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CITY OF KELOWNA

MEMORANDUM

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**Date:** January 23, 2008  
**File No.:** 5280-14  
**To:** City Manager  
**From:** Environment Division Supervisor  
**Subject:** Applications for Okanagan Basin Water Board Water Conservation and Quality Improvement Grant

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Report Prepared by: Tracy Guidi

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**RECOMMENDATION:**

THAT Council endorse the attached applications to the Okanagan Basin Water Board (OBWB) Water Conservation and Quality Improvement Grants.

**BACKGROUND:**

The purpose of the Okanagan Basin Water Board's Water Conservation and Quality Improvement Grant Initiative is to assist local government in addressing issues that enhance valley wide sustainable use of water. As part of the application process, all applications must be accompanied by a board or council resolution from the respective Regional District Board and/or Municipal Council. This includes applications from local governments and all non profit / community groups or improvement districts.

The following applications are planned to be submitted to the OBWB by the February 1<sup>st</sup> deadline:

- ***RDCO and City of Kelowna SHIM Completion Project.***
  - Applicants: City of Kelowna Environment Division and the Regional District Development Services Department.
  - Amount: \$30,000.
- ***Landscape and Irrigation Standards for Water Efficiency.***
  - Applicant: City of Kelowna Water Utility.
  - Amount: \$30,000.
- ***Mill Creek – Ellison Lake Diversion Analysis.***
  - Applicant: City of Kelowna Drainage Division.
  - Amount: \$30,000.
- ***Analysis of Sediment Mitigation Strategies for Lower Mission Creek.***
  - Applicant: Mission Creek Restoration Working Group.
  - Amount: \$10,000.



### **RDCO and City of Kelowna SHIM Completion Project Grant Application (\$30,000)**

The *RDCO and City of Kelowna SHIM Completion Project* proposes utilizing Sensitive Habitat Inventory Mapping (SHIM) methodology to map 85 km of stream. This represents the final phase to over six years of stream mapping by these two agencies ensuring that all stream sections within the Regional District and City of Kelowna boundaries have been mapped and inventoried (excluding streams within the Districts of Peachland and Lake Country). To date, these organizations have utilized SHIM to map over 225 km of stream in the Regional District and over 82 km of stream and more than 100 wetlands within Kelowna boundaries.

SHIM provides planners with up-to-date information, allowing for more informed planning decisions. SHIM assessments can also be used in the design of stormwater / runoff management plans and to guide management decisions and priorities for habitat restoration and enhancement projects. Ultimately, the knowledge provided by the *SHIM Completion Project* will help protect water quality in the Central Okanagan.

The estimated cost for this project is \$65,000 (including in-kind contributions) based on 85 km of stream. Funding of the project is proposed as follows:

City of Kelowna	\$5,000 (from existing budgets)
RDCO	\$5,000 (in-kind, confirmed)
Real Estate Foundation of BC	\$25,000 (requested)
<u>OBWB Grant</u>	<u>\$30,000 (requested)</u>
<b>TOTAL</b>	<b>\$65,000</b>

### **Landscape and Irrigation Standards for Water Efficiency (\$30,000)**

In 2007, Council endorsed the Water Sustainability Action Plan to reduce city-wide water use by 15% by the year 2012. To help achieve this goal, the Plan includes a commitment to develop water efficient landscaping and irrigation bylaws and standards for all new development. In 2007, the Water Utility developed draft irrigation standards for all new homes, strata's and commercial developments with landscaping to use a minimum 15% less water for landscape irrigation than existing developments.

The Water Utility is applying to the OBWB for \$30,000 to move towards the next phase to implement a pilot program and to adopt a landscape and irrigation bylaw. The project will involve a technical and stakeholder review of the draft irrigation standards; development of education package for stakeholders; implementation of a pilot program and finally the adoption of a new bylaw.

The estimated cost for this project is \$77,500 and is proposed as follows:

City of Kelowna	\$47,500 (from existing budgets)
<u>OBWB Grant</u>	<u>\$30,000 (requested)</u>
<b>TOTAL</b>	<b>\$77,500</b>

### **Mill Creek – Ellison Lake Diversion Analysis (\$30,000)**

The City of Kelowna and Associated Engineering is currently conducting a flood plain analysis for Mill Creek with the objective of determining the flood plain boundary and minimum flood construction elevations. As part of this work, a recent study by Dobson Engineering came to the City's attention. The study determined that the hydrology in the Mill Creek and Scotty Creek watersheds will be affected by the mountain pine beetle, in particular the snow sensitive zone, the source for the spring freshet and peak stream flows.

The Mill Creek – Ellison Lake Diversion Analysis is intended to be a high level feasibility study to assess existing and potential hydraulic conditions within the Vernon and Mill Creek watersheds to determine timing – coincidence of min/max stream flows with lake elevations, lake volumes and potential downstream impacts. Potential storage volumes within Ellison Lake and corresponding release rates to both Mill Creek and Middle Vernon Creek will be examined. The study will include a discussion about “who would be affected” and address the concerns of downstream municipalities. Overall the results of the study would determine if diverting water to Ellison Lake is viable and if so, whether or not it is in the overall public interest.

The estimated cost of the project is \$60,000 based on the size of the watersheds and scope of the work needed. Funding of the project will be as follows:

City of Kelowna	\$25,000 (in-kind and from existing budgets)
RDCO	\$5,000 (in-kind, confirmed)
<u>OBWB Grant</u>	<u>\$30,000 (requested)</u>
<b>TOTAL</b>	<b>\$60,000</b>

#### **Analysis of Sediment Mitigation Strategies for Lower Mission Creek (\$10,000)**

The Mission Creek Restoration Working Group (MCRWG) is a partnership among the Ministry of Environment, City of Kelowna, Okanagan Nation Alliance, Westbank First Nation, Regional District of Central Okanagan, Friends of Mission Creek Society and the Central Okanagan Land Trust.

The MCRWG is applying to the OBWB to support an independent investigation of the expected success of recommendations outlined in Gaboury et al 2004, suggestions of other methodologies to reduce sediment impact on spawning habitat, and a priority list comparing all methods. Recommendations will be accompanied by cost estimates for operation and maintenance including frequency of attention to repair, cleaning, etc. after installation.

The budget for the Analysis of Sediment Mitigation Strategies for Lower Mission Creek is estimated at \$10,000. The City of Kelowna and Ministry of Environment have funded a Mission Creek Restoration Plan project coordinator which they are hoping meet the matching funds criteria for the grant. Funding is as follows:

City of Kelowna	\$25,000 (from existing budgets towards Project Coordinator)
Ministry of Environment	\$20,000 (confirmed towards Project Coordinator)
<u>OBWB Grant</u>	<u>\$10,000 (requested)</u>
<b>TOTAL</b>	<b>\$55,000</b>

#### **LEGAL/STATUTORY AUTHORITY:**

Chapter 7 of the Official Community Plan.

#### **EXISTING POLICY:**

From the Official Community Plan:

- Section 7.3.9 Development of Watershed Management Plans
- Section 7.8.5 Aquatic Habitat Restoration Feasibility Plans
- Section 7.10.6 Natural Features Identification.

**FINANCIAL/BUDGETARY CONSIDERATIONS:**

The City of Kelowna's contribution to these projects is already accounted for within existing budgets.

**EXTERNAL AGENCY/PUBLIC COMMENTS:**

The Regional District of Central Okanagan and the Ministry of Environment are partners on the respective applications.

**INTERNAL CIRCULATION TO:**

Water & Drainage Manager  
Engineering Projects Manager

Considerations that were not applicable to this report:

**LEGAL/STATUTORY PROCEDURAL REQUIREMENTS:**


**PERSONNEL IMPLICATIONS:**

**TECHNICAL REQUIREMENTS:**

**COMMUNICATIONS CONSIDERATIONS:**

**ALTERNATE RECOMMENDATION:**

Submitted by:

  
\_\_\_\_\_  
T. Cashin, Environment Division Supervisor

Approved for Inclusion:



J. Vos, P.Eng. Director of Works & Utilities

Cc: Neal Klassen, Water Smart  
Mission Creek Restoration Working Group



Okanagan Basin Water Board  
 9848 Aberdeen Road,  
 Vernon, BC, V1B 2K9  
 250-550-3768  
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## Water Conservation and Quality Improvement Grant Application Form

Please refer to the Terms of Reference - Section 5, for a Guide to the Application

### I. Application Summary

Regional District	Regional District of Central Okanagan	
Name of Organization	City of Kelowna and Regional District of Central Okanagan	
Name of sponsoring local government, if applicable	City of Kelowna and Regional District of Central Okanagan	
Name of Project Contact	Tracy Guidi	Phone (250) 469-8983
E-mail	tguidi@kelowna.ca	Fax (250) 862-3338
Project Title	RDCO and City of Kelowna SHIM Completion Project	
Amount requested from OBWB	\$ 30,000	
Total Project Budget	\$ 65,000	

### II. Program Category

These categories are **NOT** listed in order of priority. Please indicate which category a proposed project activity is in, as there may be more than one category for your particular project. This is not a comprehensive list of potential project categories and the OBWB encourages submission of innovative project ideas.

A.) Hydrological data gathering	B.) Water Conservation Devices	C.) Landscape & Irrigation (including xeriscape)
D.) Education and Outreach	E.) Water Use Monitoring/Metering	F.) Habitat Inventory Mapping
G.) Source Protection Planning	H.) Restoration Projects	I.) Other projects

Project Activity	Program Category
Sensitive Habitat and Inventory Mapping (SHIM) on 85 km of stream	F.) Habitat Inventory Mapping
Upload information to the Community Mapping Network website	I.) Other

### III. Project Timeline Information

Proposed length of project From: (yy/mm/dd) To: (yy/mm/dd)

08/04/01

09/02/01

Provide a summary of proposed activities including timeline

The RDCO and City of Kelowna SHIM Completion Project proposes utilizing SHIM methodology to map 85 km of stream. This represents the final phase to over 6 years of stream mapping by these two agencies ensuring that all stream sections within the Regional District and City of Kelowna boundaries have been mapped and inventoried (excluding streams within the Districts of Peachland and Lake Country). To date these organizations have utilized SHIM to map over 225 km of stream in the Regional District and over 82 km of stream and more than 100 wetlands within Kelowna boundaries. SHIM information provides planners with up-to-date information, allowing for more informed planning decisions and the protection of sensitive ecosystems and water quality. Without it, many sensitive areas, such as riparian areas may be severely influenced by development. The information obtained can also be used to set priorities for habitat restoration and enhancement projects as well as be used in the design of stormwater management plans. This joint venture proposes 3 phases: 1. Field Component (April to October, 2008); 2. Data Management (November, 2008 to February, 2009) and 3. Upload to Community Mapping Network (February to March, 2009). The Community Mapping Network is a public database where the SHIM data will be easily shared with the public and other government agencies.

### IV. Funding Information

Please list all other sources of funding for this project (direct and in-kind contributions)	-City of Kelowna (\$5,000 direct contribution, confirmed) -Regional District of Central Okanagan \$5,000 (in-kind contribution, confirmed) -Real Estate Foundation of BC (have applied for \$25,000 direct contribution, unconfirmed)
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Project Expenditure	Amount from OBWB	Amount from other sources	Direct or In-Kind?
	\$	\$	
SHIM on 85 km of stream	25,000	35,000	direct and in-kind
Upload info to Community Mapping Network	5,000		

Please attach an additional page if necessary



## V. Measurable Outcomes

Provide information on the measurable outcomes of the project (water saved, quality improved, goals met, etc...)

To accurately identify and inventory 85 km of stream using SHIM Methodology. Mapping will include associated riparian habitats, fisheries related attributes and impacts to water quality. This project takes place on over 15 streams and will result in continuous accurate mapping for all streams within the Regional District and City of Kelowna boundaries (excluding the Districts of Peachland and Lake Country). Project applications include:

- provide current information not previously available to all levels of government, the public or consultants
- identify impacts to water quality and use information in design of stormwater management plans
- monitor for changes in habitat resulting from known disturbances
- identify sensitive habitats for fish and wildlife and help guide priorities for stream enhancement projects

## VI. Collaboration

Provide information on collaboration with other **agencies/organizations** for this project, if applicable

The City of Kelowna's Environment Division and Regional District of Central Okanagan Development Services Department are partners on this initiative. This collaboration will see all of the streams within the City of Kelowna and Regional District of Central Okanagan boundaries mapped and the information will be made available on the Community Mapping Network.

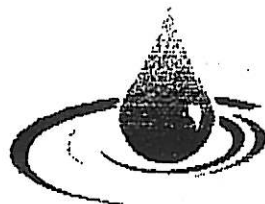
Provide information on collaboration with other **jurisdictions** for this project, if applicable. This refers to collaboration with regional districts and municipalities outside of your own.

The information collected will be made available on the Community Mapping Network website ([www.shim.bc.ca](http://www.shim.bc.ca)). This data will be available to the public, consultants and other levels of government.

Please submit this application with a covering letter that will briefly outline the steps (methodology) to be taken to achieve the project goals and explain project objectives if needed. Please include information about how your project will meet basin-wide objectives, such as large scale water quality improvements, and/or how your project will be a model for other efforts in the basin.

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The Okanagan Basin Water Board thanks you for your application to the Water Conservation and Quality Initiative Grant Program and advises you to refer to the Terms of Reference for this application. Section 5 contains a guide with more information on each application section.



**Okanagan Basin**  
WATER BOARD

Okanagan Basin Water Board  
9848 Aberdeen Road,  
Vernon, BC, V1B 2K9  
250-550-3768  
[info@obwb.ca](mailto:info@obwb.ca)  
[www.obwb.ca](http://www.obwb.ca)

## Water Conservation and Quality Improvement Grant Application Form

Please refer to the Terms of Reference - Section 5, for a Guide to the Application

### I. Application Summary

Regional District	Central Okanagan Regional District	
Name of Organization	City of Kelowna Water Utility	
Name of sponsoring local government, if applicable	City of Kelowna	
Name of Project Contact	Don Degen	Phone 862-3339-8726
E-mail	ddegen@kelowna.ca	Fax 862-3349
Project Title	Landscape and Irrigation Standards for Water Efficiency	
Amount requested from OBWB	\$ 30,000	
Total Project Budget	\$ 71,500	

### II. Program Category

These categories are NOT listed in order of priority. Please indicate which category a proposed project activity is in, as there may be more than one category for your particular project. This is not a comprehensive list of potential project categories and the OBWB encourages submission of innovative project ideas.

A.) Hydrological data gathering	B.) Water Conservation Devices	C.) Landscape & Irrigation (including xeriscape)
D.) Education and Outreach	E.) Water Use Monitoring/Metering	F.) Habitat Inventory Mapping
G.) Source Protection Planning	H.) Restoration Projects	I.) Other projects

Project Activity	Program Category
Create process to implement landscape and irrigation standards	Landscape and Irrigation
Consult with stakeholders and provide educational information	Education and Outreach





### III. Project Timeline Information

Proposed length of project

From: (yy/mm/dd)

To: (yy/mm/dd)

08/01/12

08/09/31

Provide a summary of proposed activities including timeline

This application is for the Implementation Phase of Kelowna's new Landscape and Irrigation Standards for Water Efficiency. The first phase - development of the draft standards - is already complete. Following are the proposed activities of the second phase (see cover letter for more detail):

- January/February 2008: Technical Review and final bylaw development
- January/February 2008: Develop education package for stakeholders
- February/March 2008: Final stakeholder review and consultation
- March/April/May, 2008: Internal communication and implementation of process
- May to September, 2008: Pilot program
- September, 2008: City Council to adopt bylaw/hire full time inspector

### IV. Funding Information

Please list all other sources of funding for this project (direct and in-kind contributions)

City of Kelowna Water Utility

Project Expenditure	Amount from OBWB	Amount from other sources	Direct or In-Kind?
	\$	\$	
Technical Review and final bylaw development		\$10,000	Direct
Develop education package for stakeholders	\$5,000		
Final stakeholder review and consultation	\$5,000		
Internal communication/implementation of process	\$15,000	\$25,000	Direct
Pilot program to measure impact on peak demand	\$5,000		
City Council to adopt bylaw/hire full time inspector		\$12,500	Direct

Please attach an additional page if necessary

## V. Measurable Outcomes

Provide information on the measurable outcomes of the project (water saved, quality improved, goals met, etc...)

- 1) To help achieve minimum 15% overall water reduction target adopted by Kelowna City Council as stated in the City of Kelowna Water Sustainability Action Plan.
- 2) All new homes, stratas, and commercial developments with landscaping will use a minimum 15% less water for landscape irrigation than existing developments.

## VI. Collaboration

Provide information on collaboration with other agencies/organizations for this project, if applicable

- 1) Working with the Irrigation Association of British Columbia to develop irrigation standards
- 2) Working with Professional Landscapers Association to develop landscaping standards
- 3) Consulting with Urban Development Institute on standards and implementation process
- 4) Consulting with local industry stakeholders (irrigation, landscaping, nurseries, etc) on standards and process

Provide information on collaboration with other jurisdictions for this project, if applicable. This refers to collaboration with regional districts and municipalities outside of your own.

The Kelowna Joint Water Committee and members of the West Side Joint Water Committee are involved in all phases of this project.

Please submit this application with a covering letter that will briefly outline the steps (methodology) to be taken to achieve the project goals and explain project objectives if needed. Please include information about how your project will meet basin-wide objectives, such as large scale water quality improvements, and/or how your project will be a model for other efforts in the basin.

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The Okanagan Basin Water Board thanks you for your application to the Water Conservation and Quality Initiative Grant Program and advises you to refer to the Terms of Reference for this application. Section 5 contains a guide with more information on each application section.



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## Water Conservation and Quality Improvement Grant Application Form

Please refer to the Terms of Reference - Section 5, for a Guide to the Application

### I. Application Summary

Regional District	Central Okanagan		
Name of Organization	City of Kelowna		
Name of sponsoring local government, if applicable	City of Kelowna		
Name of Project Contact	Fred Schaad	Phone	250.469.8706
E-mail	fschaad@kelowna.ca	Fax	250.862.3349
Project Title	Mill Creek - Ellison Lake Diversion Analysis		
Amount requested from OBWB	\$ 30,000		
Total Project Budget	\$ 60,000		

### II. Program Category

These categories are **NOT** listed in order of priority. Please indicate which category a proposed project activity is in, as there may be more than one category for your particular project. This is not a comprehensive list of potential project categories and the OBWB encourages submission of innovative project ideas.

A.) Hydrological data gathering	B.) Water Conservation Devices	C.) Landscape & Irrigation (including xeriscape)
D.) Education and Outreach	E.) Water Use Monitoring/Metering	F.) Habitat Inventory Mapping
G.) Source Protection Planning	H.) Restoration Projects	I.) Other projects

Project Activity	Program Category
High level feasibility study to assess existing and potential hydraulic conditions within the Vernon and Mill Creek watersheds.	A) Hydrological Data Gathering

### III. Project Timeline Information

Proposed length of project	From: (yy/mm/dd)	To: (yy/mm/dd)
	2008/05/05	2008/11/03

Provide a summary of proposed activities including timeline

Due to the potential high flood threat associated with the impacts of pine beetle deforestation, we are investigating options to mitigate the increased flows and minimize downstream flood damage. A high level feasibility study to assess existing and potential hydraulic conditions within the Vernon and Mill Creek watersheds will determine timing - coincidence of min/max stream flows with lake elevations (freeboard), lake volumes, and potential downstream impacts. Potential storage volumes within Ellison (Duck) Lake and corresponding release rates to both Mill Creek and Middle Vernon Creek will be examined. Consideration to downstream flood threats, water quality and habitat affects, as well as, implications for managing flows for fish during drought conditions. The study will include a discussion about "who would be affected" and address the concerns of downstream municipalities.

### IV. Funding Information

Please list all other sources of funding for this project (direct and in-kind contributions)	OBWB City of Kelowna
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Project Expenditure	Amount from OBWB	Amount from other sources	Direct or In-Kind?
	\$	\$	
High Level Feasibility Study	30,000		20,000(direct)
			10,000(in-kind)

Please attach an additional page if necessary

## V. Measurable Outcomes

Provide information on the measurable outcomes of the project (water saved, quality improved, goals met, etc...)

This study will determine the viability of diverting water from the Mill Creek watershed to Ellison lake during peak flow or flood threat conditions, the detention potential in Ellison Lake (if any), and the implications to downstream surface waters. The study will determine the potential benefits, as well as, who will be affected and discuss the concerns of municipalities. The results of the study will determine if a "functional assessment" and detailed "hydraulic analysis" is warranted.

## VI. Collaboration

Provide information on collaboration with other **agencies/organizations** for this project, if applicable

Glenmore-Ellison Irrigation District  
Regional District of the Central Okanagan  
District of Lake Country  
Okanagan Nation Alliance  
Tolko Industries Ltd.

Provide information on collaboration with other **jurisdictions** for this project, if applicable. This refers to collaboration with regional districts and municipalities outside of your own.

Ministry of Environment - Water Resources Group  
City of Vernon  
Regional District of North Okanagan

Please submit this application with a covering letter that will briefly outline the steps (methodology) to be taken to achieve the project goals and explain project objectives if needed. Please include information about how your project will meet basin-wide objectives, such as large scale water quality improvements, and/or how your project will be a model for other efforts in the basin.

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The Okanagan Basin Water Board thanks you for your application to the Water Conservation and Quality Initiative Grant Program and advises you to refer to the Terms of Reference for this application. Section 5 contains a guide with more information on each application section.

# Water Conservation and Quality Improvement Grant Application Form

## I. Application Summary

Regional District: Central Okanagan

Name of Organization: Mission Creek Restoration Working Group

Name of sponsoring local government: City of Kelowna

Name of Project Contact: Tara White, MOE, Penticton

Phone: 250-490-2287

Fax: 250-490-2231

E-mail: [tara.white@gov.bc.ca](mailto:tara.white@gov.bc.ca)

Project Title: Analysis of Sediment Mitigation Strategies for Lower Mission Creek

Amount requested from OBWB: \$10,000

Total Project Budget: \$555,000

## II. Program Category

Project Activity:

- 1) Retain a sediment load expert to analyze transport quantities, and conduct a cost/benefit analysis of mitigation strategies for lower Mission Creek (i.e. sediment traps, etc.). [Program Category G]
- 2) Review the hydraulic ramifications (sustainability, benefits, risks) of Gaboury recommendations and other strategies. [Program Category A]
- 3) The findings will enable modification of present anti-flood gravel removal practices to minimize their impact on fish habitat, while reducing risk of flooding. [Program Category I]
- 4) The findings will enable an optimizing of improvements to kokanee salmon spawning and incubation habitat. [Program Category H]

## III. Project Timeline Information

Proposed length of project: From: 2008/02/15, To: 2009/01/30

Summary of proposed activities and timeline:



The Contractor will conduct a literature review of sediment mitigation strategies for Mission Creek and locate data sources to determine sediment transport and morphological river changes on the system (February to May, 2008).

The Contractor will conduct a field reconnaissance of Mission Creek; analyze hydrology data to determine frequency of sediment transport/deposition flow events; analyze data to determine approximate amount of sediment deposition in creek per year where possible; document sediment deposition patterns on Mission Creek; contact designers of successful sediment mitigation programs on other systems; and complete literature review (May to September, 2008)

The Contractor will write a report to recommend strategies to mitigate excessive sediment deposition in Mission Creek (September to December, 2008).

The Mission Creek Restoration Working Group will prepare and submit a final report to the OBWB (January, 2009).

#### **IV. Funding Information**

List of all other sources of funding for this project:

City of Kelowna: \$25,000 for project coordinator (direct); \$140,000 from habitat compensation bank (direct).

MoE: \$20,000 for project coordinator (direct); \$ 200,000 for land acquisition (direct).

MoT: \$160,000 compensation related to Bennett Bridge (direct).

Amount requested from OBWB: \$10,000

#### **V. Measurable Outcomes:**

- 1) Reduction in sediment loading in Mission Creek, as estimated by changes in gravel removal protocols.
- 2) Improvement in kokanee salmon spawning and incubation habitat.
- 3) Increase in kokanee salmon escapement as monitored annually by MoE.
- 4) Reduction in the need for flood control maintenance in lower Mission Creek.

#### **VI. Collaboration:**

The Mission Creek Working Group is a partnership among several agencies and organizations, including Ministry of Environment, City of Kelowna, Okanagan Nation Alliance, Westbank First Nation, Regional District of the Central Okanagan, Friends of Mission Creek Society, and the Central Okanagan Land Trust.

The project outcomes will also be of value to the present MoE initiative to develop gravel extraction protocols for Mission Creek (see supporting letter).