program was overspent in 2004 and 2005 due to a higher than normal level of activities required to meet various design needs. The negative variance in this program is to be covered off by other positive variances within the Sewer Program.					
CBED6B-ALT	Debenture Discount Charges	748,000	401,902	346,098	46%
The cost for debenture discount was lower than originally estimated. It is recommended that the unused funds be transferred to the 2006-2008 Capital Plan for covering debenture discount charges associated with the 2006-2008 capital funding.					

### Waterworks Capital Account Closeout Summary

Waterworks capital can be divided into two categories: (1) programs that are funded by the Basic Capital Budget and (2) programs that are funded by cost recovery for new meter installation & services.

All the Waterworks Programs funded by the 2003-2005 Capital Plan were closed with the exception of the Subsidized Voluntary Metering Program and Mandatory Metering for New Construction Program. The accounts included in this closeout have a total budget of \$45 million and the net closeout balance is a surplus of \$843,076, which is 2% of total budget. It is recommended that \$210,000 be used to offset some of the deficits accumulated in the Waterworks Cost Recovery Program and the balance of \$633,076 surplus be transferred to the 2006-2008 Plan, as detailed in Table 18.

The Waterworks Cost Recovery Program has an over expenditure balance of \$384,955 (8% on revenues of \$4,960,000) at the end of the 2003-2005 Capital Plan as shown in Table 17. The variance was mainly attributed to the escalation of overhead rates beyond inflation (2001 - 11% to 2005 - 25%) for the Meter and Connection Program applied to the overhead distribution model (accounts for \$210,000 or 55% of the variance), as well as insufficient review and update of job costing (accounts for \$175,000 or 45% of the variance).

Engineering Services initiated a review of its overhead distribution model in 2005. With a view to standardize the overhead distribution methodology across the City, Corporate Services was to review and implement the model in 2006. That initiative was delayed due to other corporate priorities and staffing issues.

A plan to ensure proper cost recovery has been developed for the Waterworks Recovery Program. This plan includes the continuous review of job cost performance and overall cost recovery rate structure, as well as working more closely with Corporate Services on the overhead distribution review this year in time for the next budgeting cycle.

To address the deficit, staff recommend that \$210,000 be offset by surplus in the 2003-2005 Waterworks Basic Capital Programs, and the balance of \$174,955 be funded from the respective New Meter and Service Installation Programs in the 2006-2008 Waterworks Cost Recovery Program as outlined in Table 19.

Table 16: Waterworks Capital Account Closeout Summary

Program or Project Description	Budget (\$)	Actual (\$)	Balance (\$)	Variance (%)
<b>CBEE1-ALT Infrastructure Replacement</b>				
CBEE1A-ALT Distribution Main Replacement	21,433,000	21,722,210	(289,210)	(1%)
CBEE1B-ALT Transmission Main Replacement	1,900,000	1,862,973	37,027	2%
CBEE1D-ALT Aging Water Meter Replacement	8,203,000	8,436,631	(233,631)	(3%)
CBEE1E-ALT Fire Hydrant Program	548,000	622,294	(74,294)	(14%)

<b>Subtotal</b>	<b>32,084,000</b>	<b>32,644,108</b>	<b>(560,108)</b>	<b>(2%)</b>
<b>CBEE2-ALT WW Addressing Growth</b>				
CBEE2A-ALT Transmission Capacity Program	2,040,991	2,014,293	26,698	1%
CBEE2B-ALT Fire Upgrade for development*	100,000	211	99,789	100%
CBEE2C-ALT Conservation Capital Project	293,000	298,078	(5,078)	(2%)
CBEE2D-ALT New Meter & Service Installation*	1,200,000	376,880	823,120	69%
CBEE2E-ALT Minor Improvement*	564,000	664,370	(100,370)	(18%)
<b>Subtotal</b>	<b>4,197,991</b>	<b>3,353,832</b>	<b>844,159</b>	<b>44%</b>
<b>CBEE3-ALT Emergency Planning</b>				
CBEE3A-ALT Dedicated Fire Protection System	3,900,000	3,649,057	250,943	6%
CBEE3B-ALT Emergency Supplies*	200,000	29,430	170,570	85%
<b>Subtotal</b>	<b>4,100,000</b>	<b>3,678,487</b>	<b>421,513</b>	<b>10%</b>
<b>CBEE4-ALT Other Capital Projects</b>				
CBEE4A-ALT Telemetry *	200,000	102,768	97,232	49%
CBEE4B-ALT Engineering & Site Investigation	366,000	323,846	42,154	12%
CBEE4C-ALT Works Yard Renovation	420,000	420,000	-	-
<b>Subtotal</b>	<b>986,000</b>	<b>846,614</b>	<b>139,386</b>	<b>14%</b>
<b>CBEE5-ALT Water Quality Projects</b>				
CBEE5B-ALT Water Quality Project	3,054,000	3,336,449	(282,449)	(9%)
<b>Subtotal</b>	<b>3,054,000</b>	<b>3,336,449</b>	<b>(282,449)</b>	<b>(9%)</b>
<b>CBEE6-ALT Other charges</b>				
CBEE6B-ALT Discount on Debenture *	600,000	318,500	281,500	47%
<b>Subtotal</b>	<b>600,000</b>	<b>318,500</b>	<b>281,500</b>	<b>47%</b>
<b>CBEE8-ALT Externally Funded Categories</b>				
CB3EE2F Developer Paid Construction	-	925	(925)	-
<b>Subtotal</b>	<b>-</b>	<b>925</b>	<b>(925)</b>	<b>-</b>
<b>NET UNEXPENDED BALANCE/(DEFICIT)</b>	<b>45,021,991</b>	<b>44,178,915</b>	<b>843,076</b>	<b>2%</b>

\*Indicates Programs that have projects with variances of more than 15% and \$50,000. See Table 20 for explanations.

Table 17: Waterworks Cost Recovery Account Summary\*\*

Program or Project Description	Revenue(\$)	Expenditure (\$)	Balance (\$)	Variance (%)
<b>CCEE2D1-AL New Meter Installation</b>				
2003 New Water Meter Installation	74,499	123,269	(48,770)	(65%)
2004 New Water Meter Installation	108,526	117,728	(9,202)	(8%)
2005 New Water Meter Installation	117,980	100,825	17,155	15%
<b>Subtotal</b>	<b>301,005</b>	<b>341,822</b>	<b>(40,817)</b>	<b>(14%)</b>
<b>CCEE2D2-AL New Service Installation</b>				
2003 New Water Service Installation	1,386,336	1,389,986	(3,650)	(0%)

2004 New Water Service Installation	1,795,809	1,986,784	(190,975)	(11%)
2005 New Water Service Installation	1,474,615	1,624,128	(149,513)	(10%)
<b>Subtotal</b>	<b>4,656,760</b>	<b>5,000,898</b>	<b>(344,138)</b>	<b>(7%)</b>
<b>NET Surplus/(Deficit)</b>	<b>4,957,765</b>	<b>5,342,720</b>	<b>(384,955)</b>	<b>(8%)</b>

\*\*Cost Recovery Programs are not assigned a budget.

Table 18: Allocation of Closeout Balance for Capital Programs

Program or Project Description	Budget (\$)
Transfer to partially offset deficit in the 2003-2005 Cost Recovery Program	210,000
<b>Subtotal</b>	<b>210,000</b>
2007 Fire Upgrade for Development	81,576
2007 Dedicated Fire Protection System	100,000
2007 Emergency Supplies	170,000
2006-08 Debenture Cost	281,500
<b>Subtotal</b>	<b>633,076</b>
<b>TOTAL</b>	<b>843,076</b>

Table 19: Allocation of Closeout Balance for Cost Recovery Program

Program or Project Description	Budget (\$)
2007 New Water Meter Installation	(18,600)
2007 New Water Service Installation	(156,355)
<b>Subtotal</b>	<b>(174,955)</b>
Transfer from 2003-2005 Basic Capital	(210,000)
<b>Subtotal</b>	<b>(210,000)</b>
<b>TOTAL</b>	<b>(384,955)</b>

Table 20: Variance Explanation

Order Group	Program	Budget (\$)	Actual (\$)	Balance (\$)	Variance
CBEE2B-ALT	Fire Upgrade for Development	100,000	211	99,789	100%
<p>For new developments, the City's practice is to seek cost-sharing for any water system upgrading work the development requires. The Fire Upgrading for Development Program is intended to fund the City's share of the cost. This Program is driven by development and it is difficult to predict the amount of activity the program will fund. It is recommended that \$81,576 be carried forward to 2007 for the Beulah Garden development which has been deferred to the Spring of 2007.</p>					
CBEE2D-ALT	New Meters & Services Install	1,200,000	376,880	823,120	69%
<p>This program provides funding to purchase meters for new meter services and water service upgrades associated with the construction for legal secondary suite. Due to the lower than expected activity levels for new meters purchase and legal secondary suites construction during the 2003-2005 Capital Plan, a positive variance of \$823,120 resulted in this Program. It is recommended that the positive variance in this program be used to offset negative</p>					

variances in other Programs for the purpose of achieving an overall balance position for the 2003-2005 Waterworks Capital Plan.					
CBEE2E-ALT	Minor Improvements to System	564,000	664,370	(100,370)	(18%)
This Program provides funding for minor works not associated with other capital programs. Examples include valve chambers, short water main extensions and water quality monitoring stations. The budget requirement for this Program has been difficult to accurately predict because the work requirement is generally in response to emergency situation projects. During 2003-2005, staff needed to decommission the 20" leaky water main on Hastings Street and responded to the 33rd Avenue transmission main potential valve failure. These two jobs accounted for about 69% of the entire Capital Plan's budget and are the main reason for the negative variance.					
CBEE3B-ALT	Emergency Supplies	200,000	29,430	170,570	49%
In 2001, funds were allocated for investigation and potential development of an emergency groundwater supply in partnership with the Vancouver Hospital complex. This budget was a carry forward from the 2000-2002 Capital Plan and relates to work for the VGH emergency water connection. Work start is dependent on VGH construction progress which had been deferred to 2007. It is recommended that the unspent balance of \$170,000 be transferred to the 2006-2008 Capital Plan.					
CBEE4A-ALT	Telemetry System	200,000	102,768	97,232	49%
The City operates a telemetry system that monitors operational information from approximately 40 sites throughout the water system. The information that is collected and stored by the telemetry system is essential for monitoring water demands, system breaks, and system performance as it alerts staff to problem areas. All work is completed and the unexpended balance can be used to offset over expenditure in other programs.					
CBEE6B-ALT	Discount on Debenture	600,000	318,500	281,500	47%
The cost for debenture discount was lower than originally estimated. It is recommended that the unused funds of \$281,500 be transferred to the 2006-2008 Capital Plan for covering the debenture discount charges associated with the 2006-2008 Capital funding.					

### Yards Closeout Summary

The purpose of this summary is to close the 2004 Yards account for the 2003-2005 Capital Plan. The net overall balance resulting from the closeout is a surplus of \$7,135 which is 0.9% of total budgeted funding. It is recommended that this surplus be transferred forward to the 2006 - 2008 Yards Capital Plan.

Table 21: Yard Closeout Summary

Program or Project Description	Budget (\$)	Actual (\$)	Balance (\$)	Variance (%)
CB2EF: Yards 2004	820,000	812,865	7,135	(0.9%)

Table 22: Allocation of Closeout Balance

Allocation of Closeout Balance	Budget (\$)
2006-2008 Yards	7,135
<b>TOTAL</b>	<b>7,135</b>