



# Royal Roads UNIVERSITY

**2012 Carbon Neutral Action Report**



## ROYAL ROADS UNIVERSITY – 2012 CARBON NEUTRAL ACTION REPORT

### OVERVIEW

#### EXECUTIVE SUMMARY

Sustainability actions continue at Royal Roads University (RRU). The highlight of the year was a nearly 20% reduction in emissions from 2011, with the majority of these reductions coming from the university's extensive retrofit program of campus building systems. Royal Roads' retrofit program included work on several heritage buildings and its success clearly demonstrates that the installation of energy efficiency upgrades directly reduces emissions.

In the fall of 2012, RRU was recognized as the only public-sector organization with an unqualified audit of greenhouse gas emissions reporting. The audit was undertaken as part of the BC government's verification of the emissions process, and the auditors concluded: "Based on our review, nothing has come to our attention that causes us to believe that the consumption data for the year ending December 31, 2011 is not, in all material respects, in accordance with the Regulation." This was tremendous news for those staff and executive members involved in the greenhouse gas emissions reporting at Royal Roads.

Another highlight from 2012 was the RRU Foundation's approval to join *1% for the Planet*. Following research to ensure the credibility and alignment with the *1% for the Planet* environmental criteria, RRU became eligible for support by the more than 1,300 businesses currently members in *1% for the Planet*. These members have clear environmental objectives and a track record of effective environmental initiatives. RRU is proud to be recognized by this group of sustainable companies.

RRU will also become part of the EV Charging Station network across British Columbia. Two Level 2 Electric Vehicle Charging Stations were approved, and the university was successful in receiving an \$8,000 grant under the province's Community Charging Infrastructure Fund. In addition, these two charging stations will also be supported by funding from the Solar Colwood program.

Throughout 2012, the emphasis for reducing greenhouse gas emissions was on energy management. With the assistance of a new Energy Manager funded by BC Hydro, and a new Energy Specialist funded by FortisBC, both shared with Camosun College, the university is now tracking its energy use quarterly. The results are impressive with a reduction of over 15% from 2011. In addition, an energy committee has been created, which meets quarterly to look for additional energy savings. An Energy Success Story for RRU is that the year 2012 marks the first time the university has had *ZERO* heating fuel oil delivered to campus. Previously four houses

on campus had oil tanks and oil furnaces. These were replaced over 2010 and 2011 with high-efficiency heat pump systems, with a savings of 10,306 litres of heating fuel, which is no longer being delivered to the university.

The plan for the coming year is to initiate an energy conservation program on campus, with emphasis on workstation efficiencies and individual department carbon footprint analysis. In 2012, the IT department designed the capability for the campus to track an individual's printing usage, and therefore paper usage. Staff and faculty now receive a quarterly report outlining their current paper use and their previous use. This is a very effective tool in bringing awareness to staff about their paper use and the need to reduce it, and therefore reduce our greenhouse gas emissions.

Operations staff attended energy efficiency workshops, sponsored by Natural Resources Canada and FortisBC, and have taken direct action in adjusting heating levels in the buildings on campus, and are working with Campus Services to better align classroom use and heating/lighting needs. A continuous optimization system should be in place by the end of 2013 based on this initial work done in 2012.

Plans for 2013 also include a feasibility study to look at the business case for alternative energy systems at RRU, in particular geothermal, which could significantly reduce the university's emissions. This system is currently being used by a neighbouring development.

### **STEWARDSHIP OF THE NATIONAL HISTORIC SITE**

Royal Roads University is situated on the grounds of the Hatley Park National Historic Site. The university has the responsibility to be "A leader for sustainable stewardship of our historic lands." (RRU Strategic Direction, January 2012). The site has ornamental gardens, an Edwardian castle, fish-bearing streams, a migratory bird sanctuary, old growth forests, wetlands, and historical pastoral landscapes. In 2012, RRU joined with the Capital Regional District (CRD) and installed a stream flow monitor on Colwood Creek, as part of the region's harbour monitoring program. There is also regular water quality testing being done by the CRD on Colwood Creek as part of this program. RRU is also a member of the Esquimalt Lagoon Stewardship Initiative (ELSI), a community organization supported by the CRD which regularly monitors the entire watershed, including Esquimalt Lagoon and the Coburg Peninsula located directly across from the university.

### **TRANSPORTATION ON CAMPUS**

The RRU campus plan has a goal for the campus to become more pedestrian friendly, and this vision became a reality in 2012, with the infusion of \$2.1 million dollars from the Province of BC, for life-safety civil work on campus. This work has created separated pathways throughout the campus, improved the road travel network on campus, re-built a major artery supported by a critical retaining wall system, and improved directional and safety signage. A new bus loop

was also constructed, and will support the extension of BC Transit services which anticipates that local route #52, the Wishart bus to RRU, will offer the first-ever evening and weekend bus service to the campus. Work will continue into 2013, including improvements to the cycling infrastructure on campus.

A Bachelor of Science student project was approved to undertake a new transportation demand study for RRU. The last one was done in 2006, prior to the UPass which was put in place in 2011. It is expected that the number of students and staff using public transit will show an increase, and the number coming to campus in single occupant vehicles will decrease. The study will be complete in August 2013.

As noted previously, two Electric Vehicle Charging Stations were installed in the spring of 2013. One station will be at the Mews conference centre and the other one behind the Nixon building. Both will require a valid parking permit, but there will be no charge for the electricity. Funds will also be provided through the Solar Colwood program for these stations.

### **ACADEMIC PROGRAMS**

A new Bachelor of Business Administration program has been approved, and will have administration and sustainability as its themes. In 2012, the Masters of Environmental Management had three cohorts devoted to the study of food security at RRU. Work continues on this topic, with two masters students studying the sustainability of farming in the surrounding area. Camosun College students, who undertake their horticulture practicum at RRU, have planted a successful vegetable garden in the Dunsmuir walled garden, and have added vegetable seedlings to their semi-annual plant sales.

A new student project was approved to undertake the Sustainability Tracking, Assessment and Rating System (STARS II) project. The university received a Silver Star for 2010, and there is optimism that this review will result in a Gold Star for 2013. These results will be ready in August 2013.

The Masters of Leadership Studies cohorts have all included a sustainability talk in their residencies, as well as the Bachelor of Commerce and Bachelor of Environmental Science programs. The Bachelor of Commerce students do a *Cars on Campus* challenge project each year, and make recommendations for reducing the number of single occupant vehicles coming to campus. A new carpooling policy will be implemented in 2013, based on many of the ideas coming from the Bachelor of Commerce student work.

### **SOLAR COLWOOD PARTNERSHIP**

Royal Roads University has been a partner with the Solar Colwood program since 2011, and is responsible for monitoring the program and undertaking research. The monitoring program is

ongoing to March 2014, and the research will continue to December 2013, with the desire to extend the research to 2014.

As part of the research project, which is funded by the Pacific Institute for Climate Solutions, RRU faculty and research assistants have held focus groups in the community to undertake their project. In 2012, this research was extended to Dunsmuir Middle School. The purpose of the research is to determine the role of social diffusion in the adoption of energy efficiency upgrades to homes. The extension to the school students is a new part of the research, and its purpose is to determine the role that middle school students can play in the decisions by homeowners to join the Solar Colwood program, and have energy upgrades done in their homes. A Bachelor of Science student project was also approved in 2012, to assist with this research.

### **STUDENT ACTIVITIES**

Each year the RRU Student Association (RRUSA) provides for a student sustainability committee. This group of undergraduate students is supported by the Office of Sustainability and undertakes activities such as National Sweater Day, Earth Hour, Earth Day, Westshore Earth Day, and other campus events. In addition, the students get involved in the CRD *Ready, Set, Solve* project, which is a volunteer contest to assist local governments and non-government organizations with climate change solutions. The winning team in the 2012 *Ready, Set, Solve* contest was from RRU, and each member of the team won \$500 towards their tuition. The program for 2013 is underway with an \$800 donation by the CRD into the RRU Sustainable Actions for the Environment (SAFE) fund.

### **RECYCLING/WASTE MANAGEMENT**

A Bachelor of Science student project was approved to undertake a waste management audit of RRU. The last audit was done in 2004, which showed a 70% diversion rate of waste from RRU away from the landfill. The custodial staff at Royal Roads and the Truffles Catering staff are diligent about separating compost, garbage, recyclables, so there is optimism that this diversion rate will be improved. A new recycling station was approved in 2012 for the university's cafeteria, funded by the SAFE fund and the custodial staff's *pop bottle* fund. This station will profile the recycling program at RRU. The waste audit will also make recommendations regarding the current recycling units at the different buildings, and on the grounds at RRU. This project will be complete in August 2013. The university's Director of Sustainability regularly speaks at the beginning of student classes and graduate residencies to explain the recycling program at RRU, and in particular the program in the new LEED Gold Learning and Innovation Centre. These talks, and the continued support by the RRU faculty, have resulted in the system being properly implemented in the new building.

## **OTHER HIGHLIGHTS FOR 2012**

RRU has participated in the CRD *Resilient Region Breakfast Series* which is a very successful sustainability networking event. The year-end event for 2012 included 170 local businesses in a session called *The New Business As Usual*. In addition to this networking series, RRU was also involved in the *Greater Victoria Regional Green Economy Initiative*, which is continuing with quarterly sessions throughout the region. RRU will be hosting one of these sessions in 2013. Participating in these programs enables RRU to highlight its role in applied research and community relations, and has also enabled a few key members of the faculty to attend and be profiled.

In 2012, the university signed a memorandum of understanding with the Sooke School District #62, to support a two-year pilot program called *Nature Kindergarten*. The students in the *Nature Kindergarten* use the RRU grounds as the site of their outdoor activities. The program is being monitored by early childhood educators, and an RRU student is undertaking a masters program project on this initiative. In addition, the RRU Continuing Studies department has designed the professional development program to support teachers interested in teaching education in an outdoor setting. The program has also attracted the support of the RRU grounds and garden staff, in providing guidance and knowledge about the RRU ecosystem. The *Nature Kindergarten* initiative highlights the importance of RRU's collaborative relationship with the community, and the many benefits that come from presenting the university as a *living laboratory*.



Dan Tulip,  
Vice President & Chief Financial Officer

## **EMISSIONS REDUCTIONS ACTIVITIES**

### **ACTIONS TAKEN TO REDUCE GREENHOUSE GAS EMISSIONS IN 2012**

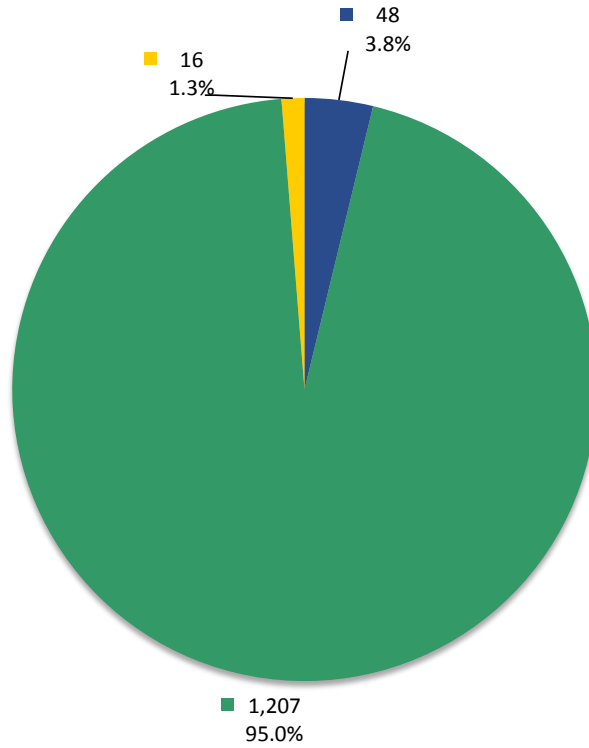
1. RRU has an Energy Manager, supported by BC Hydro, and shared with Camosun College. As part of the responsibilities of the Power Smart Energy Manager program, a Strategic Energy Management Plan was completed for the university. This plan highlights the following:
  - The Energy Team, Key Performance Indicators and GHG Emissions, Energy Policy, Energy Consumption and Costs, and Planned Actions.
  - The highlight of the plan is an overall energy savings of 15.4% since the 2007 baseline. This includes 20.1% savings in electricity, 100% savings in fuel oil, and 11.4% savings in natural gas.
  - The avoided costs from these energy savings was \$142,343, as of December 31, 2012.
  - The BC Hydro Power Smart team set up a display at the Habitat cafeteria to inform students, faculty and staff about the positive benefits of energy conservation.
2. RRU received approval for a part-time Energy Specialist, supported by FortisBC. This position is also shared with Camosun College. The focus for this position will be to complement the work of the Energy Manager, with emphasis on natural gas projects on campus, and assist the Office of Sustainability with a Campus Energy Conservation Program.
3. RRU was successful in its grant application to the BC government's Community Charging Infrastructure Fund. This grant is for \$8000 to support the installation of two Level 2 Electric Vehicle Charging Stations on campus. These stations are also supported by the Solar Colwood program.
4. The university's Physical & Environmental Resources Department has been diligent in adjusting the heating and cooling systems in each of the buildings on campus through the use of direct digital controls (DDC). These controls were installed as part of the PSECA funding RRU received in 2011.
5. RRU is moving towards being a more pedestrian-friendly campus, with the infusion of \$2.1 million dollars from the BC Government for life-safety civil work on campus. A number of roads were improved, and pathways created, separating pedestrians and vehicles. A new bus loop was also constructed, which will enable increased bus service to RRU, including evenings and weekends. This activity, along with improved cycling infrastructure on campus, will assist in reducing the number of single occupant vehicles coming to RRU.
6. The IT department created a quarterly personal printing volume report for all staff.
7. Two new Energy Star® Fridges, one Energy Star® Dishwasher, two microwaves and three bar fridges were purchased to replace older equipment.

## **PLANS TO CONTINUE REDUCING GREENHOUSE GAS EMISSIONS 2013-2015**

1. Implementation of an Energy Conservation Program on campus, including a workstation energy efficiency tune up, and a carbon footprint calculation for departments.
2. Continuation of the Energy Manager and Energy Specialist program, and completion of building projects to save energy – such as the Continuous Optimization program, which will match classroom use and energy needs.
3. Two Electric Vehicle Charging Stations will be available for use to the staff, students, faculty and the public. These stations will require a valid parking permit, but there will be no charge for the electricity.
4. A demonstration of electric utility vehicles to determine the feasibility of replacing some of the existing fleet vehicles with electric vehicles.
5. The results of the Bachelor of Science student project on waste management will be completed, with recommendations for improving the university's waste diversion record.
6. The results of the Bachelor of Science student project on transportation demand at RRU will be completed, with recommendations on how to take action to continue to reduce the number of single occupant vehicles coming to campus.
7. Life-safety project work will be complete, improving pedestrian and cycling infrastructure, and the bus loop will be operational. As of September 2013, an additional bus will be coming to campus, which will provide Royal Roads with evenings and weekend service for the first time.
8. RRU will be re-assessed by STARS, as a result of the 2013 Bachelor of Science student project. A re-assessment will take place in 2014, based on the 2013 results.
9. Results of the Solar Colwood monitoring program and the social diffusion research will be complete in 2014.
10. A feasibility study will be underway on the potential for the university to use other energy sources and to continue additional energy upgrades, in order to reduce greenhouse gas emissions to meet the 2020 target for the public sector.
11. The new recycling station will be constructed in the Habitat cafeteria, and new compost bins will be installed on each of the floors in the new Learning and Innovation Centre. In addition, recycling units will be installed outside the buildings at RRU, including new compost bins.



**Royal Roads University  
Greenhouse Gas Emissions by Source  
for the 2012 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 1,272**

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)

**Offsets Applied to Become Carbon Neutral in 2012 (Generated May 10, 2013 10:44 AM)**

Total offsets required: **1,270**. Total offset investment: **\$31,750**. Emissions which do not require offsets: **2** \*\*

\*Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) is a standard unit of measure in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide.

\*\* Under the *Carbon Neutral Government Regulation of the Greenhouse Gas Reduction Targets Act*, all emissions from the sources listed above must be reported. As outlined in the regulation, some emissions do not require offsets.

## 2012 Carbon Neutral Action Report - Royal Roads University

### Royal Roads University Greenhouse Gas Emissions Source Detail Report for the 2012 Calendar Year Generated May 10, 2013

Source		Quantity	Greenhouse Gases In Tonnes			
			CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	tCO <sub>2</sub> e *
<b>Stationary Fuel Combustion (Building Heating and Generators) and Electricity</b>						
<b>Offset Required</b>	Fuel Combustion **	22,175.71 GJ	1,106.82	0.02	0.02	1,113.67
	Purchased Energy	10,190.71 GJ	93.57	0.00	0.00	93.57
	<b>Offset Required Sub Total</b>		1,200.39	0.02	0.02	1,207.25
<b>Offset Exempt</b>	CO <sub>2</sub> from Biogenic Fuel Combustion		0.19	N/A	N/A	0.19
	<b>Offset Exempt Sub Total</b>		0.19	0.00	0.00	0.19
	<b>TOTAL STATIONARY EMISSIONS</b>		1,200.58	0.02	0.02	1,207
<b>Mobile Fuel Combustion (Fleet and other mobile equipment)</b>						
<b>Offset Required</b>	Fuel Combustion **	20,519.42 L	43.80	0.01	0.01	47.03
	<b>Offset Required Sub Total</b>		43.80	0.01	0.01	47.03
<b>Offset Exempt</b>	CO <sub>2</sub> from Biogenic Fuel Combustion		1.42	N/A	N/A	1.42
	<b>Offset Exempt Sub Total</b>		1.42	0.00	0.00	1.42
	<b>TOTAL MOBILE EMISSIONS</b>		45.22	0.01	0.01	48
<b>Supplies (Paper)</b>						
<b>Offset Required</b>	Non-recycled Content Paper	15 Pkg	0.10	0.00	0.00	0.10
	Recycled Content Copy Paper	2,815 Pkg	16.05	0.00	0.00	16.05
	<b>Offset Required Sub Total</b>		16.15	0.00	0.00	16.15
	<b>TOTAL SUPPLIES EMISSIONS</b>		16.15	0.00	0.00	16
	<b>Total Offset Exempt</b>		1.61	0.00	0.00	2
	<b>Total Offset Required</b>		1,260.33	0.03	0.03	1,270
	<b>TOTAL EMISSIONS</b>		1,261.94	0.03	0.03	1,272

\* Each greenhouse gas has been converted to a standard measurement (tCO<sub>2</sub>e) by multiplying its emissions by its global warming potential (GWP).

The GWP of carbon dioxide (CO<sub>2</sub>) from both anthropogenic and biogenic sources is 1; methane (CH<sub>4</sub>) is 21, and nitrous oxide (N<sub>2</sub>O) is 310.

The Totals for tCO<sub>2</sub>e are shown here rounded to the nearest whole metric tonne as only whole tonnes of tCO<sub>2</sub>e can be purchased for offsets.

\*\* Includes Fossil Fuels and CH<sub>4</sub> and N<sub>2</sub>O from Biogenic Fuels

\*\*\* May 6, 2013 – A review by the BC government Carbon Measurement and Reporting Branch has identified an additional 17 tonnes of emissions from 2011 that need to be accounted for in this reporting year (2012).

## Royal Roads University - 2012 Carbon Neutral Action Report

### Actions Towards Carbon Neutrality

The actions listed below contribute to a reduction in greenhouse gas emissions from sources for which public sector organizations are responsible under the carbon neutral government regulation of the Greenhouse Gas Reduction Targets Act.

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
<b>Mobile Fuel Combustion (Fleet and other)</b>					
<b>Behaviour change program</b>					
Provide fleet driver training to reduce fuel use	Ongoing/In Progress	None	Training will continue.	2008	No End Date (Continuous)
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	In Development	Awareness raised among drivers.	Place anti-idling stickers on dashes of all fleet vehicles.	2013	No End Date (Continuous)
Encourage carpooling in fleet vehicles	Ongoing/In Progress	The number of fleet vehicles was reduced, staff share vehicles regularly.	Continue vehicle sharing program.	2008	No End Date (Continuous)
Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking)	Ongoing/In Progress	Two new bike racks installed. A life safety project began - \$2.1 million dollars of road/pathway construction throughout campus. Many new pathways created to separate pedestrians from roadways. Roads widened, turnarounds created, signage replaced and a previously closed road re-built and opened.	The completion of the life safety project will include the construction of a new bus loop at the top of campus. As a result of the bus loop, BC Transit will bring in the #52 Wishart Bus, adding a new bus service to campus and first ever evening and weekend bus service for students, staff and visitors to Royal Roads. Additional cycling infrastructure will be provided over the next year, including improvements to trails. The BSC students are undertaking a Transportation Demand Study for RRU, which will be complete in August 2013.	2012	2013
<b>Other Mobile Fuel Combustion Actions</b>					
The installation of electric vehicle charging stations on campus.	Ongoing/In Progress	The University was successful in receiving an \$8000.00 grant from the Community Charging Infrastructure Fund, for the installation of two EV Charging Stations.	The stations will be operating as of March 31st, 2013. One will be located behind the Nixon Building, and the other one at the MEWS Conference Centre. The spaces will require a valid parking permit, but there will be no charge for the electricity.	2012	2013
Learners from the BSc. in Environmental Science will be conducting a transportation demand study at RRU to inform future transportation planning.	Ongoing/In Progress	Approval of the project.	The project will be complete in August 2013, and will provide a comparison to the 2006 Transportation Demand Study. This will provide data on the impact of the student U-Pass, initiated in 2011.	2012	2013
<b>Vehicle fuel efficiency</b>					
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	61% of vehicles are fuel-efficient (18 electric carts, 4 electric gators). No vehicles replaced in 2012, although 3 medium sized vehicles were rented to replace older vehicles which required too many costly and extensive repairs.  We have also rented vehicles to replace the older fleet vehicles, which needed extensive repairs. All of the rental vehicles are more fuel efficient than the older vehicles they replaced.	Continue to replace older vehicles, with fuel efficient models, as budget becomes available. A demonstration of an electric utility truck is planned for the spring of 2013.  The 2 Electric Vehicle Charging Stations on campus enhance the opportunity for electric vehicles as a choice for fleet vehicles.	2008	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	None	Continue to review vehicles according to capacity, needs and fuel efficiency.	2008	No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	CMMS - computerized maintenance management system is in place.	Continue CMMS	2008	No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
<b>Stationary Fuel Combustion, Electricity</b>					
<b>Behaviour change program</b>					
Help staff reduce personal energy use through ""workstation tune-ups""	In Development	The IT department created a program which reports printer use to each staff/faculty member at RRU. These reports are electronically received for each quarter.	RRU received a FortisBC funded Energy Specialist, who will assist the Office of Sustainability in the development of a workstation energy efficiency project.	2012	No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress	Staff has been provided with power bars. BC Hydro Power Smart team visited campus and provided information to staff/faculty/students about how to save energy in the workstation.	Continue to provide power bars. BC Hydro Power Smart Team will be on campus in the spring of 2013.	2010	No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress	Staff have been provided with power bars. BC Hydro Power Smart team visited campus and provided information to staff/faculty/students about how to save energy in the workstation.	Continue to provide power bars. BC Hydro Power Smart Team will be on campus in the Spring of 2013.	2010	No End Date (Continuous)
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Ongoing/In Progress	None.	Energy conservation program underway.	2010	No End Date (Continuous)
Encourage staff to use air dry setting on dishwashers	Ongoing/In Progress	None.	Energy conservation program underway.	2010	No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	Ongoing/In Progress	Roadspiel (staff newsletter) articles on heating the campus, and the use of personal office heaters were used to encourage staff/faculty to reduce their energy use.	Celebrated National Sweater Day in February, 2013. Energy conservation program underway.	2010	No End Date (Continuous)
Encourage use of stairs instead of elevators	In Development	None.	A staff wellness program is being developed by Human Resources.	2011	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress	Previously stickers were used, but now worn off and need placing with the University's new branding.	Renewal of the sticker program, as part of the energy conservation program for RRU.	2008	No End Date (Continuous)
Promote hot water conservation	Ongoing/In Progress	Two solar hot water systems installed. One of the systems is faulty and required replacement. Promotion was done on the installation of these systems.	Continue to promote water conservation. The solar hot water system on the student residences will be repaired.	2010	No End Date (Continuous)
<b>IT power management</b>					
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	Continued to replace older stock with newer, more energy efficient computers.	Continue to refresh computers.	2008	No End Date (Continuous)
Implement server virtualization	Ongoing/In Progress	Continued existing program - 100% of servers have been virtualized.	Continue existing program.	2008	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	Continued existing program.	Continued existing program.	2008	No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices as part of a print management strategy	Ongoing/In Progress	Image devices are chosen based on the needs of the department, and where possible, multi-function devices are provided. As well, as department needs change, image devices are moved to other departments.	Continue existing program.	2008	No End Date (Continuous)
Apply auto-sleep settings on printers, fax machines, and/or multi-	Ongoing/In	Older imaging devices continue to be replaced with newer, multi-	Continue existing device replacement program.	2008	No End Date

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
function devices	Progress	function devices as the budget allows.			(Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	Continued to replace older stock with newer, more energy efficient computers.	Continued existing program.	2008	No End Date (Continuous)
<b>Leased buildings</b>					
Develop a green lease policy that requires green features to conserve energy be included in all lease negotiations	Not Yet Evaluated				No End Date (Continuous)
<b>Other Stationary Fuel Combustion</b>					
Solicited a review of the potential for biomass heating for the campus.	Ongoing/In Progress	Staff attended a Biomass Conference in Vancouver. As a result, a review of the campus' potential for biomass heating is being completed by a contact made at the conference.	This review will be available in 2013.	2012	2013
Workshops sponsored by FortisBC	Ongoing/In Progress	Staff attended Energy Efficiency workshops, sponsored by FortisBC.	None.	2012	No End Date (Continuous)
Creation of a committee to track and manage energy use on campus.	Ongoing/In Progress	Royal Roads has created an Energy Committee, which meets quarterly, and tracks energy use on campus and progress made on energy upgrades; and plans for new energy upgrades.	The Energy Committee will continue to track and manage energy use on campus.	2012	No End Date (Continuous)
<b>Owned buildings</b>					
Establish energy performance baseline for owned buildings	Ongoing/In Progress	Energy performance established for natural gas use per building, but there is only one BC Hydro meter for electrical use for campus. The overall performance has been established now and will be tracked quarterly.	Continue to track quarterly performance.	2010	No End Date (Continuous)
Register for performance labelling/certification for operations and maintenance of owned buildings (e.g., LEED EB:O&M)	Ongoing/In Progress	The Learning and Innovation Centre was designed and built to the LEED Gold standard and has been registered, although RRU is still awaiting certification.	Any new buildings constructed will be registered.	2009	No End Date (Continuous)
Register for performance labelling/certification for commercial interiors of owned buildings (e.g., LEED CI)	Ongoing/In Progress	The Learning and Innovation Centre was designed and built to the LEED Gold standard and has been registered, although RRU is still awaiting certification.	All new building projects will be registered.	2009	No End Date (Continuous)
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress	The process for certification of the LIC initiated.	Certification process still underway.	2009	2013
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	The majority of the buildings at RRU were upgraded through the PSECA fund. The 4 houses on campus had new high efficiency electric heat pumps installed, saving a total of 16,000 liters of heating fuel being delivered to campus. Digital controls were installed improving the heating/cooling of many of the buildings and the operations staff was diligent in checking the building heating/cooling systems.	A `Continuous Optimization` project will be completed. Renovations to the gymnasium will begin, which includes more water efficient plumbing fixtures. A faulty solar hot water system on the student residences will be fixed. The Habitat Cafeteria will be upgraded, including water efficient plumbing, improved food services and a water bottle filling area.	2010	No End Date (Continuous)
Incorporate a refrigerant management strategy into regular building management/maintenance to reduce fugitive emissions	Ongoing/In Progress	Qualified contractor hired to `retire` fugitive emissions when refrigerators are replaced.	Continue to work with a qualified contractor to `retire` fugitive emissions as required.	2008	No End Date (Continuous)
<b>Planning/management</b>					
Reduce office space (square meters) per employee	Ongoing/In Progress	A corporate space plan was completed. This plan showed the changes required in existing campus buildings to accommodate the	Undertake renovations to office space buildings. Continue to request government support for a new academic building.	2011	No End Date (Continuous)

## Royal Roads University - 2012 Carbon Neutral Action Report

### Actions Towards Carbon Neutrality

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		5 year growth projections. Although a new academic building is required for the student growth, the plan concluded that renovations to existing office space buildings could accommodate the growth in staff and faculty, needed to support the student growth. A renovation plan for the Cedar Building was completed. Staff continues to divide current work spaces to make room for growth.			
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	A part-time Energy Manager, supported by BC Hydro, was hired, and the metering system is on the work plan.	Continue development of the metering system for the buildings, and undertake the Continual Optimization project. This project matches building/classroom use with heating/electricity needs.	2010	No End Date (Continuous)
<b>Retrofit details for owned buildings</b>					
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	Upgrades continued under the PSECA funding.	Continue to retrofit, as budget becomes available.	2009	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	Upgraded systems using the PSECA funding.	Continue to retrofit, as budget becomes available.	2009	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	Upgrades continued under the PSECA funding.	Continue to retrofit, as budget becomes available.	2009	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	Upgrades continued under the PSECA funding.	Continue to retrofit, as budget becomes available.	2009	No End Date (Continuous)
<b>Supplies (Paper)</b>					
<b>Behaviour change program</b>					
Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	In Development	Staff training plan completed.	Implement the plan.	2011	No End Date (Continuous)
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	In Development	The University has a focus on online learning and we encourage the use of laptops at meetings and presentations. All of the meeting rooms now equipped with screens and computer access to encourage more paperless meetings.	Improve on campus wireless network service to address the increased use of tablets and smart devices.	2011	No End Date (Continuous)
<b>Electronic media in place of paper</b>					
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	In Development	None, all of the staff workstations have collaborative software installed.	Continue to make collaborative software and training in the use of that software available to all staff and faculty.	2008	No End Date (Continuous)
Use electronic document library for filing common documents	In Development	A document library was established for large documents.	None	2008	No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	In Development	Although the vast majority of pay stubs are sent electronically, staff have the option of receiving paper copies.	None	2008	No End Date (Continuous)
<b>Other Paper Supplies Actions</b>					
Quarterly messages indicating individual paper for each staff member	Ongoing/In Progress	The IT Department now sends quarterly messages to all staff and faculty, indicating their total amount of printing (therefore paper use), with the previous quarter for comparison.	Continue feedback program.	2012	No End Date (Continuous)
All ethical reviews of research projects at RRU are completed electronically	Ongoing/In Progress	RRU Research Department - Ethics Review Board carries out all of the ethical reviews of student/faculty research and projects	Continue electronic review program.	2012	No End Date (Continuous)

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		electronically. This saves thousands of pieces of paper each year.			
<b>Paper Type</b>					
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	None, 95% of paper purchased is 30% post-consumer recycled paper.	None.	2008	No End Date (Continuous)
Purchase 40% post-consumer recycled paper	Not Yet Evaluated				No End Date (Continuous)
Purchase 100% post-consumer recycled paper	In Development	None	None	2008	No End Date (Continuous)
<b>Printer/document settings</b>					
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	None, 2-sided printing is the default setting on all of the printers and photocopiers on campus.	None	2008	No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
<b>Business Travel</b>					
<b>Behaviour change program</b>					
Train staff in web-conferencing	Ongoing/In Progress	25% of staff are trained in web-conferencing and most of the RRU students are on-line students.	Continue to train staff on web-conferencing.	2008	No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	Ongoing/In Progress	The use of Live Meeting (video conferencing software) has increased because of the new facilities in the Learning and Innovation Centre. The Centre for Dialogue was specifically built to encourage large scale video conferencing, with two 60-inch LCD displays. Sessions held in the Centre for Dialogue can also stream live via the web to a broader audience.	Continue to encourage the use of the Centre for Dialogue by staff, faculty, guests, students and the community.	2011	No End Date (Continuous)
Encourage carpooling to meetings	Ongoing/In Progress	Staff/faculty encouraged to carpool to meetings and events. A new carpool policy is under development.	Implement a new carpool policy on campus.	2011	No End Date (Continuous)
Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)	Ongoing/In Progress	Staff and faculty walk to meetings on campus, or use one of the 18 electric golf carts. Under the life safety project, a number of new pathways have been constructed, separating pedestrians from the roads. Trails still need upgrading.	Review the trail infrastructure on campus and review the suitability for walking and cycling. Install new 'Share the Road' signage to encourage safe cycling. Improve cycling infrastructure to further encourage more cycling to and from campus.	2008	No End Date (Continuous)
<b>Policy and budgeting</b>					
Create a low-carbon travel policy or travel reduction goal	In Development	Continued to work with BC Government representatives to become a pilot university for Smarttec.	Continue to work on becoming a pilot for Smarttec.	2010	No End Date (Continuous)
<b>Virtual meeting technology</b>					
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	Ongoing/In Progress	All of the computers have web conferencing software installed.	Continue to train staff on the use of Elluminate.	2008	No End Date (Continuous)
Make desktop web-cameras available to staff	Ongoing/In Progress	New all-in-one screens have web cameras and these are installed, as computers are refreshed.	Continue to replace older screens with the all-in-one screens.	2008	No End Date (Continuous)
Install video-conferencing units in meeting rooms or provide mobile video-conferencing units	Ongoing/In Progress	The Learning and Innovation Centre has two new video conferencing rooms, in addition to the existing ones on campus.	Continue to include video conferencing technology in any new classroom buildings.	2009	No End Date (Continuous)
<b>Education, Awareness, and Engagement</b>					
<b>Awards/Recognition</b>					
Establish a sustainability/green awards or recognition program	Ongoing/In Progress	RRU is a participant in the CRD's Ready, Set, Solve program, where teams of students compete on sustainability projects. In 2012, the RRU team won the competition, and each student received a \$500.00 tuition credit. The winning team created a methodology and calculated the carbon emissions for the Town of Sidney.	Continue to support the Ready, Set, Solve contest. The students also have a commuter challenge planned as part of Earth Day celebrations on campus.	2009	No End Date (Continuous)
<b>Other Education, Awareness, and Engage</b>					
Hosting, supporting or participating in on-campus or local sustainability events	Ongoing/In Progress	The Student Sustainability Committee, with the support of the Office of Sustainability, hosted several events on campus, in support of climate change and sustainability: the National Sweater Day, on Feb.	Continued participation in local sustainability events and programs.	2009	No End Date (Continuous)



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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		7th, the Earth Hour Challenge on March 23, Earth Day on April 22, Bike to Work Week in June, Westshore Climate Change event during Earth Week, and the Off The Grid Festival, held at RRU and Fort Rodd Hill.			
Participation in and support of sustainability related actions	Ongoing/In Progress	The Office of Sustainability, supported by the Community Relations and Advancement Department, attended a media event featuring a RRU Alumni and the Petro Barrier System. This project is also partnered with Camosun College. This system detects oil collecting in drains, stops the oil from entering fish bearing waters, and sends an electronic message indicating the drain location.	The continued support of and participation in local sustainability action.	2009	No End Date (Continuous)
<b>Staff Professional Development</b>					
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress	The Director of the Office of Sustainability was supported through Professional Development, for a one day Social Media Bootcamp. The registration for the Biomass Conference was also supported by RRU. The operations staff and the Office of Sustainability attended FortisBC sponsored Energy Efficiency workshops.	Continue to provide professional development opportunities.	2009	No End Date (Continuous)
Include green options in employee performance measurement system	In Development	Success in receiving funding for an FortisBC Energy Specialist, to assist in the development of an Energy Conservation Program for campus, including a workstation tune-up project.	An Energy Conservation Program will be designed by the FortisBC Energy Specialist, in collaboration with the Office of Sustainability. There is the potential to create department by department sustainability performance measures, such as printing volume, departmental carbon footprints, energy use, sustainability practices.	2012	No End Date (Continuous)
<b>Staff awareness/education</b>					
Provide education to staff about the science of climate change	Ongoing/In Progress	Sustainability Website under review with the new branding initiative at RRU. Roadspiel (the staff/faculty internal newsletter) is also being re-engineered. Both of these tools provide education and news to staff/faculty and the website is open to the public.	Both the website and Roadspiel will be refreshed in 2013, and information will continue to be made available to these sites. The students site - My RRU - is also being updated to include current information.	2009	No End Date (Continuous)
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress	Materials made available to the Sustainability website, My RRU, and Roadspiel. RRU celebrated Water Bottle Free day, with an information session held in the Habitat Café, supported by CUPE and the Office of Sustainability.	Continue to provide information to the Sustainability website, My RRU, and Roadspiel; and through the new alumni newsletter - Reach.	2009	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress	Green Tips are regularly included in Roadspiel. The "RRU Green" guide is now on the student site - My RRU, and the Sustainability website.	Continue to provide Green Tips and update the "RRU Green" Guide, with the assistance of the library and student sustainability committee.	2009	No End Date (Continuous)
Provide sustainability education during new staff orientation	Ongoing/In Progress	A new student orientation was developed, which included sections on sustainability actions, such as the Jack Bell Ride Share program, the new Bike Rental Program, and a game to test student's knowledge of the RRU recycling system.	The Office of Sustainability will continue to collaborate with Student Services on improvements to the student orientation. Work is needed on the staff orientation program.	2012	No End Date (Continuous)
<b>Team-building</b>					

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress	The RRUSA (Student council) established a formal Sustainability Committee. RRU also has a Bike to Work Week Committee. A new Energy Committee has been established for RRU made up of the Energy Manager, Energy Specialist, operations director, HR Associate Vice President, and the Director of the Office of Sustainability.	Continue to support the RRUSA Sustainability Committee, the Bike to Work Week Committee and the Energy Committee.	2009	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress	The Office of Sustainability supports the students, faculty, staff and community in the development and implementation of sustainability actions on campus or in the community.	Continue to support sustainability initiatives on campus and in the community.	2009	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress	The Office of Sustainability provides resources to academic programs and the community. The BSc. students did a Community Based Social Marketing project this year, on 6 different topics, ranging from recycling, meatless Mondays, smoking, bottled water, etc.	Continue to support sustainability initiatives on campus and in the community.	2009	No End Date (Continuous)
<b>Other Sustainability Actions</b>					
<b>Adaptation to Climate Change</b>					
Assessed whether extreme weather events and/or long term changes in climate will affect the organization's business areas	In Development	The impacts of gradual changes to local weather patterns and extreme weather events, due to global climate change, were considered as part of emergency planning efforts on campus.	The risks and vulnerabilities of the University's service areas to climate change events will continue to be evaluated.	2012	No End Date (Continuous)
Integrated considerations of extreme weather events and/or long term changes in climate into the organization's decision making.	In Development	The impacts of gradual changes to local weather patterns and extreme weather events, due to global climate change, were considered as part of emergency planning efforts on campus.	The risks and vulnerabilities of the University's service areas to climate change events will continue to be evaluated.	2012	No End Date (Continuous)
<b>Building construction, renovation</b>					
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Ongoing/In Progress	The majority of construction waste from building at RRU is re-used, recycled or composted, and diverted from the landfill. The asphalt tested as part of the life safety project was analyzed as neutral, and subsequently re-used on site.	Continue to re-use materials, compost materials and improve the waste diversion rate on campus. The current diversion rate is estimated to be approximately 70%, which is the highest among similar facilities.	2008	No End Date (Continuous)
Incorporate lifecycle costing into new construction or renovations	Ongoing/In Progress	The only new construction at RRU was the LIC building, and lifecycle costing was used for this project, as required by the LEEDS NC Gold standard.	Continue to determine if lifecycle costing is suitable for other construction projects on campus.	2011	No End Date (Continuous)
<b>Commuting to and from home</b>					
Introduce telework/work from home policy	Not Yet Evaluated				No End Date (Continuous)
Offer staff a compressed work week	Not Yet Evaluated				No End Date (Continuous)
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress	The RRU students now have the U-Pass and bus ridership has increased. A bus loop was included in the life safety project, to encourage BC Transit to increase the bus service to RRU. New bike racks were installed in high traffic areas, all of which are used to capacity. Bike to Work Week was celebrated, with more than 75	The bus loop will be complete, and BC Transit will be bringing in the #52 Wishart Bus to campus. This will mean evening and weekend service, as well as an increase in daily service. More bike racks and a bike repair station will be installed; and campus trails will be improved for cycling. A new carpool policy will be in place.	2011	No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		staff/faculty participating.			
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Ongoing/In Progress	Showers and lockers are available in 5 buildings at RRU.	Address the need to increase locker/drying space for commuter cyclists.	2011	No End Date (Continuous)
Provide secure bicycle storage	Ongoing/In Progress	No external or internal secure storage for bicycles yet.	Undertake a review on the costs/benefits of secure bicycle storage at RRU. This hasn't been a priority in the past because there have been zero bike thefts on campus. However, as the on campus student populations increases, and the surrounding neighbourhoods grow, this may be a requirement in the future.	2011	No End Date (Continuous)
<b>Other Sustainability Actions</b>					
Additional recycling and composting facilities were added on campus	Ongoing/In Progress	A new recycling station is being built in the Habitat Cafeteria; and 16 new Compost Bins will be installed in the new LIC, to complement the recycling system in the LIC.	Continue to improve accessibility of recycling and compost facilities	2012	No End Date (Continuous)
<b>Procurement (non-paper supplies)</b>					
Incorporate minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)	Ongoing/In Progress	RRU is part of a cooperative purchasing network which, focuses on the procurement of environmentally responsible products.	Continue to be part of the cooperative purchasing network.	2009	No End Date (Continuous)
Establish green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)	Ongoing/In Progress	LEED gold standards were used in the new Learning and Innovation Centre. All existing furnishings are recycled.	Continue to purchase environmentally responsible products.	2008	No End Date (Continuous)
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress	The new Green Cleaning Guide was implemented. RRU has a non-toxic cleaning program.	Continue to test new green cleaning products.	2008	No End Date (Continuous)
<b>Waste reduction/diversion</b>					
Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities	Ongoing/In Progress	Comprehensive recycling program is in place at RRU. All grounds materials are composted and used on the gardens. The new LIC recycling program required some adjustments, with talks from the Office of Sustainability to assist staff/faculty/students in using the new system effectively.	A BSc. student project is underway on a Waste Audit for RRU. This audit will update the previous audit done in 2004. The study will be complete in August, 2013.	2008	No End Date (Continuous)
Implement a hazardous waste reduction and disposal strategy	Ongoing/In Progress	System in place.	No new activities planned.	2008	No End Date (Continuous)
<b>Water conservation</b>					
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	Ongoing/In Progress	Energy retrofits included replacement of all of the shower heads on campus, including student residences. The new LIC has water efficient plumbing, and uses recycled 'grey-water' for all of the toilets and irrigation.	The showers in the gymnasium will be upgraded. A water bottle filling station will be included in the renovations to the Habitat Café.	2011	No End Date (Continuous)
Put in place a potable water management strategy to reduce potable water demand of building-level uses such as cooling tower equipment, toilet fixtures, etc. and landscape features	Ongoing/In Progress	Non-potable water is currently used in the RRU irrigation system. The new LIC uses non-potable water for all of the toilets and irrigation, resulting in a savings of 1.7 m litres of water per year. The landscaping also included mostly native plants, which require less	Continue to use non-potable water, particularly if major renovations are done to existing buildings, or a new academic building is constructed.	2008	No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		water.			
Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	Ongoing/In Progress	Storm water system is in place. The new life safety project included many new pathways, all with permeable gravel surfaces.	Continue the storm water system. Continue the PetroBarrier Systems pilot project, with 8 new drains on P3.	2010	No End Date (Continuous)