

Action Plan - WSDOT Sustainable Transportation

For the 2013 – 2015 Fiscal Biennium



Executive Summary

Sustainability: Make decisions and take actions that promote the conservation of resources for future generations by focusing on the balance of economic, environmental and community needs.

- *WSDOT's Values Statement*

The Washington State Department of Transportation (WSDOT) Sustainable Transportation Action Plan (Action Plan) describes major WSDOT activities that promote sustainable practices and clean transportation in Washington State for the 2013 – 2015 biennium. The Action Plan connects related WSDOT activities to goals outlined in the WSDOT Strategic Plan (Results WSDOT) and/or Results Washington.

The Action Plan summarizes ongoing and future actions and is intended for use by WSDOT and external audiences. It is designed as an electronic document that includes internet links and email contacts for additional information on included topics.

The Action Plan will be updated at least each biennium to form a record of agency progress over time and status of individual items will be updated regularly.

Strategic Direction

WSDOT sustainability efforts are distributed throughout the agency and through partnerships with external stakeholders. WSDOT employees are encouraged to promote sustainable transportation with a focus on the following:

- Support reductions in vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions
- Encourage more cost-effective and sustainable practices for construction and operations
- Facilitate efficient and sustainable transportation for users
- Research and promote the use of new technologies
- Promote alternative fuels and electric vehicle (EV) infrastructure
- Prepare our communities and the transportation system to adapt to climate change

WSDOT's vision is to be the best in providing a sustainable and integrated multimodal transportation system. Sustainability is one of WSDOT's core values. Recent strategic efforts at the state and agency level support realization of that vision.

Results Washington

Governor Inslee's [Results Washington](#) includes indicators of success for five goal areas. WSDOT is directly responsible for indicators related to clean transportation, and sustainable and efficient infrastructure. WSDOT will also contribute to other goals such as quality of life, vibrant communities, clean and restored habitat, and healthy air and water.



Executive Order 14-04

The Governor's [Executive Order 14-04](#) "Washington Carbon Pollution Reduction and Clean Energy Action" directs state agencies to reduce carbon emissions and improve energy independence. WSDOT is directed to encourage electrical vehicle (EV) use, expand the EV network, and improve multimodal planning to chart the path to a "multimodal, coordinated, cost-effective, safe and low-carbon transportation system."

Results WSDOT: Moving Washington Forward

WSDOT's Strategic Plan: "[Results WSDOT](#)" frames future agency actions to ensure WSDOT is the leader in providing a sustainable, integrated, and multimodal transportation system. It calls on WSDOT employees to be innovative and demonstrate that we are trustworthy leaders. Results WSDOT links agency actions to the six goals outlined in the Strategic Plan.

1. Strategic Investments
2. Modal Integration
3. Environmental Stewardship
4. Organizational Strength
5. Community Engagement
6. Smart Technology

Goal 3: Environmental Stewardship is to "Promote sustainable practices to reduce greenhouse gas emissions and protect natural habitat and water quality." This goal and its intended outcomes below are central to the actions identified in this Action Plan.

- Improve environmental conditions: leave it better than before
- Reduce WSDOT's overall carbon footprint
- Improve energy efficiency of transportation systems and WSDOT operations

Relationship to other WSDOT initiatives:

- [Practical Design](#): Practical design principles support WSDOT's strategic goals to implement programs that save money, improve conditions for travelers and communities, and integrate all

modes of transportation. This Action Plan can inform the department's practical design efforts and reinforce the delivery of multiple benefits of transportation investments.

- **Lean:** Since August 2012, WSDOT has initiated 17 Lean projects to streamline processes and improve customer service. This Action Plan, and subsequent updates, may report significant efficiencies gained through Lean projects.

Plan Organization

This plan summarizes and groups actions by program or activity area for the 2013-2015 fiscal biennium (July 1, 2013 – June 30, 2015). However, readers should understand that most actions are shared across WSDOT programs and with other partner agencies. The plan is organized as follows:

1. Multimodal Planning
2. Electric Vehicles
3. WSDOT Facilities
4. Highway Lighting
5. Highway Maintenance
6. Operational Efficiencies
7. Commute Trip Reduction
8. Fleet – Land Based
9. Washington State Ferries
10. Highway Construction and Materials
11. Project Delivery
12. Fish Passage Barrier Removal
13. Climate Preparedness
14. Greenhouse Gas Inventory and Reduction Strategies

The *Appendix A* summary table includes the same actions highlighted in the plan, planned date of completion, and connections to the strategic direction areas identified above: Results Washington, Executive Order 14-04, or Results WSDOT.

Multimodal Planning

Priority actions in the 2013-15 biennium:

- WSDOT Multimodal Planning will lead four Clean Transportation Actions in the Governor’s Executive Order (EO) 14-04:
 1. Develop new program of technical and financial assistance to help local governments implement transportation efficiency improvement measures.
Status: First subcommittee meeting scheduled for October 2014
 2. Review existing state transportation grant programs and develop recommendations to increase multimodal investments.
Status: Report on options in December 2014
 3. Implement changes in planning and priority setting to meet policy objectives of the Governor’s EO 14-04.
Status: Draft policies and guidance in December 2014
 4. Statewide Transportation Plan – Develop, adopt, and implement multimodal, federally compliant, long range statewide transportation plan.
Status: Complete scope by December 2015
- 5. Complete pilot test and report on the Federal Highway Administration’s (FHWA) Energy and Emissions Reduction Policy Analysis Tool ([EERPAT](#)) that analyzes transportation GHG reduction policy scenarios in summer 2014.
Status: In progress. Final report will be submitted to FHWA in December 2014
- 6. Submit report to FHWA on pilot test of FHWA Infrastructure Voluntary Evaluation Sustainability Tool ([INVEST](#)) for corridor planning by February 2014.
Status: Complete

Overview of Current Efforts

Improve corridor-level planning tools

- Updating the WSDOT *Transportation Planning Studies Guidelines and Criteria* to include guidance for incorporating climate change, extreme weather preparedness, sustainable planning, and Least-cost planning practical design.

Test transportation policies for GHG reduction potential

- Working to achieve VMT reduction benchmarks for 2020, 2035, and 2050 compared to 75 billion baseline VMT for 2008 as required by [RCW 47.01.440](#).

The actions above support **Results WSDOT Goal 3: Environmental Stewardship**
1.0 Improve environmental conditions: leave it better than before

Contacts: EERPAT & Travel Demand Model - Stacy Trussler, trussler@wsdot.wa.gov, (206) 464-1278
Planning Guidelines - Judy Lorenzo, Lorenzo@wsdot.wa.gov, (360) 705-7274
INVEST – Elizabeth Robbins, RobbinS@wsdot.wa.gov, (360) 705-7371

Electric Vehicles

Priority actions in the 2013-15 biennium:

1. WSDOT Public-Private Partnerships will complete an action plan to advance electric vehicle use in Washington State by December 31, 2014, as directed in the Governor's Executive Order (EO) 14-04.
Status: in progress
2. Develop proposal for 2014 Legislative session to install DC fast chargers in 9 communities in Puget Sound Region and along I-90 to Spokane (orange dots on map) by spring 2017.
Status: Budget request submitted to OFM
3. Leverage opportunities: Require applicants for park and ride projects in the Regional Mobility Grant program to include charging stations as part of their proposal by December 2014.
Status: Complete

Overview of Current Efforts

Promote the West Coast Green Highway that runs from British Columbia, Canada, to Baja California, Mexico

- The [West Coast Green Highway](#) promotes cleaner fuels by increasing market demand for high-efficiency, zero-, and low-carbon-emitting vehicles.
- WSDOT supports efforts to extend and fill-in the existing fast charging network and to develop incentives for employers to install workplace charging.
- Increase the number of registered plug-in vehicles from 8,000 in 2013 to 50,000 by 2020.

Establish performance measures for state clean transportation goals

- Working with the Department of Ecology on Results Washington goals for "[Sustainable and Clean Energy](#)."

Coordinate with partners to advance plug in electric vehicle adoption

- Provide technical and policy support to public and private stakeholders and advocate for electric vehicles at the state and national levels.

Existing & Proposed WSDOT EV Fast Charging Network Infill and Expansion (as of June 2013)



Continued on next page

Overview: Electric Vehicle Chargers in Washington State

| Charger Type | Number of Chargers | | |
|--|--------------------------------|--|---|
| | Installed Before June 30, 2013 | Anticipated New Chargers Installed during 2013-2015 Biennium | Anticipated Total Chargers by June 30, 2015 |
| Total Fast Charging Stations | 30 (incl. below) | 15 | 45 |
| • WSDOT DC fast chargers | 12 | 0 | 12 |
| • Other DC fast chargers | 15 | 14 | 29 |
| • Tesla Superchargers | 3 | 1 | 4 |
| Total Public Charging Stations in WA (all types) | 411 | 50 | 461 |

The actions above support **Results WSDOT Goal 3: Environmental Stewardship**
 3.0 Improve energy efficiency of transportation systems and WSDOT operations

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Last Updated: 11/21/2014

WSDOT Facilities

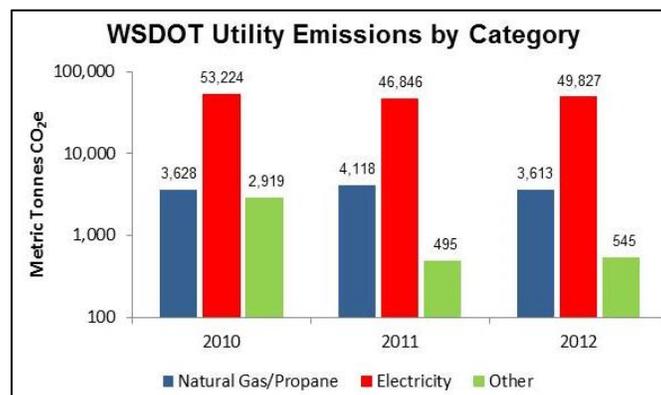
Priority actions in the 2013-15 biennium:

1. Submit annual Governor's [EO 12-06](#) report to Department of Enterprise Services on progress of building energy efficiency initiatives every December 1st.
Status: In progress, anticipated submission December 1, 2014
2. Reduce 254 computers by 2015 to reduce 34 metric tons of carbon dioxide equivalents (MTCO₂e).
Status: In progress
3. Upgrade or replace 13,000 light fixtures and controls to reduce 1,070 MTCO₂e by 2019.
Status: In progress but completion dependent on additional funding

Overview of Current Efforts

Pursue Energy Reduction at WSDOT Facilities

- Continue benchmarking facilities in EPA's [Energy Star Portfolio Manager](#) for large facilities, and when data is available for automatic upload.
- WSDOT promotes energy reduction at agency facilities to meet or exceed state requirements as funding allows.
 - [RCW 19.27A.190\(8\)](#): perform energy audits and implement energy conservation
 - [Executive Order 12-06](#) :
 - Implement cost-effective energy efficiency investments as practicable
 - Reduce total agency building energy use by 20 percent from 2009 level
 - Work with building lease owners to schedule energy efficiency improvements



WSDOT Building Energy Use

| Year | Total Building Energy Use (MT CO ₂ e*) | % Reduction from 2009 |
|------|---|-----------------------|
| 2009 | 20,055 | - |
| 2011 | 17,692 | -12% |
| 2020 | 16,044 | -20% |

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Last Updated: 11/21/2014

Highway Lighting

Priority actions in the 2013-15 biennium:

1. Research options to increase energy efficiency of highway lighting in 2015, including flexibility in design requirements for lighted areas.
Status: Design Policy update complete
2. Develop a safety predictive model to determine where roadway illumination is justified and where it can be removed without significant impacts to safety and mobility by June 30, 2015.
Status: Interstate model development nearly complete



Source: WSDOT

Overview of Current Efforts

Use More Energy Efficient Lighting to Reduce Energy Consumption

- LED lighting can be greater than 50% more energy efficient than standard lighting and allows dimming and on/off functionality to increase efficiency to nearly 74%, while maintaining safety.
- During the projected 15-year life cycle, the [Adaptive LED Lighting Pilot](#) project and the phase 2 expansion could save more than \$345,000 in utility and maintenance costs and reduce energy consumption by over 3 million kilowatt hours, saving 2,100 metric tons of carbon dioxide equivalent (MTCO₂e).
- 12 LED projects across all 6 WSDOT regions are underway or recently completed and plans are being established to identify additional LED retrofit locations
- Changing design policy and standards to decrease overall lighting requirements for new projects.
- Established procurement contracts that provide LED lighting options that benefit all public jurisdictions in WA State.

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Last Updated: 11/21/2014

Highway Maintenance

Priority actions in the 2013-15 biennium:

1. Commence the statewide program of bridge cleaning and washing to help extend the life of coatings on steel bridges.
Status: 44 bridges were completely cleaned and six bridges were partially cleaned in FY14
2. Increase pavement maintenance work to help extend the life of pavements in the face of decreasing pavement preservation funding and work.
Status: \$20.4m spent through Aug. 2014, within 6% of planned expenditures
3. Implement a durable pavement striping/markings contract at key locations where the annual application of water-based paint does not hold up to traffic wear and tear.
Status: contract executed in summer 2014
4. Implement our annual inspection and maintenance program for storm water treatment facilities to ensure that highway runoff is treated for quantity and quality before it leaves the highway right of way.
Status: Ongoing, 1,438 of 1,805 facilities maintained to applicable standards



Source: WSDOT

Overview of Current Efforts

Maximize the lifespan of highway assets through regular inspection, preventive maintenance, and repair activities

- Proactive, preventive maintenance program for assets with electrical and mechanical systems such as signals, intelligent transportation systems, highway lighting, movable/floating bridges, and urban tunnels.
- Routine inspection and maintenance of assets such as cable barrier, culverts, catch basins, and traffic signs.
- Complete repairs when needed to restore functionality to highway assets including pavements, guardrail, and structural bridge components.

Minimize materials and energy consumption through training and effective use of equipment

- Use of advanced and regularly calibrated snow plow equipment that applies just enough salt and sand to achieve desired road conditions
- Improved data collection and management that helps maintenance managers deploy the minimal amount of labor, equipment, and materials resources to achieve program delivery goals
- Continued use of LED technology in signals and expanding use of LED technology in highway lighting to minimize electricity consumption.

Integration of highway maintenance and preservation expenditures and activities to help assure lowest life-cycle cost management of highway assets

- Coordinating with the HQ Materials Laboratory and Capital Program Development and Management to strategically target pavement investments and actions to extend the life of existing pavements as much as possible.
- Coordinating with the HQ Bridge Office and Capital Program Development and Management to strategically target various bridge investments and actions to extend the life of existing bridges as much as possible.

Contact: Rico Baroga, BarogaR@wsdot.wa.gov, 360-705-7864

Operational Efficiencies

Priority actions in the 2013-15 biennium:

1. Complete a Transportation System Management and Operations (TSMO) self-assessment workshop to improve traffic operations, demand management, and corridor planning to ensure TSMO capabilities are effectively considered alongside other traditional improvements by summer 2014.
Status: Workshop complete
2. Install 17 ramp meters to improve flow, system efficiency, reduce accidents, and relieve traffic congestion through ramp meters on [I-5 in Tacoma](#) beginning in summer 2014.
Status: Underway
3. By June 30, 2015, pursue installation of 15 new roundabouts at locations where other types of intersections are being proposed. Roundabouts reduce idling and maintenance costs, increase safety, and improve traffic flow. WSDOT currently has 124 roundabouts.
Status: Underway



Completed roundabout on the I-82 Valley Mall Boulevard project

Overview of Current Efforts

Reduce Idling and Traffic Delay and Prevent Secondary Collisions with the WSDOT Incident Response Team (IR)

- IR teams responded to 11,333 incidents in the first quarter of 2014, providing \$17.4M in economic benefit (\$9.7M from reduced delay).

Improve Freight Mobility

- In 2013, WSDOT's commercial vehicle electronic screening program allowed trucks to bypass weigh stations 1.3 million times, saving commercial trucking \$13.3M in operating costs from time saving and about 0.4 gallons of fuel per bypass.

Use Low Cost Enhancements (LCE) to Improve Operational Safety and Mobility

- LCE projects deliver key safety initiatives and provide immediate safety and efficiency improvements. WSDOT delivered 281 LCE projects in the 11-13 biennium.

Toll Corridors Strategically

- Since 2007, WSDOT has strategically tolled corridors to manage congestion, enhance mobility, and generate revenue for future improvements.

Expand Travel Options

- Improve transit options as an aspect of design and construction projects, including intercity passenger rail and bus service and bicycle/pedestrian projects.
- Expand HOV lanes in Tacoma.



WSDOT Incident Response and Washington State Patrol

Contacts: Bill Legg, LeggB@wsdot.wa.gov, 360-705-7994

Roundabouts - Brian Walsh, WalshB@wsdot.wa.gov, 360-705-7986

Last Updated: 11/21/2014

Commute Trip Reduction (CTR)

Priority actions in the 2013-15 biennium:

1. Submit report to the Legislature on "[Demand Management and the path to greater efficiency](#)" for 2014 legislative session.
Status: Complete
2. In Spring 2014, develop and implement WSDOT telework policy and support the [Governor's Executive Order 14-02](#) to expand telework and flexible work hours.
Status: Complete
3. In 2014, pilot [experimental CTR strategies](#) that expand to all trips in Redmond, Seattle, Snohomish County, Spokane County, Tacoma, Tukwila, and Yakima
Status: Annual progress reports to CTR Board, Spokane not participating
4. Increase the number of approved WSDOT employees that telework at least one day a week from 90 employees in 2013 to 350 by June 30, 2015.
Status: In progress

Overview of Current Efforts

Update the CTR Program

- Apply lessons learned since 2006 to expand and move toward reduction in all trips.
- Update program data methodology that determines effects of CTR on jurisdictions.

Communicate the Benefits of CTR

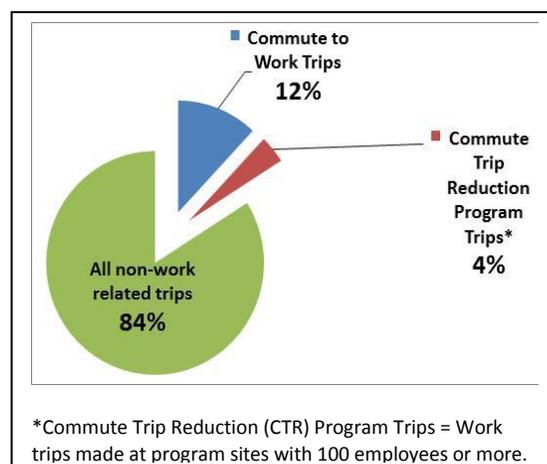
- Pursue integration of CTR into corridor planning.

Expand Telework and Use of Flexible Work Hours

- WSDOT invested in video-conferencing and expanded use of web conferencing.
- Work with the Department of Enterprise Services to support other state agency efforts to meet the Governor's EO 14-02 goals for promoting flexible work hours.

Use Technology to Encourage More Efficient Commute Options

- Promote Rideshare Online, a Transportation Demand Management (TDM) technology platform that encourages the use of non-single occupancy vehicle modes.



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Last Updated: 11/21/2014

Land Fleet

Priority actions in the 2013-15 biennium:

1. Increase average miles per gallon (mpg) for the passenger and light duty truck fleet from 18 in 2010 to 23 mpg by June 2020.
Status: In progress, pending contract
2. Replace 10 sedans and sport-utility vehicles with 6 electric vehicles and 4 extended-range electric vehicles by June 2014.
Status: Electric vehicles complete. 1 EREV vehicle left being purchased
3. Increase the number of cleaner burning dual fuel (Propane/Gas) work trucks from 21 to 81 by October 2015.
Status: In progress, pending contract
4. Increase biodiesel from B13 to B20 by June 2015.
Status: In progress

Fleet Operations' goal is to reduce greenhouse gas emissions to at least 15% below our 2005 total emissions by 2020. Our comprehensive plan includes a wide range of strategies, such as replacing vehicles to improve average fuel economy, utilize alternative fuel technology, and reduce emissions. As we strive to meet our goals, one factor out of WSDOT control is operational tempo the need for WSDOT to respond to emergencies and severe weather events.

WSDOT was the first state agency to purchase a plug-in electric hybrid (2012) and fully electric vehicle (2014). Nationally, WSDOT developed the first lease for the Nissan Leaf, which has become the new standard.

Overview of Current Efforts

Fuel conservation planning

- Regional and statewide plans identify measures to conserve fuel, including alternatives to single occupancy vehicle travel, efficient driving tips, and vehicle maintenance.

Reduce total fuel use through conservation, right-sizing, and efficiencies

- In 2013, WSDOT will save 170,000 gallons of fuel and \$630,000 over the previous year through conservation and efficiency measures.
- Total WSDOT fleet emissions in 2013 are projected to be reduced by 3,500 metric tons of carbon dioxide equivalents (MTCO₂e) from 2012.

Increase use of cleaner alternative fuels

- The WSDOT land fleet is the largest state biodiesel purchaser.
- Southwest Region converted 21 cars and trucks to cleaner propane dual fuel vehicles in 2012.

Equipment modifications

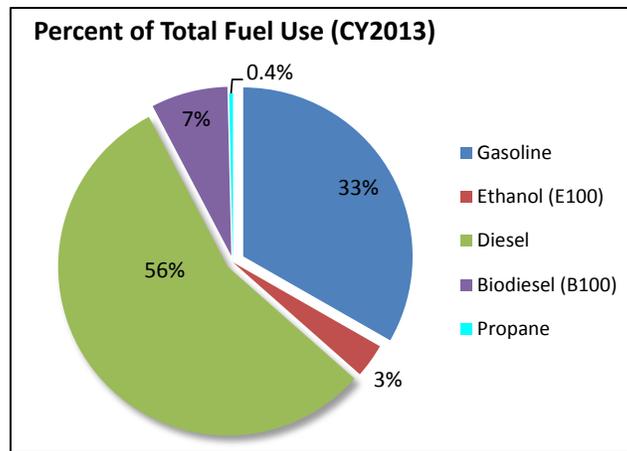
- Purchased hybrids and more fuel efficient vehicles (83 of 545 passenger vehicles are hybrid).
- Changed to smaller engines on some work trucks.

- Switched from incandescent warning lights to LED (less battery drain, less vehicle idling).
- Installed shift lights in dump trucks to tell operators the optimum time to shift.

Continued on next page

On-Road Fleet Inventory

| Vehicle Fuel Type | Total Number of Vehicles | |
|-------------------|--------------------------|---------------------|
| | June 2013 | June 2015 (planned) |
| Hybrids | 83 | 137 |
| Plug-in Electric | 1 | 16 |
| E85/Flex | 651 | 582 |
| Propane | 21 | 45 |
| B20 capable HD | 1270 | 1270 |



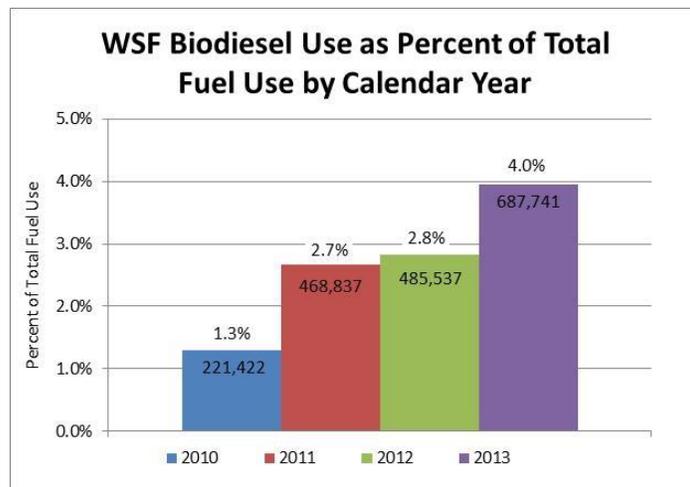
The actions above support **Results WSDOT Goal 3: Environmental Stewardship 2.0** Reduce WSDOT’s overall carbon footprint

Contact: Georgina Willner, WillneG@wsdot.wa.gov, 360-705-7883

Washington State Ferries

Priority actions in the 2013-15 biennium:

1. [Propose conversion of 6 Issaquah Class vessels](#) from diesel to liquefied natural gas (LNG) for 2014 legislative session.
Status: Submitted proposal to 2014 legislature
2. Explore private-public funding opportunities for LNG vessel conversion in 2014.
Status: Underway
3. Evaluate increasing biodiesel use by piloting B10 from recycled canola oil and rapeseed in two vessels by winter 2014.
Status: Supplier preparing to deliver B10
4. [Convert the Hyak](#) ferry to a battery hybrid by fall 2014.
Status: Decision to proceed or abandon project to be made in fall 2014
5. Test a centrifugal lube oil filter in 2014 to reduce use of lube oil and paper oil filter waste.
Status: Request to WSDOT Research to extend data collection by one year
6. Expand the reservation system for private vehicles to the San Juan Islands to reduce vehicle idling and related emissions by the end of 2014.
Status: In progress



Overview of Current Efforts

Provide Sustainability Leadership

- Third party certified by [EnviroStars](#) and [Green Waters](#) for green best management practices and hazardous waste reduction.
- Participate in the [Puget Sound Air Emissions Inventory](#) to quantify ferry fleet emissions.

Conserve Fuel

- In 2013, WSF developed a Fuel Conservation Plan that identifies funding dependent strategies to further reduce overall fuel use.
- AASHTO recognized WSF with [President's Award](#) for reducing 180,000 gallons per year on the Kingston to Edmunds route by reducing vessel speeds.

WSF: Fuel Reduction Strategies and Estimate Emissions Benefits

| Fuel Reduction Strategies (as funding allows) | Estimated Annual Tons of Emissions Reduced | | |
|--|--|----------------------------------|----------------------|
| | Fine Particulate Matter (PM2.5) | Course Particulate Matter (PM10) | Carbon Dioxide (CO2) |
| Evaluate and Incorporate Efficient Technologies | | | |
| Convert six Issaquah Class Vessels to LNG | 6,161 | 24 | 26 |
| Install hybrid propulsion in Hyak Vessel | 2,125 | <i>na</i> | 8 |
| Install five-bladed propeller | 9,246 | 8 | 8 |
| Install 1042 kits | 2,106 | 2 | 2 |
| Use less power pushing the dock | 4,375 | 4 | 4 |
| Operational Changes to Reduce Fuel Use | | | |
| Full feather operation, Salish and Kennewick Vessels | 1,175 | 1.0 | 1.1 |
| Avoid trim in lightly loaded vessels | 1,610 | 1.3 | 1.4 |
| Reduce acceleration leaving the dock | 729 | 0.6 | 0.7 |
| <i>Total Emissions Reductions</i> | 27,527 | 39 | 51 |

na = not available

The actions above support **Results WSDOT Goal 3: Environmental Stewardship 2.0** Reduce WSDOT’s overall carbon footprint

Contact: Sheila Helgath, HelgathS@wsdot.wa.gov, 206-515-3911

Last Updated: 11/21/2014

Highway Construction and Materials

Priority actions in the 2013-15 biennium:

1. Research the use of recycled concrete in new concrete pavements by spring 2014.
Status: Washington State University research is complete
2. Implement general special provision to allow ≤40% reclaimed asphalt pavement (RAP) binder in pavements using ≤5% recycled asphalt roof shingles (RAS), in summer 2013.
Status: RAP/RAS Specification Implemented in WSDOT Construction Contracts via General Special Provision



Source: WSDOT

Overview of Current Efforts

Reduce Energy Use by Extending Pavement Life and Investigating Alternative Paving Options

- Extend the life of concrete pavements using [dowel bar](#) retrofits.
- Use the WSDOT [Pavement Management](#) System to manage pavement lifecycle costs.
- [Warm Mix Asphalt](#) lowers the mixing temperature of asphalt to reduce compaction temperatures with the goal of saving fuel.

Reuse Roadway Materials to Reduce Energy Consumption

- [Crack Seal](#) and overlay of asphalt on existing concrete pavement base to reduce the need for removal and replacement of existing pavement.
- WSDOT uses [Reclaimed Asphalt Pavement](#) produced during pavement rehabilitation.
- Cold-in-Place Recycling reuses existing asphalt pavements to reduce material transport costs and reduce energy and emissions.

Recycle Materials to Reduce Waste

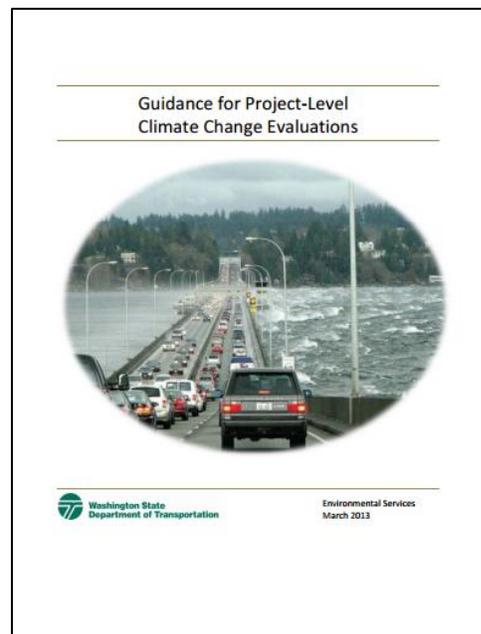
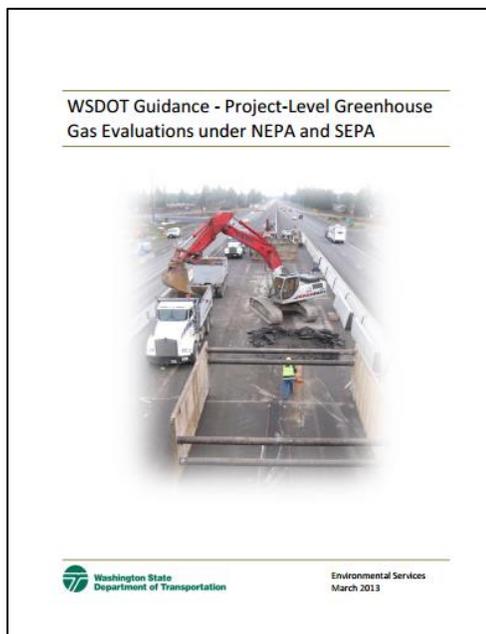
- WSDOT [Standard Specifications](#) allow the use of hot mix asphalt, recycled asphalt shingles, concrete rubble, recycled glass, steel furnace slag or aggregate to reduce the amount of materials entering the landfill.
- Safely compost plant and animal waste to reduce energy from moving materials off-site and to avoid nuisance issues with [carcass burials](#).

Contact: Kurt Williams, WilliKR@wsdot.wa.gov, 360-709-5410

Project Delivery

Priority actions in the 2013-15 biennium:

1. Pilot test FHWA's INVEST sustainability self-evaluation tool for projects in late 2013 and report to FHWA in winter 2014.
Status: Completed February 2014
2. Evaluate sustainability ratings tools: [INVEST](#), [Envision](#), and [GreenLITES](#) in spring 2014.
Status: Completed February 2014
3. Update the WSDOT [Project Level GHG Analysis](#) and [Climate Change guidance](#) documents in fall 2014.
Status: Plan to update by November 30, 2014
4. Complete report of the SR 520 Bridge Replacement and HOV Program sustainability activities by January 2014.
Status: Completed January 2014



Source: WSDOT

Overview of Current Efforts

Evaluate GHG Emission, Climate Change, and Extreme Weather Vulnerability on Projects

- WSDOT developed the nation's first DOT project level guidance for [GHG analysis](#) and [Climate Change](#) in 2009.
- Published 14 project-level NEPA/SEPA documents with analysis of GHG and climate change impacts.

The actions above support **Results WSDOT Goal 3: Environmental Stewardship**
1.0 Improve environmental conditions: leave it better than before

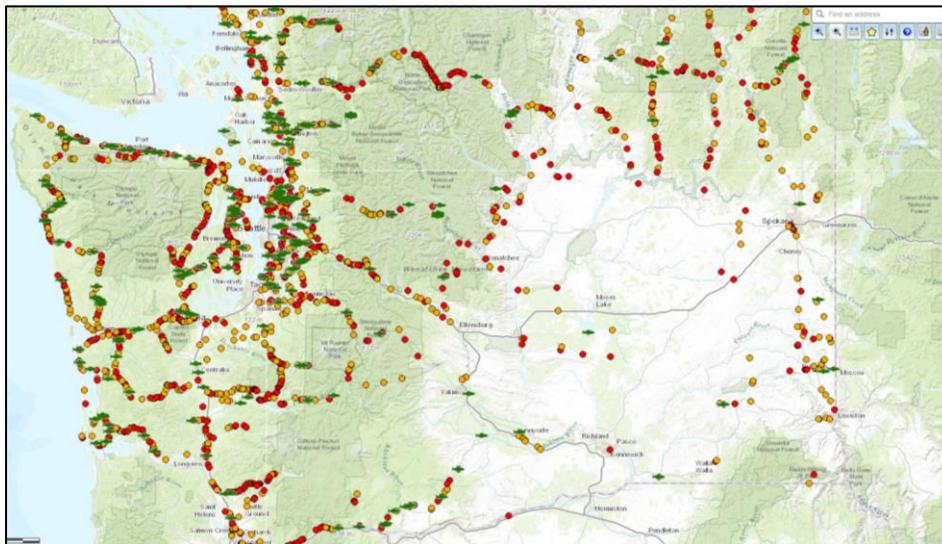
Contact: Carol Lee Roalkvam, roalkvc@wsdot.wa.gov 360-705-7126

Last Updated: 11/21/2014

Fish Passage Barrier Removal

Priority actions in the 2013-15 biennium:

1. Organize and ramp up to comply with the Federal Court Injunction for fish barrier corrections by Spring 2014
Status: Complete
2. Coordinate with Tribes on Barrier correction activities
Status: Ongoing
3. Participate in Fish Passage Board to promote partnerships and coordination on barrier correction.
Status: Began fall 2014
4. Develop and implement a communications plan to better inform the public about this program
Status: Completed August 2014



New WSDOT internet page showing fish barrier locations

Overview of Current Efforts

Expedite design and delivery of barrier correction projects

- Conducted Lean process with WDFW. Results include: Revised fish passage project design process to merge WSDOT and WDFW staff in joint effort to streamline project development; Established process to monitor and improve deliverables from WSDOT and WDFW support groups.
- Conducted quarterly program management meetings with regions and support groups to report on progress and address delivery issues.
- Implemented quarterly reporting to WSDOT executives.

Design, construct and maintain culverts to ensure continued passage and preserve assets

- Three part strategy (since 1991) as part of larger transportation construction projects where culverts are within project limits; through stand-alone projects; as part of maintenance activities where possible.

The actions above support **Results WSDOT Goal 3: Environmental Stewardship**
1.0 Improve environmental conditions: leave it better than before



Source: WSDOT

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Paul Wagner, WagnerP@wsdot.wa.gov, 360-705-7406

Last Updated: 11/21/2014

Climate Preparedness

Priority actions in the 2013-15 biennium:

1. Complete Skagit Basin Climate Change Pilot Project by January 2015.
Status: In progress
2. Prepare WSDOT's Climate-Ready Action Plan by June 30, 2015, to focus department efforts including decision support (asset management and practical guidance), leading by example (best practices), and capacity building for WSDOT staff and our partners.
Status: In progress

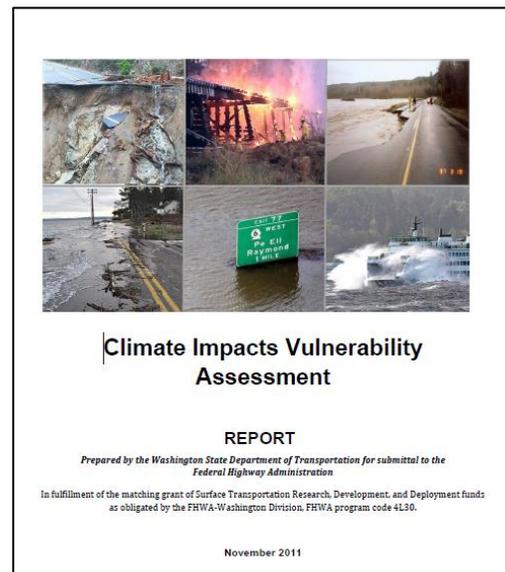
Overview of Current Efforts

Build Climate-Ready Infrastructure Today

- New investments consider climate vulnerability
- Ongoing I-4 Program and retrofit projects are central to improving our climate-readiness
- Skagit Basin pilot is helping define long-term solutions, working with the county and the Corps of Engineers. This pilot will advance the integration of WSDOT's vulnerability assessment by using locally available flood hazard data and emergency planning tools.

Improve transportation asset management

- Integrating climate information into our business practices from planning through operations and maintenance.
- Expanding communication and collaboration with our partners (state & federal agencies, tribes, transit agencies, MPOs, local agencies) on how we can improve the resilience of our state's transportation systems.
- Demonstrating value of WSDOT's vulnerability assessment methods for use by other agencies (partnered on the Sound Transit pilot, WSDOT staff conduct frequent external presentations).



Source: WSDOT

The actions above support **Results WSDOT Goal 3: Environmental Stewardship**
1.0 Improve environmental conditions: leave it better than before

Contact: Carol Lee Roalkvam, roalkvc@wsdot.wa.gov 360-705-7126

Greenhouse Gas Inventory and Reduction Strategies

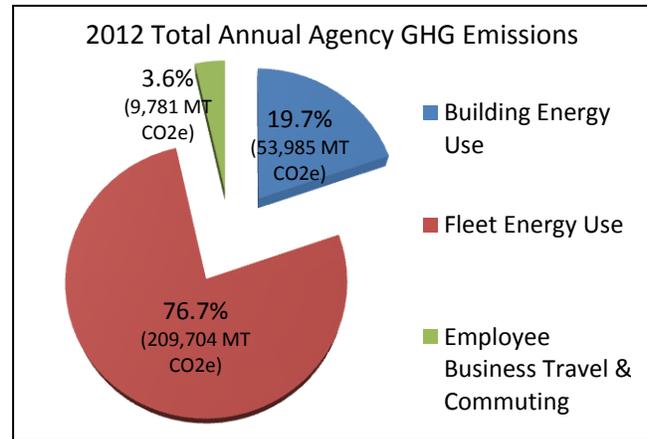
Priority actions in the 2013-15 biennium:

1. Prepare agency greenhouse gas (GHG) emissions inventory in Summer 2014 and submit final report to the Department of Ecology in Fall 2014, per [RCW 70.235.050](#)
Status: Completed August 2014
2. Submit update of *WSDOT Strategy for Reducing Greenhouse Gas Emissions* to the Department of Ecology in Fall 2014, per [RCW 70.235.050](#)
Status: Completed September 2014

Overview of Current Efforts

Inventory and reduce WSDOT GHG emissions

- WSDOT completed the first agency GHG emissions inventory in 2009 and updated in 2011 and 2012 to comply with [RCW 70.235.050](#)
- *WSDOT Strategy for Reducing Greenhouse Gas Emissions* tracks WSDOT GHG emissions reduction efforts and progress.



2012 Annual Greenhouse Gas Emissions by Source

| Source of GHG Emissions | Percent of Total Agency GHG Emissions | Total Emissions MT CO ₂ e* |
|--------------------------|---------------------------------------|---------------------------------------|
| Stationary Combustion | 1% | 4,022 |
| Purchased Electricity | 18% | 49,827 |
| Purchased Steam | 0% | 137 |
| On-road light duty | 2% | 6,621 |
| On-road heavy duty | 9% | 25,283 |
| Off-road | 1% | 3,230 |
| Ferry | 64% | 174,531 |
| Other Boat & Air | 0% | 39 |
| Employee Business Travel | 1% | 1,913 |
| Employee Commuting | 3% | 9,781 |
| Totals | 100% | 275,384 |

* Metric tons of carbon dioxide equivalent

The actions above support **Results WSDOT Goal 3: Environmental Stewardship 2.0** Reduce WSDOT's overall carbon footprint

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APPENDIX A

Planned Sustainable Transportation Actions in the 2013 - 2015 Fiscal Biennium

Progress and Tracking Sheet

Updated 11/21/2014

| Action Area | Planned Date of Completion/ Implementation | Connection to Other Initiatives | Progress to date |
|--|--|---------------------------------|---|
| Multimodal Planning | | | |
| 1. Develop new program of technical and financial assistance to help local governments implement transportation efficiency improvement measures | December 2014 | Gov. EO 14-04 | First subcommittee meeting of RTPOs, AWC, WSAC, and others scheduled for Oct 13, 2014 |
| 2. Review existing state transportation grant programs and develop recommendations to increase multimodal investments | December 2014 | | In progress |
| 3. Implement changes in planning and priority setting to meet policy objectives in the Governor's Executive Order 14-04 | December 2014 | | In progress |
| 4. Statewide Transportation Plan – Develop, adopt, and implement multimodal, federally compliant, long-range statewide transportation plan. | December 2017 | | Assisting Transportation Commission on the WA Transportation Plan Phase I. Drafting internal document on Phase II and Public Involvement Plan |
| 5. Complete pilot test and report on the Federal Highway Administration's (FHWA) Energy and Emissions Reduction Policy Analysis Tool (EERPAT). | Summer 2014 | | In progress. Final report will be submitted to FHWA in December 2014 |
| 6. Complete pilot of Federal Highway Administration's Infrastructure Voluntary Evaluation Sustainability Tool (INVEST) for corridor planning and submit report to FHWA | January 2014 | | Completed February 2014 |

| Action Area | Planned Date of Completion/ Implementation | Connection to Other Initiatives | Progress to date |
|---|--|---------------------------------|--|
| Electric Vehicles | | | |
| 1. WSDOT Innovative Partnerships will complete an action plan to advance electric vehicle use in Washington State | December 31, 2014 | Gov. EO 14-04 | In progress |
| 2. Develop proposal for 2014 legislative session to install 9 DC fast chargers | Spring 2015 | | Budget request to OFM |
| 3. Leverage opportunities: Require applicants for park and ride projects in the Regional Mobility Grant program to include charging stations as part of their proposal. | December 2014 | | Completed |
| WSDOT Facilities | | | |
| 1. Submit annual Governor's Executive Order 12-06 report to Department of Enterprise Services on progress of meeting building energy efficiency initiatives | December 1, 2014 | Gov. EO 12-06 | In progress, anticipated submission December 1, 2014. |
| 2. Reduce 254 computers to reduce 34 MTCO _{2e} | 2015 | | In progress, related to Method of Delivery effort and reduction in FTEs. |
| 3. Upgrade or replace 13,000 light fixtures and controls incremental to reduce 1,070 MTCO _{2e} by 2019 | Incremental | | In progress, unfunded effort. Progress depends of D3 budget and building preservation needs. |
| Highway Lighting | | | |
| 1. Research options to increase energy efficiency of highway lighting, including flexibility in design requirements for lighted areas | June 30, 2015 | Gov. EO 14-04 | Design Policy update complete. Reduced required lighting areas and incl. high efficiency LED lighting with adaptive control systems. |

| Action Area | Planned Date of Completion/ Implementation | Connection to Other Initiatives | Progress to date |
|--|--|--------------------------------------|--|
| 2. Develop a safety predictive model to determine where roadway illumination is justified and where it can be removed without significant impacts to safety and mobility. | June 30, 2015 | | Interstate model nearly complete; Received \$100k SHRP 2 grant for using naturalistic safety data. |
| Highway Maintenance | | | |
| 1. Commence the statewide program of bridge cleaning and washing to help extend the life of coatings on steel bridges. | Begin July 2013, Annual washing ongoing activity | | In FY 2014, 44 bridges cleaned and six bridges partially cleaned. |
| 2. Increase pavement maintenance work to help extend the life of pavements in the face of decreasing pavement preservation funding and work. | Begin implementation July 2013 | | \$5.6m increase planned for in 2013-15 biennium. \$20.4m spent through Aug. 2014, 6% of biennium-to-date planned spending. Spent \$5.2m of \$7.1m of P1 funds to extend pavement life. |
| 3. Implement a durable pavement striping/marketing contract at key locations where the annual application of water-based paint does not hold up to traffic wear and tear | 2013-15 biennium | | The durable marking contract was executed during summer 2014. |
| 4. Implement annual inspection and maintenance program for storm water treatment facilities to ensure highway runoff treated for quantity and quality before leaving ROW | Ongoing | | Continued annual cycle of inspections. 1,438 of 1,805 tracked facilities maintained to standard levels. |
| Operational Efficiencies | | | |
| 1. Complete Transportation System Management and Operations self-assessment workshop to improve traffic operations, demand management, and corridor planning to ensure TSMO considered with other improvements | Summer 2014 | Reform V: Implement Practical Design | Workshop Complete; priority topics being considered for further work. |
| 2. Install 17 ramp meters to improve flow, system efficiency, reduce accidents, and relieve congestion on I-5 in Tacoma. | Begin Summer 2014 | | Underway |

| Action Area | Planned Date of Completion/ Implementation | Connection to Other Initiatives | Progress to date |
|---|--|---------------------------------|---|
| 3. Pursue installation of 15 new roundabouts at locations where other types of intersections are being proposed. | June 30, 2015 | | Underway |
| Commute Trip Reduction | | | |
| 1. Submit report to the Legislature on “Demand Management and the path to greater efficiency” | 2014 legislative session | | Complete |
| 2. Develop and implement WSDOT telework policy and support the Governor’s Executive Order to expand telework and flexible work hours. | Spring 2014 | | Complete. Secretary’s EO expanded agency telework. Co-leading implementation of Governor’s EO with DES; completed first training session with state contacts. |
| 3. Pilot experimental CTR strategies that expand to all trips in Redmond, Seattle, Snohomish County, Spokane County, Tacoma, Tukwila, and Yakima | 2014 | | In progress. Spokane chose not to participate but will continue traditional CTR; Jurisdictions submitted first annual progress reports to CTR Board. |
| 4. Increase the number of approved WSDOT employees that telework at least one day a week from 90 employees in 2013 to 350 in 2015 | June 30, 2015 | | Progressing – gathering baseline data, working with HR to collect agreements |

| Action Area | Planned Date of Completion/ Implementation | Connection to Other Initiatives | Progress to date |
|--|--|-----------------------------------|--|
| Land-Fleet | | | |
| 1. Increase average miles per gallon (mpg) for the passenger and light duty truck fleet from 18 mpg in 2010 to 23 mpg by 2020. | June 2015 | WSDOT Strategic Plan: Goal 3, 2.0 | In progress |
| 2. Replace 10 sedans and sport-utility vehicles with 6 electric vehicles and 4 extended-range electric vehicles by June 2014 | July 2015 | | November 2014, 10 sedans converted to EV or EREV. July 2015, next purchasing cycle begins. |
| 3. Increase the number of cleaner burning dual fuel (Propane/Gas) work trucks from 21 to 81 by October 2015. | Fall 2015 | | Contract exp. November 2014. Installation scheduled for March 2015. |
| 4. Increase biodiesel from B13 to B20 by June 2015. | June 2015 | | In progress |
| Washington State Ferries | | | |
| 1. Propose conversion of 6 Issaquah Class vessels from diesel to liquefied natural gas (LNG) | 2014 Legislative Session | WSDOT Strategic Plan: Goal 3, 2.0 | In progress |
| 2. Explore private-public funding opportunities for LNG vessel conversion | 2014 | | Underway |
| 3. Evaluate increasing biodiesel use by piloting B10 from recycled canola oil and rapeseed in two vessels starting | Winter 2014 | | Supplier preparing to deliver B10 |
| 4. Convert the Hyak ferry to a battery hybrid | Fall 2014 | | Decision to proceed or abandon project will be made Fall 2014 |
| 5. Test a centrifugal lube oil filter | 2014 | | Request to WSDOT Research to extend data collection by one year. |
| 6. Expand the reservation system for private vehicles to the San Juan Islands to reduce idling and emissions | Late 2014 | | In progress |

| Action Area | Planned Date of Completion/ Implementation | Connection to Other Initiatives | Progress to date |
|--|--|---|--|
| Highway Construction and Materials | | | |
| Research the use of recycled concrete in new concrete pavements | Spring 2014 | WSDOT Strategic Plan: Goal 1 and Goal 3 | WSU Research complete. Working with WA Aggregate and Concrete Assoc. to evaluate potential changes to WSDOT specs for recycled concrete in new concrete. |
| Implement general special provision to allow ≤40% reclaimed asphalt pavement (RAP) in pavements using ≤5% recycled asphalt roof shingles (RAS) | Summer 2013 | | RAP/RAS Specification implemented in WSDOT construction contracts via General Special Provision (GSP), moving from GSP to Standard Specifications. Working with Washington Asphalt Pavement Association to continue updates to specification. |
| Project Delivery | | | |
| 1. Pilot test FHWA's INVEST sustainability self-evaluation tool for projects and report to FHWA | February 2014 | | Completed February 2014 |
| 2. Evaluate sustainability ratings tools: INVEST , Envision, and GreenLITES | Spring 2014 | | Completed February 2014 |
| 3. Update the WSDOT Project Level GHG Analysis and Climate Change guidance documents | Fall 2014 | WSDOT Strategic Plan Goal 3 | Plan to update by November 30, 2014 |
| 4. Complete report of the SR 520 Bridge Replacement and HOV Program sustainability activities | January 2014 | | Completed January 2014 |

| Action Area | Planned Date of Completion/ Implementation | Connection to Other Initiatives | Progress to date |
|---|--|---------------------------------------|--------------------------|
| Fish Passage Barrier Removal | | | |
| 1. Organize and ramp up to comply with the Federal Court Injunction for fish barrier corrections | Spring 2014 | WSDOT Strategic Plan: Goal 3, 1.0 | Completed June 2014 |
| 2. Coordinate with Tribes on Barrier correction activities | ongoing | | Ongoing |
| 3. Participate in Fish Passage Board to promote partnerships and coordination on barrier correction | Fall 2014 begin | | Began fall 2014 |
| 4. Develop and implement a communications plan to better inform the public about this program | Summer 2014 | | Completed August 2014 |
| Climate Preparedness and Adaptation | | | |
| 1. Complete Skagit Basin Climate Change Pilot Project | January 2015 | Presidential Task Force (Gov. Inslee) | In progress |
| 2. Prepare WSDOT's Climate-Ready Action Plan | June 30, 2015 | | In progress |
| GHG Inventory and Reduction Strategies | | | |
| Prepare agency GHG emissions inventory and submit report to the Department of Ecology | Summer 2014 | RCW 70.235.050 | Completed August 2014 |
| Submit report on WSDOT Strategy for Reducing GHG emissions to the Department of Ecology | Fall 2014 | | Completed September 2014 |