



## City of Richmond

## Report to Council

**To:** Richmond City Council  
**From:** John Irving, P.Eng. MPA  
Director, Engineering

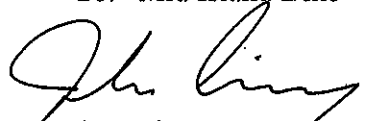
**Date:** April 6, 2009  
**File:** 10-6045-01/2009-Vol 01



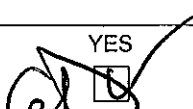
**Re:** Emergency Management BC 2009 Flood Protection Program

### Staff Recommendation

That the following projects be endorsed for submission to the 2009 Emergency Management BC 2009 Flood Protection Program.

1. Cambie Drainage Pump Station
2. No. 4 Road Drainage Pump Station
3. Middle Arm Dike Upgrade (Raise), Hollybridge Way to Cambie Rd
4. South Dike Seismic Upgrade No. 4 Road to No. 5 Road (Design)
5. South Dike Upgrade Erosion Control Rip-Rap Replacement No. 7 Road to  $\pm 1000$  metres west
6. Sea Island Dike – YVR – McDonald Road
7. Sea Island Dike – YVR – Moray Channel Bridge
8. Sea Island Dike – YVR – No.2 Road Bridge
9. North Dike Upgrade (Raise) No. 7 Road to No. 8 Road
10. North Dike Upgrade (Raise) No. 8 Road to CNR Crossing
11. South Dike Upgrade (Raise) No. 4 Road to  $\pm 900$  metres West
12. South Dike Upgrade (Raise) Gilbert Road to Garden City Road
13. South Dike Seismic Upgrade No. 4 Road to No. 5 Road (Construction)
14. South Dike Upgrade (Raise) No. 2 Road to Trites Road
15. South Dike Erosion Control Graybar to Fraserwood
16. Horseshoe Dike Area Erosion Control Rip-Rap Replacement – Phase I
17. Horseshoe Dike Area Erosion Control Rip-Rap Replacement – Phase II
18. South Dike Surface Stabilization and Rip Rap Upgrade, No. 2 Road to No. 3 Road
19. South Dike, No. 3 Road to  $\pm 570$  Metres East
20. Mid Island Dike

  
John Irving, P.Eng. MPA  
Director, Engineering  
(604-276-4140)

FOR ORIGINATING DEPARTMENT USE ONLY			
<b>ROUTED TO:</b>		<b>CONCURRENCE</b>	<b>CONCURRENCE OF GENERAL MANAGER</b>
Roads & Dykes.....		Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Budgets .....		Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
<b>REVIEWED BY TAG</b>		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	<b>REVIEWED BY CAO</b>
			YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
			

**Staff Report****Origin**

On April 2, 2009 the City was advised of the Emergency Management BC 2009 Flood Protection Program. Applications for funding are due April 24, 2009. The Program instructions require that the projects be endorsed by Council. This report proposes several projects in priority order that fit the criteria outlined in the Emergency Management BC program.

**Analysis**

Emergency Management BC and the Federal Building Canada Plan, Disaster Mitigation Category of Infrastructure Canada have partnered to provide flood protection funding to communities throughout British Columbia. Staff have been advised that the total funding available is \$16.1 Million.

The 2009 grant program is based on a 1/3 Province Government, 1/3 Federal Government and 1/3 Local Government cost sharing formula for local government area populations that are greater than 100,000. Only projects that can be materially completed on or before February 26, 2010 will be accepted.

The following outlines the flood protection related projects recommended for the 2009 Flood Protection Program.

<b>Project</b>	<b>Description</b>
Cambie Drainage Pump Station	Includes a complete renovation of the pumping system and buildings to upgrade ageing infrastructure and increase the pumping capacity approximately twofold.
No. 4 Road South Drainage Pump Station	Includes a complete renovation of the pumping system and buildings to upgrade ageing infrastructure and increase the pumping capacity approximately twofold.
Middle Arm Dike Upgrade (Raise), Hollybridge Way to Cambie Rd	Includes dike raising to meet current minimum Provincial requirements including an allowance for sea level rise.
South Dike Seismic Upgrade No. 4 Road to No. 5 Road (Design)	Includes design of upgrades required to stabilize this section of dike from a seismic viewpoint and a dike raise to meet minimum Provincial requirements including an allowance for sea level rise.
South Dike Upgrade Erosion Control Rip-Rap Replacement No. 7 Road to ±1000 metres west	Includes placement of erosion protection riprap on the existing dike face and a dike raise to meet minimum Provincial requirements including an allowance for seas level rise.

Sea Island Dike – YVR – McDonald Road	Includes raising of the dike/road in the City right-of-way at YVR to meet minimum Provincial requirements including an allowance for seas level rise.
Sea Island Dike – YVR – Moray Channel Bridge	Includes dike raising to meet current minimum Provincial requirements including an allowance for sea level rise.
Sea Island Dike – YVR – No.2 Road Bridge	Includes placement of erosion protection riprap on the existing dike face and a dike raise to meet minimum Provincial requirements including an allowance for seas level rise.
North Dike Upgrade (Raise) No. 7 Road to No. 8 Road	Includes dike raising to meet current minimum Provincial requirements including an allowance for sea level rise.
North Dike Upgrade (Raise) No. 8 Road to CNR Crossing	Includes dike raising to meet current minimum Provincial requirements including an allowance for sea level rise.
South Dike Upgrade (Raise) No. 4 Road to ±900 metres West	Includes dike raising to meet current minimum Provincial requirements including an allowance for sea level rise.
South Dike Upgrade (Raise) Gilbert Road to Garden City Road	Includes dike raising to meet current minimum Provincial requirements including an allowance for sea level rise.
South Dike Seismic Upgrade No. 4 Road to No. 5 Road (Construction)	Includes construction required to stabilize this section of dike from a seismic viewpoint and a dike raise to meet minimum Provincial requirements including an allowance for sea level rise.
South Dike Upgrade (Raise) No. 2 Road to Trites Road	Includes dike raising to meet current minimum Provincial requirements including an allowance for sea level rise.
South Dike Erosion Control Graybar to Fraserwood	Includes placement of erosion protection riprap on the existing dike face and a dike raise to meet minimum Provincial requirements including an allowance for seas level rise.
Horseshoe Dike Area Erosion Control Rip-Rap Replacement – Phase I	Includes placement of erosion protection riprap on the existing dike face and a dike raise to meet minimum Provincial requirements including an allowance for seas level rise.

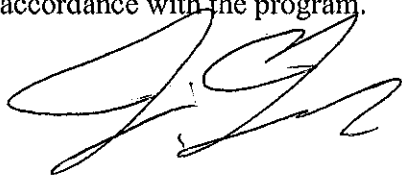
Horseshoe Dike Area Erosion Control Rip-Rap Replacement – Phase II	Includes placement of erosion protection riprap on the existing dike face and a dike raise to meet minimum Provincial requirements including an allowance for seas level rise.
South Dike Surface Stabilization and Rip Rap Upgrade, No. 2 Road to No. 3 Road	Includes placement of erosion protection rip rap on the existing dike face, surface repair on the existing paved road on the dike crest and a dike raise to meet minimum Provincial requirements including an allowance for seas level rise.
South Dike, No. 3 Road to ±570 Metres East	Includes dike raising to meet current minimum Provincial requirements including an allowance for sea level rise.
Mid Island Dike	Includes construction of a new dike approximately on the Highway 99, Highway 91 and Knight Street alignments.

#### **Financial Impact**

Funding of \$1,643,000 and \$7,240,000 was approved by Council in 2008 and 2009 respectively for dike raising and pump station upgrades. Should the City receive approval to a level requiring additional City funding, staff will report back to Council accordingly.

#### **Conclusion**

The Provincial and Federal governments have partnered to provide flood protection funding to communities throughout British Columbia. Funding applications are due April 24, 2009. Staff have prepared a prioritized list of flood protection related projects and are seeking Council endorsement in accordance with the program.



Jim V. Young, P. Eng.  
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