DEQ Toxics Reduction Strategy:

DRAFT Summary of Recommended Actions

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I. Overview of Toxics Reduction Strategy Development

One of the Oregon Department of Environmental Quality's (DEQ) strategic directions is to "protect Oregonians from toxic pollutants." Individual DEQ programs have responsibility for assessing and regulating certain toxic pollutants generated and released in the state. In recent years, DEQ's involvement in managing toxics has increased through implementation of federal and state requirements designed to protect specific environmental media (i.e., air, water, land). Given that toxic chemicals and pollutants readily move from one environmental media to another, DEQ determined that a more integrated and strategic approach was needed to most efficiently and effectively reduce toxics in the environment. In 2009, with support from the Environmental Quality Commission, DEQ embarked on an effort to develop of a Toxics Reduction Strategy to help set priorities and guide the agency's future toxics reduction work.

The first primary task in developing the Toxics Reduction Strategy was to establish an initial "Focus List" of priority toxic chemicals to be the primary focus of the agency's Strategy actions. The Focus List (see Table 1) was developed using existing state or regional toxic chemical and pollutant priority lists for regulatory, pollution prevention or monitoring activities. Those chemicals on three or more program priority lists used by at least two DEQ Divisions (i.e. Air, Water and Land Quality) were designated as the initial Focus List chemicals and grouped into the seven categories shown in Table 1. The list includes 51 chemicals or groups of chemicals (e.g., PCBs). The intention was to focus on toxic chemicals that most DEQ programs already considered a priority, rather than develop a priority list from scratch. In addition, this is not intended to be a static list, as DEQ expects chemicals to be removed and added over time. DEQ also collected basic information and data on the Focus List chemicals to support the development of specific reduction actions and the prospective implementation plans for those actions.

Soon after this list was developed, DEQ began compiling potential toxics reduction actions to be assessed and considered for inclusion in the Strategy. These options were identified through both internal and external sources in multiple ways. DEQ sponsored a public workshop in November, 2009 intended to generate toxics reduction ideas that could be considered for inclusion in the Strategy. This workshop involved over 150 participants representing a broad range of interests including industry, local and state government, community and environmental organizations, EPA, tribes and agricultural and forestry representatives.

In addition, individual members of the Toxics Stakeholder Group, formed to provide input on the strategy development process, provided DEQ with toxics reduction options to consider. Similarly, reduction ideas were generated from sub-groups and individuals participating in the stakeholder group for the Water Quality Human Heath Toxics Standards Rulemaking. Within DEQ, a cross-program team of individuals was assembled to guide the development of the toxics strategy. This team met on a regular basis to develop the foundational elements of the strategy, as well as review and evaluate

various options. In the course of conducting reviews of existing DEQ toxics programs, members of the team solicited input from staff from all of DEQ's programs on toxics reduction needs and opportunities. Through this review of programs, additional toxics reduction ideas were generated.

II. Considerations for Selecting Draft Recommended Reduction and Assessment Actions

The DEQ cross-program toxics team developed a set of considerations to use in selecting actions for inclusion in the Toxics Reduction Strategy. These considerations were discussed with the Toxics Stakeholder Group, and then further refined by DEQ. The DEQ toxics team used two initial screening considerations to narrow the list of options down to a viable set of options that could be more thoroughly assessed using additional considerations. The screening considerations were the following:

How effective would the action be in reducing Focus List chemicals in the environment or people?
This is based on: how directly the option addresses specific chemicals or families of chemicals, whether the action will address chemicals at the appropriate point in their life cycles, and the likelihood of reducing chemicals in a meaningful and measurable way.

How practically implementable is the action?
Several factors could affect whether an action can be practically implemented, including: agency expertise and infrastructure, existing regulatory authority, technological feasibility, whether key external elements are in place (e.g., willing partners for a collaborative initiative).

After this initial screen, the remaining toxics reduction and assessment options were evaluated by DEQ's toxics team using these additional considerations:

Does the action reduce toxic pollutants at the source?
Toxics reduction actions that reduce pollution at the source (i.e., before pollution is generated) are generally more efficient and effective than those that require some type of management after the chemicals have become pollutants.

Is the action cost-effective?
Implementation costs for state government, businesses and for the public should be considered, as well as potential long-term cost savings resulting from the action, including reduced public health costs.

Will the action lead to an overall environmental benefit?

The potential cross-media transfers of pollutants from implementing a particular action should be taken into account. For example, it might not make sense to choose an action that would reduce toxic chemicals but increase demand for energy or water resources.

Will the action build on existing efforts?
There are many effective efforts at reducing pollution now underway, and is often more efficient to build on such action that are working well for both the public and private sector.

Does the action address multiple goals or chemicals?
An action that reduces multiple priority pollutants or meets multiple environmental goals results in greater environmental gain for the cost of implementation.

Does the action address impacts to vulnerable communities or sub-populations?
Toxic chemicals or pollutants may disproportionately impact one or more communities or sub-populations in Oregon, and these impacts should be considered even if they're determined not to be statewide concerns.

How flexible is the action?
The ability to make adjustments or modifications to a program during the implementation phase can lower costs and improve efficiencies relative to those that require long or complicated processes to fine tune.

The evaluation process was not a quantitative exercise involving weighted criteria and numerical scores. Rather, a qualitative process was followed in which the DEQ toxics team discussed the actions relative to the considerations outlined above, and then attempted to reach consensus or select the reduction actions that received support from the majority of team members. The draft recommended actions were then reviewed and further refined by DEQ's Executive Management Team.

III. Overarching Themes of Draft Recommended Actions

A summary of the draft recommended Toxics Reduction Strategy actions is provided in Table 2 below, and a companion document provides more specific descriptions of each one of these actions. A significant number of the actions summarized in Table 2 require the involvement of multiple agencies and organizations to ensure effective implementation. This collaboration element of the strategy reflects a recognition that one agency cannot address the myriad of challenges posed by toxic chemicals in the environment, and that greater environmental and human health gains can be achieved when multiple entities are pursuing common goals. In addition, sharing the costs of implementing an action lowers the burden on any one agency or organization, thus making it a more feasible and manageable effort to undertake.

With regard to the specific types of chemicals addressed by the draft recommended actions, most of the actions apply to all types of chemicals. There are unique needs and opportunities for reducing specific types of Focus List chemicals, but one of the objectives of the Strategy is to identify source reduction actions that can address multiple chemicals and families of chemicals. In other instances, the draft action may potentially apply to all Focus List chemicals, but a prioritization effort will occur in the development of implementation plans to narrow the scope, if appropriate.

In addition to the overarching collaborative and multi-chemical themes of the Strategy, other common elements associated with multiple draft recommended actions were identified. The categories of common elements provide a useful organizational format to present the actions. Table 2 organizes the draft recommendations by these four categories:

- Improving integration and prioritization of toxics reduction activities
- Enhancing effective existing toxics reduction efforts
- Addressing identified toxics reduction needs

- Assessing and characterizing toxics in Oregon

Some actions could be placed in multiple categories, but are organized by the category that is most relevant to the objectives associated with the action. In addition, there are connections between some recommended actions, yet these connections do not constitute redundancy. Rather, this presents an opportunity to leverage resources to accomplish multiple objectives.

IV. Next Steps For Finalizing and Implementing Strategy

After discussing the draft recommended Toxics Reduction Strategy actions with the Environmental Quality Commission at their December, 2011 meeting, DEQ will conduct a public involvement process to receive input on the recommendations from Oregonians in early 2012. DEQ plans to return to the Commission in June, 2012 to present the final Strategy and seek the Commission's support for implementing the actions. Implementation of some of the actions will begin during the summer of 2012, while others will require the development of more detailed implementation plans with partnering agencies and organizations. For some actions, DEQ will play more of a supporting role in implementation and, therefore, the implementation plans will be initiated and facilitated by other agencies or organizations.

DEQ has indicated the priority level for short-term implementation of each draft recommended action in Table 2 by using different colors in the far left column:

- Green = High priority for short-term implementation activity, involving possible re-prioritization of resources
- Yellow = Short-term development or implementation with existing resources (i.e., no additional resources allocated)
- Red = Longer-term implementation priority

As with the actions themselves, the designated level of short-term implementation priority in this draft table could change based on input received from the Commission, implementing partners, and other interested stakeholders. Although several of these actions are intended to improve efficiencies and can be implemented with existing resources, DEQ recognizes that others will require additional resources that aren't currently available. Therefore, before implementation begins for certain actions, new resources will need to be identified and secured by DEQ or other implementing partners. This constraint makes the implementation time frame uncertain for those actions.

Table 1: DEQ TOXICS FOCUS LIST (2010-2011)

CHEMICAL CATEGORY	CHEMICAL S				
Combustion & Petroleum By-Products:	Polycyclic Aromatic Hydrocarbons (PAHs)	Dioxins and Furans	Napthalenes		
Consumer Product Constituents:	Phthalates	Triclosan	4-Nonyphenol (and Nonyphenol Ethoxylates)	Bisphenol A	DEET
Current Use Pesticides:	Diazinon	Chlorpyrifos	Atrazine	Trifluralin	Chlorothalonil
	Malathion	Permethrin	Carbaryl	Pentachlorophenol	Diuron
	Glyphosate	Hexachlorocyclohexane (HCH), gamma- (Lindane)	2,4-D	Propoxur (Baygon)	Pendamethalin
Flame Retardants and Industrial Intermediates:	Polybrominated Diphenyl Ethers (PBDEs)	Polychlorinated Biphenyls (PCBs)	Ammonia		
Legacy Pesticides:	Dieldrin	DDT (and metabolites)	Chlordane (and metabolites)	Aldrin	Methoxychlor
	Heptachlor (& Heptachlor epoxide)	Hexachlorocyclohexane, beta- (beta-BHC)	Hexachlorobenzene	Hexachlorocyclohexane, alpha- (alpha-BHC)	
Metals:	Mercury (and methylmercury)	Copper	Cadmium	Chromium	Arsenic
	Lead	Nickel	Manganese	Silver	
Volatile Organic Compounds (VOCs):	Tetrachloroethylene	Benzene	Ethylbenzene	Trichloroethylene	Dichlorobenzene, 1,4- (Dichlorobenzene-p)
	Toluene	Formaldehyde			

Table 2: SUMMARY OF DRAFT TOXICS REDUCTION STRATEGY RECOMMENDATIONS

	IMPROVING INTEGRATION AND PRIORITIZATION OF TOXICS REDUCTION ACTIVITIES	
Short-Term Implementation Priority*	**Action**	**Chemical Category(s)**
	I-1 DEQ programs will work together to address cross-media impacts of Focus List toxics, and to coordinate and integrate program requirements that address common objectives for Focus List chemicals	All
	I-2 Prioritize and direct business sector or geographic-based toxics use reduction technical assistance activities using Focus List chemical data, and integrate those individual assistance programs where appropriate	All
	I-3 Use existing rural planning and resource management programs to reduce loadings of Focus List toxics into Oregon waterbodies through natural resource agency collaboration	Metals, Legacy Pesticides, Current Use Pesticides
	I-4 Prioritize and direct efforts to meet new national ambient air quality standards and greenhouse gas reduction goals to maximize reductions in Focus List chemicals	Combustion By-Products, VOCs, Metals
	ENHANCING EFFECTIVE EXISTING TOXICS REDUCTION ACTIVITIES	
Short-Term Implementation Priority*	**Action**	**Chemical Category(s)**
	E-1 Develop and implement a plan to fund and conduct regular agriculture pesticide waste collections in areas of Oregon with the greatest need	Legacy Pesticides
	E-2 Expand Pesticides Stewardship Partnerships and related technical assistance programs to encompass more watersheds, land use diversity, water media (e.g., groundwater), and additional assistance and outreach tools	Current Use Pesticides
	E-3 Provide assistance to small publicly owned treatment works (POTWs) in developing sewer use ordinances related to toxics and evaluate need for statewide pretreatment program for POTWs not subject to federal program	Metals, VOCs, , petroleum and combustion by-products
	E-4 Provide incentives for toxics reduction at facilities through innovative use of existing DEQ program tools where appropriate	All

	E-5 Increase the use of, and demand for, less toxic alternative products through third party certification and recognition programs and tools	All
	E-6 Develop and implement a funding plan for customized or enhanced household and small business waste collections for Focus List chemicals or categories of chemicals	All
	E-7 Assess opportunities to improve management of Focus List chemicals through use of existing state product or chemical reporting, notification, registration, and licensing mechanisms	All
ADDRESSING IDENTIFIED TOXICS REDUCTION NEEDS		
Short-Term Implementation Priority*	**Action**	**Chemical Category(s)**
	N-1 Work with retailers and others in the supply chain to reduce Focus List chemicals in common consumer products	All**
	N-2 Collaborate with other states to develop and disseminate guidance on toxic chemical alternatives assessments, and identify and pursue alternatives assessment priorities for common uses of Focus List chemicals	All**
	N-3 Develop and implement risk reduction and outreach plans in areas determined to have high potential for human health exposure to Focus List chemicals through domestic drinking water wells	All
	N-4 Implement comprehensive state agency procurement initiative to acquire products and services that minimize or avoid the use of Focus List chemicals	All
	N-5 Increase understanding of the benefits of green chemistry among key Oregon decision-makers and gain commitment to adopt policies that foster green chemistry innovation	All**
	N-6 Create and support a green chemistry innovation "Hub" that catalyzes the use of green chemistry by Oregon businesses and fosters collaboration between public and private stakeholders	All**
	N-7 Increase information disclosure for products with Focus List constituents to allow for improved assessment and pollution prevention actions	All**
	N-8 Use the Focus List to help identify new opportunities for product stewardship initiatives	All**

ASSESSING AND CHARACTERIZING TOXICS IN OREGON		
Short-Term Implementation Priority*	**Action**	**Chemical Category(s)**
	A-1 Incorporate all Focus List chemicals into existing state environmental toxics monitoring or modeling initiatives, considering appropriate pathways	All
	A-2 Assess DEQ program data needs related to Focus List chemicals in environmental media or environmental treatment by-products	All
	A-3 Identify localized impact areas ("hot spots") that could pose higher risks to people and ecological life due to exposure to multiple chemicals from multiple sources	All
	A-4 Use all available and credible internal and external sources of data to identify potential sources of Focus List toxics for all DEQ programs, and integrate toxics databases and source modeling information when feasible	All
	A-5 Establish ecological and human health indices to assess Focus List chemicals without regulatory standards and to provide context for communication of monitoring data	All
	A-6 Develop, fund and implement human biomonitoring program to track levels of Focus List chemicals in people over time	All

* Priority level for short-term (1-2 years) implementation activity:

Green = High priority for short-term implementation activity, involving possible re-prioritization of resources

Yellow = Short-term development or implementation with existing resources (i.e., no additional resources allocated)

Red = Longer-term implementation priority

** Potentially all chemical categories could be addressed, but the primary emphasis is on Consumer Product Constituents, metals, VOCs, flame retardants, petroleum by-products (i.e., those chemicals registered under the federal Toxics Substances Control Act)

DEQ Toxics Reduction Strategy:

DRAFT Descriptions of Recommended Actions

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Improving Integration and Prioritization of Toxics Reduction Activities	
ACTION I-1 [ ]* : DEQ programs will work together to address cross-media impacts of Focus List toxics, and to coordinate and integrate program requirements that address common objectives for Focus List chemicals	
Focus List Chemicals Addressed	All categories.
Description of Proposed Action	Many Focus List toxic chemicals move readily from one environmental media to another, depending on how and where they are released. Although coordination between the various DEQ programs occurs when cross-media toxics issues arise, such coordination has not been institutionalized throughout the agency. This proposed action will be implemented through DEQ's new Outcome-Based Management System, and will specify how individual programs will evaluate and address cross-media impacts of on-going and future activities related to Focus List chemicals and pollutants. These activities include monitoring and source identification (see Action A-4), rulemaking and permitting actions, and technical assistance and educational programs. In addition, DEQ will assess whether a cross-media rulemaking is necessary to ensure all programs have the authority to take actions to reduce or mitigate cross-media impacts of Focus List pollutants they regulate. To ensure the program integration and coordination occurs, manager and staff work plans will include an expectation to evaluate and address cross-media impacts and concerns. In some instances, two or more programs may have an interest in managing the same environmental resources from the same Focus List chemicals at particular sites or facilities, but have different program approaches (e.g., the Cleanup and Water Quality Programs' focus on recontamination of the Portland Harbor through stromwater). In these instances, a common, integrated management approach will be developed and implement.
Rationale	DEQ cannot efficiently or effectively reduce Focus List toxics in the environment through the implementation of unconnected individual program actions. For example, the regulation or management of Focus List chemicals in one media program could have unintended adverse consequences by encouraging the transfer of pollutants to another environmental media. Alternatively, an individual program may have limited ability to reduce a Focus List chemical of concern because the source is regulated more directly by another program. Institutionalizing the integration of program activities will allow DEQ to reduce Focus List chemicals and pollutants in a much more comprehensive way, as well as improving the efficiency of agency operations.
Lead Implementing Agency(s)	DEQ
Implementation Considerations	
Authorities	New rules would be necessary only if the agency determines existing authorities are insufficient to address cross-media toxics impacts.
Funding/Resources	The development and implementation of the staff directive and framework for internal coordination and integration can occur with existing resources. The short-

	term investment in this effort will save agency resources in the longer term through improved efficiencies. Additional staff resources may be necessary if a cross-program rulemaking is necessary
Partner Participation	Not needed for internal integration activities. However, these activities may have applicability to possible cross-agency coordination initiatives.
Effectiveness Measures	Environmental monitoring of Focus List pollutants directly addressed by cross-program reduction activities can occur (e.g., decreases in water quality concentrations of a pollutant addressed by a new Air Quality Program activity). Program measures, such as the documentation of coordination actions, will also be established.

ACTION I-2 [ ]: Prioritize and direct business sector or geographic-based toxics use reduction technical assistance activities using Focus List chemical data, and integrate those individual assistance programs where appropriate	
Focus List Chemicals Addressed	All categories.
Description of Proposed Action	DEQ currently provides technical assistance to businesses through the Toxics Use and Hazardous Waste Reduction Program (TUHWR) and the Small Business Air Quality Assistance Program (SBAP). In addition, other programs within the agency provide business assistance services, but not through established programs. In planning future technical assistance activities, these DEQ programs will use the agency Focus List of chemicals as the basis for identifying priority business sectors and geographic areas. Existing data sources (e.g., TRI, Hazardous Waste reporting, air emissions inventory, and State Fire Marshal chemical storage) will be used to identify these priorities. The individual technical assistance programs will then coordinate with one another to identify overlapping priority business sectors and geographic areas. These areas of overlap will be the focus of an integrated, multi-media business technical assistance plan that DEQ will develop and implement. This integrated approach can include other local and state agency assistance providers if the opportunities are available.
Rationale	DEQ has experience with conducting multi-media, multi-program technical assistance to business through individual initiatives or projects, such as the Drycleaner Program and the Eco-Logical Business Program individual projects or programs. These efforts have demonstrated success in delivering assistance in an efficient and effective way. However, a strategic approach to integrating all agency technical assistance activities hasn't occurred, but could produce similar efficiencies and benefits for both the regulated community and DEQ. Using the Focus List of chemicals to determine the priority industrial and commercial sectors, as well as geographic areas, for future technical assistance further improves program efficiencies by ensuring all programs are addressing agency-wide priorities. This recommended action also builds on existing well-established programs.
Lead Implementing Agency(s)	DEQ

Implementation Considerations	
Authorities	No new legal authorities needed.
Funding/Resources	Additional resources aren't required, as the intent of this action is to re-direct existing technical assistance resources to the chemicals - and related business sectors and geographic areas – that are designated as the highest agency priorities.
Partner Participation	Possibly local governments (storm and sanitary sewer authorities, solid waste programs) and other state agencies (OSHA, Fire Marshal)
Effectiveness Measures	Use existing technical assistance program effectiveness measures. These include documentation of implementation of environmental management and pollution prevention recommendations by businesses, and follow up assessments on the quantities of toxics chemicals, hazardous waste, air emissions or water discharges reduced or safely managed. In addition, business cost savings from implementing technical assistance recommendations can be documented in some instances.

ACTION I-3 [ ]: Use existing rural planning and resource management programs to reduce loadings of Focus List toxics into Oregon waterbodies through natural resource agency collaboration.	
Focus List Chemicals Addressed	Heavy Metals, Legacy Pesticides, Current Use Pesticides.
Description of Proposed Action	DEQ coordinates closely with the Oregon Departments of Agriculture and Forestry (ODA and ODF) on the implementation of water quality protection programs those agencies implement on rural (non-federal) lands. The recently-adopted water quality human health criteria and associated implementation strategies also rely on ODA and ODF's water quality protection programs for meeting human health criteria and associated TMDL work for certain toxic pollutants. This proposed action would complement the TMDL approach for toxic pollutants by ensuring that the resources of the three agencies are appropriately leveraged to assess relevant Focus List chemicals (which include the pollutants with human health water quality criteria) in waterbodies, and to use existing planning and management tools to improve water quality as it relates to these chemicals. For instance, there are multiple current use pesticides on the Focus List that have also been designated as priorities by the inter-agency Water Quality Pesticide Management Team (Departments of Agriculture, Forestry, Environmental Quality, and Health) based on monitoring data. Water quality criteria don't exist for many of these current use pesticides, and although they are (and will be) addressed through the Pesticide Stewardship Partnership program in limited geographic areas, these pesticides could also be addressed through Agricultural Water Quality Management Program and Forest Practices Act related work by identifying them as priorities to further improve water quality. In addition, the Focus List can be used as the basis for directing Natural Resource Conservation Service (NRCS) and other US Department of Agriculture (USDA) funds to assist in the implementation of best management practices that protect water and riparian areas from the impacts of toxic chemicals. By sharing toxics data with

	federal agencies such as NRCS, BLM and USFS, and designating priorities for water quality protection projects, DEQ and its partner agencies can ensure that landowners and local technical assistance providers (e.g., soil and water conservations districts) have additional resources to address impacts associated with these chemicals, as documented by monitoring data.
Rationale	This recommended action builds on well-established rural water quality management programs, and attempts to optimize efficiencies of state and federal agency resources by addressing multiple pollutants through these existing programs. It also uses environmental monitoring data of priority toxic chemicals and pollutants as the basis for taking appropriate management actions. The effectiveness of individual plans and programs that address toxics on rural lands will be improved through improved coordination and integration of activities. Given that activities associated with Agriculture Water Quality Management Planning, Forest Practices Act administration, the Water Quality Pesticide Management Plan (as well as other similar rural water quality programs) and the NRCS fund allocation process involve coordination amongst many of the same state and federal agencies, better integration of the actions of these programs will likely improve overall effectiveness in reducing pollutants.
Lead Implementing Agency(s)	Multiple
Implementation Considerations	
Authorities	An assessment should be conducted regarding whether additional authorities are needed for integrating priority chemicals and actions into existing rural water quality programs. However, given the broad authority of state statutes (e.g., ORS 468B.050) governing water quality, addressing (in a general way) additional pollutants through existing state programs is likely not a legal barrier.
Funding/Resources	The added resources to facilitate this increased coordination and integration of agency activities are relatively small, and will be eventually offset by resource savings associated with improved agency efficiencies.
Partner Participation	Oregon Departments of Agriculture and Forestry, Natural Resources Conservation Service, soil and water conservation districts.
Effectiveness Measures	Use existing ambient water quality monitoring programs to document the effectiveness of these actions.

ACTION I-4 [ ]: Prioritize and direct efforts to meet new national ambient air quality standards and greenhouse gas reduction goals to maximize reductions in Focus List chemicals	
Focus List Chemicals Addressed	Combustion By-Products, VOCs, Metals
Description of Proposed Action	Through assessment, planning and implementation to reach new national standards for ozone and particulate and state goals for greenhouse gas reduction, DEQ and partners will prioritize reduction of related Focus List chemicals. Based on estimates of total risk, the Portland Air Toxics Solutions Advisory Committee prioritized residential wood combustion, light duty and heavy duty on road emissions as the top categories in need of emission reductions for toxic air pollutants that are on the Focus List. The National Air Toxics Assessment shows that these categories drive risk in other communities statewide. Actions to meet more protective particulate and ozone standards can be chosen and designed to reduce Focus List chemicals. The same co-benefits exist for many actions that reduce greenhouse gas emissions, especially cleaner burning engines, efficiency and reduced vehicle miles traveled.
Rationale	Because of a shared set of sources, integrating priority toxics reductions into ongoing efforts to reduce ozone, particulate and greenhouse gases is an effective way to address Focus List chemicals with a relatively low level of additional resource investment by DEQ. Recent EPA studies show that multi-pollutant risk-based reductions of ozone, particulate and toxic air pollutants are the most cost effective and beneficial to human health. http://www.epa.gov/ncer/publications/workshop/04_07_2011/fann_detroit.pdf
Lead Implementing Agency(s)	DEQ will lead planning and implementation of particulate reductions efforts. In the Portland area to reduce ozone, Metro leads planning and implementation of vehicle use reduction and DEQ leads efforts for cleaner engines.
Implementation Considerations	
Authorities	Air Toxics, Ozone and Criteria Pollutant authority - ORS 468 and 468A Greenhouse gas reduction authority – SB 1059, HB 2001, HB 2186
Funding/Resources	Ozone and particulate reduction efforts are federally funded by a variety of federal funds, general fund and fee revenue. Greenhouse gas reduction efforts are permit fees and general funds.
Partner Participation	Stakeholders and planning partners for ozone and greenhouse gas reductions include cities, counties the Oregon Department of Transportation (ODOT), ports, public transportation authorities, automotive, trucking, business, freight and other interested community representatives. Stakeholders and planning partners for particulate reduction include realtors, developers, wood burning and other heating appliance vendors, oil, electric and natural gas companies, business, city and county government, including health departments, building code agencies and planning departments and other interested community representatives.
Effectiveness Measures	Number of woodstove changeouts Vehicle Miles Traveled (VMT) reduction Fleet turnover to cleaner engines Modeling and monitoring of air toxics/focus list chemicals over time

Enhancing Effective Existing Toxics Reduction Activities	
ACTION E-1 [ ]: Develop and implement a plan to fund and conduct regular agriculture pesticide waste collections in areas of Oregon with the greatest need.	
Focus List Chemicals Addressed	Legacy and Current Use Pesticides
Description of Proposed Action	Since 2006 DEQ has partnered with multiple agencies and organizations to plan and conduct 8 watershed-based agriculture pesticide waste collection events that resulted in the safe management of over 60 tons of unwanted pesticides. Similar successful events have been sponsored by EWEB and other organizations in Lane and Benton Counties. Interest and demand for these collection opportunities has grown in recent years, but DEQ funding through scarce federal non-point source water quality grants has resulted in a limited number of events, as well as inconsistent scheduling and limited geographic diversity. DEQ will work with a wide range of partnering organizations to identify all possible funding sources for ag pesticide collection events, and develop a short (3-year) and long-term (4+ years) plan for supporting and conducting a regular schedule of events throughout the state. The plan will set objectives for the number of events per year and the regional distribution of these events based on need, as well as the minimum funding needed to ensure these objectives are met. Partners who can provide in-kind or financial support include: EPA, local governments, soil and water conservation districts, other state agencies, OSU Extension, drinking water utilities, watershed councils, grower groups, ag chemical suppliers, tribal governments and foundations.
Rationale	The level of participation and quantities of pesticide waste collected at recent events has increased since 2006 and, thus, the need for on-going collection opportunities is well-established (note: The State of Washington has had consistent funding for these agriculture collections for over 15 years and have collected more than 1,000 tons of pesticides, so it's safe to assume there are many tons of unwanted pesticides). Growers in many parts of the state have no accessible or cost-effective options for managing old pesticides, which helps to explain the increasing interest and demand for these events. This recommended action builds on existing programs that have demonstrated effectiveness, and DEQ has the infrastructure in place for implementation through its contract with a hazardous waste management contractor. The diversion of old unused and unwanted pesticides to safe disposal facilities reduces the contamination risks to both surface and groundwater in the state. There are currently several waterbodies designated as impaired for legacy pesticides, and drinking water source areas that have been determined to be vulnerable to pesticide contamination.
Lead Implementing Agency(s)	DEQ
Implementation Considerations	
Authorities	No new authorities needed
Funding/Resources	The primary barrier to expanding the agriculture pesticide collections is funding. However, other sources of possible funding beyond those relied on previously

	have recently been identified, and several stakeholder groups have expressed strong support for these events. These groups can assist in securing or identifying additional funding sources for the program. An $80,000 budget will support 3-4 collection events per year, and is a reasonable short-term goal.
Partner Participation	Multiple partners required for effective implementation. See list of possible partners in *Description* above.
Effectiveness Measures	Environmental monitoring results are difficult to link directly to ag pesticide collection program because it's a risk reduction program, rather than pollutant reduction program. However, a strong outcome measure is the number of tons diverted into safe management.

ACTION E-2 [ ]: Expand Pesticides Stewardship Partnerships and related technical assistance programs to encompass more watersheds, land use diversity, water media (e.g., groundwater), and additional assistance and outreach tools	
Focus List Chemicals Addressed	Current Use Pesticides
Description of Proposed Action	DEQ has worked consistently with local organizations and other state agencies since 2005 on implementing multiple watershed-based Pesticide Stewardship Partnerships (PSPs) designed to use surface water monitoring data to focus pesticide best management practices and technical assistance in areas where elevated stream concentrations of pesticides have been found. The program is currently funded primarily through grant funds and is active in 7 watersheds or sub-basins in the state. This recommended action is intended to elevate the PSP to the status of a core program within DEQ and other partner agencies, with corresponding attention and resources of agencies. This action would support the goals and objectives described in Oregon's inter-agency Water Quality Pesticide Management Plan, recently approved by EPA. The Water Quality Pesticide Management Plan outlines the current and future needs for monitoring and stewardship activities, which can largely be addressed by an expanded PSP program. This expansion would include increasing the number of watersheds involved in the program, adding groundwater monitoring to the where appropriate, further increasing the geographic and land use diversity of monitoring and stewardship activities, and expanding the number and types of partners involved in the program. In addition, a corresponding expansion of the pesticide risk reduction and Integrated Pest Management technical assistance services and activities of partner organizations (e.g., OSU Extension, soil and water conservation districts, and Oregon Department of Agriculture) would be required to adequately respond to the needs identified by the monitoring results. The first task in the effort to fully institutionalize the PSP to identify and secure longer-term, stable funding sources.
Rationale	The PSP program has demonstrated effectiveness in reducing concentrations of organophosphate insecticides in multiple watersheds in Oregon with a relatively low

	level of resource investment by DEQ. For instance, in both the Hood and Walla Walla Basins, the concentrations of the current-use insecticide chlorpyrifos have been reduced by over 80% at key stream monitoring locations since the inception of the PSP projects. The large number of partnering organizations contributing to the program keeps the resource burden low for any one group. On-going monitoring ensures that environmental outcomes can be demonstrated over time. This monitoring now includes approximately 100 current use pesticides, including most of the current use pesticides on the Focus List. Most of the best management practices implemented as part of the PSP program apply to all types of current use pesticides. These practices include drift reduction technologies, integrated pest management activities, and vegetated buffers. Most of these practices are also focused on reducing water pollution at the source.
Lead Implementing Agency(s)	DEQ
Implementation Considerations	
Authorities	No new authorities are needed.
Funding/Resources	The primary barrier to implementing an expansion of the Pesticide Stewardship Partnership program is identifying and securing an adequate and stable source of funding. Currently, the monitoring is supported by federal water quality grant funds disbursed on an annual basis. Contributions from other partners are mostly in the form of staff time and expertise. However, some of these partners, such as OSU's Integrated Plant Protection Center, also rely on federal grants for support of watershed-specific activities.
	Partner participation is the basis of the program, and partners include: OSU Extension, ODA, ODF, Tribal Governments, ag chemical suppliers, watershed councils, soil and water conservation districts, municipalities and the Natural Resource Conservation Service.
Effectiveness Measures	The PSP program relies on water quality monitoring to determine effectiveness of efforts over time. Trends in concentrations and detection frequencies of particular pesticides would be the basis of measuring effectiveness.

ACTION E-3 [ ]: Provide assistance to small publicly owned treatment works (POTWs) in developing sewer use ordinances related to toxics and assess need for statewide pretreatment program for POTWs not subject to federal program	
Focus List Chemicals Addressed	Metals, VOCs, flame retardants and industrial intermediates, petroleum and combustion by-products
Description of Proposed Action	There are 25 municipalities in Oregon required by federal Clean Water Act regulations to implement industrial pre-treatment programs, which are intended to minimize toxic (and other) pollutants discharged by certain industrial facilities into publicly-owned treatment works (POTWs). Nonetheless, this represents a small percentage of

	the total number of municipalities in the state with POTWs that could be receiving industrial or commercial sanitary sewer discharges. Discharges to many POTWs can contain Focus List chemicals that could have adverse impacts on the treatment plants and Oregon's waters.. This recommended set of actions include: • Work collaboratively with small municipalities to establish programs to minimize discharge of Focus List pollutants from industrial, commercial and institutional facilities to POTWs - DEQ and the Oregon Association of Clean Water Agencies (ACWA) can work directly with small municipalities and the League of Oregon Cities to adopt basic sewer use ordinances that would require any industrial, commercial or institutional facility to notify the municipality of the types and volumes of wastewater they discharge to the POTW and obtain approval from the POTW for any discharge of toxic pollutants, including those on the Focus List. DEQ and ACWA can also provide these smaller municipalities with basic technical assistance training and guidance for specific industrial sectors that generate toxic wastewater pollutants, thereby allowing the municipalities to minimize Focus List pollutants discharged to their POTWs through voluntary efforts with industry. • Assess the need for a state pre-treatment program for a subset of municipal wastewater permittees **without** federally required pre-treatment programs - The 25 municipalities with federally mandated pre-treatment programs represent a small percentage of all permitted municipal wastewater facilities in Oregon, and less than half of those municipal entities designated as "majors" (discharging over 1 million gallons per day of treated wastewater) under the National Pollutant Discharge Elimination System (NPDES) permit program . In coordination with other stakeholders, DEQ will assess the need for some type of streamlined state pre-treatment program for a subset of municipalities, based on the potential impacts of toxic pollutant discharges to POTWs in those communities. This assessment will involve an evaluation of the types of sources most likely to discharge toxic pollutants to POTWs, and which communities in Oregon - if any - are most potentially affected by these discharges.
Rationale	The percentage of municipalities required to implement pre-treatment programs out of the total number of POTWs in Oregon reveals a potential gap in existing toxic pollutant management and reduction programs. Given the effectiveness of existing pre-treatment programs in reducing toxic pollutant discharges to POTWs, the opportunity for further reductions through similar pollution prevention activities could be significant. In addition, model sewer use ordinances and technical assistance guidance materials already exist and, therefore, the emphasis can be on mechanisms for delivering the information and training rather than developing new programs and materials.
Lead Implementing Agency(s)	DEQ and ACWA
Implementation Considerations	
Authorities	No new authorities are needed for DEQ to work with municipalities to voluntarily adopt ordinances and technical assistance programs. If a state pre-treatment program is deemed necessary, a DEQ rulemaking would likely

	be required
Funding/Resources	DEQ could implement the voluntary measures through revisions to the work plan of the agency's pre-treatment coordinator and other wastewater permitting staff. However, development of a state pretreatment program and possible rules would likely require additional staff resources.
Partner Participation	ACWA, League of Oregon Cities, industrial associations.
Effectiveness Measures	Wastewater influent and effluent monitoring of toxic pollutants by POTWs can demonstrate whether the actions directed at industrial and commercial discharges are effective over time.

ACTION E-4 [ ]: Provide incentives for toxics reduction at facilities through innovative use of existing DEQ program tools where appropriate	
Focus List Chemicals Addressed	Any Focus List chemical for which DEQ has developed or may develop a permit limit could potentially be addressed with this action, most notably industrial chemicals, metals, legacy pesticides and PAHs.
Description of Proposed Action	The tools (e.g., rules, permits, plans) that DEQ programs use to minimize or control toxic pollution from facilities can be used to provide positive incentives to reduce Focus List toxics. In implementing this proposed action, DEQ would seek opportunities to provide facilities with flexibility to pursue alternative, more efficient ways of meeting existing requirements if equivalent or greater toxic pollution reductions can be achieved. The availability and feasibility of these opportunities will be dependent on several factors, including the willingness of the facilities to participate. An example of how this innovation could be applied is in the Water Quality permitting program. A flexible permitting approach could be used when permit limits are too low to meet at the point of discharge (either because currently-available technology is inadequate or because there is too much dilution for source reduction efforts to be effective), but alternative pollution reduction opportunities exist. For instance, DDT (or its degradates) are sometimes detected at low concentrations in municipal wastewater effluent. However, the annual mass load is likely to be small: for a city of 10,000 people, available data indicates it will be well below 1 ounce per year. It is not practical to treat to remove such small quantities of DDT from wastewater. An alternative approach would be to allow the city to hold pesticide collection events for commercial and agricultural entities. An event held recently by DEQ in the Clackamas basin resulted in the collection of 35,000 pounds of pesticides, and this amount included several hundred pounds of DDT (see Action E-1). Since DDT is also found in stormwater sediments, another alternative would be to allow the municipality to collect and dispose of an appropriate quantity of stormwater sediments demonstrated to be contaminated with DDT. Only those stormwater treatment measures that go beyond what is currently required in stormwater permitting would be allowed to qualify as acceptable pollution reduction measures. In this example, such measures would not be a substitute for achieving compliance at the point of discharge and therefore do not constitute pollution trading; rather they would be part of the pollution reduction plan that

	accompany a permit holder's request for a variance.
Rationale	This action recognizes that the level of pollution detected at a permit holder's point of discharge may not represent the greatest risk to human health in the air or watershed as a whole, and it may also not be the pollutant source that can be dealt with in the most cost-effective manner. In such cases, it may be advantageous to allow permit holders to pursue pollution reduction options that will benefit the air or watershed as a whole, especially those options that are intended to prevent pollution rather than treat it at the point of discharge. Providing this type of flexibility creates incentives for permit holders to pursue more efficient and effective source reduction and pollution prevention measures.
Lead Implementing Agency(s)	DEQ
Authorities	The need for new authorities depends on the scope of the pollution reduction measures included in a toxics reduction plan. For instance, no new authorities are needed if the permit holder is pursuing reductions of the same pollutant for which a discharge limit is established. However, with respect to allowing permit holders to identify alternative pollutants in the watershed that present a greater health threat than the pollutant at the outfall, the Clean Water Act does not provide support for reducing pollution based on equivalent risk to human health. Instead it assumes that states will deal with pollution on a parameter by parameter approach to reducing pollution.
Funding/Resources	No additional funding needed
Partner Participation	None needed, though partnering with ACWA or other organizations representing permit holders might be useful in establishing with greater accuracy the types and amounts of toxic pollutants with water quality criteria that are likely to be associated with stormwater sediments and with various types of toxics collection events.
Effectiveness Measures	The effectiveness measures will vary depending on the alternative type of pollution reduction actions that are incorporated into the permit. For the aforementioned examples, environmental monitoring results are difficult to link directly to collection programs because they are risk reduction programs rather than pollutant reduction programs. However, a strong outcome measure is the number of pounds diverted into safe management. With respect to stormwater treatment actions, effectiveness monitoring is a straightforward exercise involving measuring the amount of a particular pollutant that is collected and properly disposed of.

ACTION E-5 [ ]: Increase the use of, and demand for, less toxic alternative products through third party certification and recognition programs and tools	
Focus List Chemicals Addressed	Potentially all chemical categories, but with an emphasis on Consumer Product Constituents, metals, VOCs, and flame retardants.
Description of Proposed Action	There are several national, regional and state-based programs that provide market incentives for increasing the use and availability of low toxicity products and

	services that either eliminate or minimize the use of Focus List chemicals. These programs are focused on both the supply and demand side by offering recognition to, and certification of, business services or products that meet specific environmental sustainability criteria, and by using labeling and marketing techniques to ensure consumers are aware of those services and products that meet those criteria. This proposed action would involve the identification and implementation of opportunities for DEQ and other agencies to partner with the third party certification programs to increase participation and awareness of these initiatives and to ensure the criteria used for program certification meet the objectives of Oregon agencies including how they address Focus List chemicals. Specifically, the types of opportunities to pursue include: • Expand Oregon-based Eco-Logical Business Program to include additional business sectors and increase certifications of landscape and automotive service operations • Partner with certification programs focused on agricultural lands, such as Salmon-Safe and Food Alliance, to refine criteria regarding chemical use and make connections to other collaborative efforts (e.g., Pesticide Stewardship Partnerships) • Collaborate with other agencies and organizations to promote consumer awareness of and demand for third party certified consumer products (e.g., Design for Environment, Green Seal, Eco-Logo, EPEAT, Pharos) that do not contain Focus List chemicals. • Work with state and local government purchasing programs to include third party certification criteria in their purchasing protocols for products and services.
Rationale	Market incentives are powerful tools for increasing the use of low toxicity products and services. Partnering with existing third party programs that have designated Focus List chemicals as priorities for reduction is a more efficient and effective way of increasing consumer demand for low toxicity products than initiating a separate public education program to raise awareness about specific chemicals of concern. Consumers are much more likely and able to respond to certification logos than a list of chemicals in products. In addition, these types of recognition and certification programs are aimed at influencing the purchase and use of chemicals, rather than managing or controlling the chemicals after they are released to the environment. Control strategies for toxic pollutants generated by the general public and other "non-point" sources aren't practical or cost-efficient because the sources are so numerous and diffuse.
Lead Implementing Agency(s)	Multiple
Implementation Considerations	
Authorities	No new authorities needed
Funding/Resources	This action would be implemented by a multiple agencies and organizations, thereby reducing the burden on any one entity. In addition, because this action doesn't involve the establishment of new certification and recognition programs, a relatively low level of resource investment can be directed to promoting and enhancing the use of existing programs. Specifically, efforts to increase consumer demand for third party certified products could occur with existing staff resources at state and local agencies. However, enhancing and expanding the Eco-Logical Business Program would involve additional staff resources because state and local

	agencies develop the sector-based certification criteria and conduct the certification-related activities.
Partner Participation	DEQ, OHA, local governments, local NGOs, Pacific NW Pollution Prevention Resource Center (PPRC) and third party certification programs.
Effectiveness Measures	The primary effectiveness measures would be monitor increases in the number of certified products on the market, and increases in the number of businesses in Oregon providing certified products or services.

ACTION E-6 [ ]: Develop and implement a funding plan for customized or enhanced household and small business waste collections for Focus List chemicals or categories of chemicals.	
Focus List Chemicals Addressed	All
Description of Proposed Action	Since 1991 DEQ has sponsored 191 household hazardous waste and small business collection events statewide. (Several of these events were also combined with agricultural pesticide waste collection events described in Action E-1). In 2005, DEQ adopted a Household Hazardous Waste Management Plan that focused program efforts on collection of high hazard wastes in high risk areas without local HHW services. This Plan directed DEQ to continue holding HHW events, offer grants to establish local household hazardous waste programs, and fund collection of high-hazard materials (e.g. school lab cleanouts). Under this plan, a Priority Assessment Tool was developed that allowed DEQ to prioritize hazardous products, geographic areas and population exposure/vulnerability. Pesticides, strong cleaners and heavy metals were identified as the greatest threats. The Priority Assessment Tool recommended that collection systems focus on these wastes as well as fuels, oil-based paints (pre-PaintCare program), used motor oil and polishes. A HHW event queue was developed in 2007 to identify Oregon cities not served by HHW programs and rank them based on need. There are currently 21 cities on this list, but in 2010 all funding for collection events was cut. A regular schedule of events would allow DEQ to reach all of these cities every 4 years and provide needed household and small business waste collection services to the entire state, as outlined in the Management Plan and Priority Assessment Tool. To ensure this occurs, DEQ needs to secure an adequate level of funding to support full implementation of the Management Plan. DEQ will develop a funding plan that evaluates various potential funding sources and recommends options to pursue.
Rationale	The level of participation and quantities of HHW and small business waste collected at events has increased since 1991, thus, the need for on-going collection opportunities is well-established. Though there are now several HHW collection facilities in the state, there are still 21 cities in Oregon with no HHW services and no option other than disposing of hazardous materials in the trash or pouring them

	down the drain. Due to the high cost of collecting this waste, it is highly unlikely that these local governments will ever be able to provide services to these cities. At the 61 school lab cleanouts held since 2008, consistently large amounts of high hazard wastes were found. There are still 29 counties in Oregon where no school lab cleanouts have been done and where a need for assistance still exists. (In addition, DEQ's consultant has provided green chemistry training during cleanouts to minimize use of hazardous chemicals in school labs.) The HHW collection event program could be combined with collection of school lab cleanouts, small business hazardous waste and agricultural pesticide waste to allow a more cost effective strategy for waste collection from multiple sectors. This recommended action builds on a program that has demonstrated effectiveness. DEQ has the infrastructure in place for implementation through its contract with a hazardous waste management contractor. The diversion of high hazard wastes to safe disposal facilities reduces the contamination risks to both surface and groundwater in the state.
Lead Implementing Agency(s)	DEQ
Implementation Considerations	
Authorities	No new authorities needed
Funding/Resources	The primary barrier to continuing HHW collections is funding There is legislative authority to use a portion of the solid waste tipping fee to fund this program. However, given the sharp decline in revenue from solid waste tipping fees over the last few years, the solid waste program has cut the funding for most HHW collection activities.
Partner Participation	Multiple partners are required for effective implementation. This program has operated effectively with the partnership of local governments, which have coordinated the local events. It has also worked effectively with the assistance of local business communities, agricultural extension services, and fire departments.
Effectiveness Measures	Environmental monitoring of Focus List pollutants directly addressed by reduction activities can occur (e.g., decreases in water quality concentrations of a specific pollutant addressed by collection events). However, environmental monitoring results are difficult to link directly to a household or small business collection program. A strong outcome measure is the number of pounds diverted into safe management.

ACTION E-7 [ ]: Assess opportunities to improve management of Focus List chemicals through use of existing state product or chemical reporting, notification, registration, and licensing mechanisms	
Focus List Chemicals Addressed	All
Description of Proposed Action	There are multiple programs within Oregon state government intended to provide information to decision-makers about hazardous chemicals and products and to

	ensure those chemicals are managed properly. These programs include those focused on product registrations, chemical use notifications or reporting, product or chemical use licensing, and product storage reporting, and are implemented by multiple state agencies. These types of programs are distinct from pollutant or chemical release reporting in that they are concerned with raw chemicals or products prior to or during use. This recommended action proposes that the agencies administering these programs, as well as other interested stakeholders, work together to assess how well current reporting, licensing, notification and registrations systems are addressing the objectives of the programs relative to Focus List chemicals . Based on the results of these evaluations, changes to the programs may be recommended to improve the management of Focus List chemicals and increase program efficiencies. These recommendations may include reducing some requirements that don't advance critical objectives, and adding requirements in other areas to more effectively produce useful data or management actions. They also could simply recommend utilizing existing data and authorities in more effective ways. Questions that this collaborative group could address include: • Are all relevant Focus List chemicals included in the programs? (based on knowledge about the activities addressed by the programs) • Is the data generated by reporting and notification systems sufficiently utilized for agency decisions and actions? • Are there types of data and information that aren't currently collected that could advance objectives of the programs more effectively? Conversely, is there information collected that doesn't add value to the program? • Are current authorities optimally utilized to improve decision-making and management actions for Focus List chemicals that may be having environmental or human health impacts? (e.g., based on monitoring data)
Rationale	The state systems designed to generate data on, and ensure management of, products and chemicals before or during use provide an opportunity to proactively influence activities that can reduce Focus List chemicals in the environment at the source. By evaluating how well all of these systems are achieving objectives related to Focus List chemicals, agencies can determine how to build on existing efforts to improve effectiveness and efficiencies. The Focus List and the data generated on these chemicals can help to narrow the scope of the assessment of the programs, thereby ensuring that any recommended improvements yield the most effective results from an environmental and human health perspective.
Lead Implementing Agency(s)	Agencies leading the implementation of this action include the Department of Environmental Quality (Toxics Use and Hazardous Waste Reduction reporting), Office of the State Fire Marshal (Community Right-to-Know for hazardous materials storage), Department of Agriculture (pesticide product registration, application licensing and use reporting), and the Department of Forestry (notifications of pesticide applications).
Implementation Considerations	
Authorities	No additional authorities needed to conduct an assessment of program effectiveness. If recommendations are made for modifications to existing registration, reporting, notification and licensing programs, agencies will likely need to initiate a rulemaking or seek additional statutory authorities from the legislature, depending on the scope of the recommendations made and the nature of the program's legal framework.

Funding/Resources	A relatively small allocation of staff resources would be needed to participate in the collaborative assessment process and conduct research an evaluation tasks associated with this process. A potentially significant investment of resources may be necessary to complete recommended program modifications and implement them. The bulk of the additional implementation costs would be in the first year or two of the modified program when system changes and outreach to the regulated community would occur.
Partner Participation	External stakeholders potentially involved in the program assessment effort include representatives from affected industries and environmental and public health advocacy organizations.
Effectiveness Measures	Existing environmental monitoring of Focus List chemicals affected by potential modifications to these programs would be the ultimate measure of effectiveness. Decreasing levels of these chemicals in Oregon's air, water, or land over time provides an indication of whether program changes (along with other factors) have been successful. In addition, direct reporting of reduced releases or improper management incidences of Focus List chemicals affected by program changes can be an indication of effectiveness for some programs.

Addressing Identified Toxics Reduction Needs	
ACTION N-1 [ ]: Work with retailers and others in the supply chain to reduce Focus List chemicals in common consumer products	
Focus List Chemicals Addressed	Potentially all Focus List chemicals, with most emphasis on Consumer Product Constituents, Heavy Metals, VOCs, and flame retardants.
Description of Proposed Action	Multiple large retailers are already beginning to work with their suppliers on reducing certain Focus List chemicals in consumer products. This provides DEQ and other partners with a unique opportunity to partner with retailers to advance common goals. Prior to engaging with retailers, DEQ will work with Oregon Health Authority (OHA) to identify specific types of consumer products with Focus List chemicals that are the highest priorities for reduction because of their relative toxicity, prevalence in the environment, and opportunities for progress through the retail sector. Once these priorities are established, the agencies can approach with retailers that are attempting to reduce toxic chemicals in the supply chain to determine where there's overlap priorities for reduction and whether those priorities can be further aligned. A set of actions would be identified to increase both the supply and demand of safer alternatives for those priority chemicals and products. This public-private partnership would utilize the collective resources, tools and expertise of the participants to effectively achieve the common objectives. If this set of joint actions proves to be effective, it can be used as template for possible partnerships with other retailers that have less developed toxics reduction programs. Different approaches may be more effective with different types of retailers. With regard to the national or multi-national retail businesses, working through a multi-state group like the Interstate Chemicals Clearinghouse (IC2) may be more effective because it can be demonstrated that Oregon priorities are aligned with other states. In contrast, a different approach would be used for Oregon-based or local retailers that would likely be more interested in Oregon-based priorities.
Rationale	Once products containing Focus List chemicals are in the marketplace, preventing the release of those chemicals into the environment becomes challenging because they are so ubiquitous. The chemicals contained within consumer products can enter the environment through air, wastewater, stormwater or solid waste pathways. Therefore, addressing the supply side of toxic chemicals prevents pollution as close to the source as possible and is a much more resource efficient approach than mitigating the environmental releases of chemicals is products. Working in a collaborative way with retailers of consumer products allows the state to advance toxics reduction goals and create additional demand for safer alternatives. The collaboration potential is significant because of the overlap between the Focus List and the chemicals some large retailers (e.g., Staples) have identified as priorities for eventual phase out from products they sell.

Lead Implementing Agency(s)	DEQ and Oregon Health Authority (OHA)
Implementation Considerations	
Authorities	No new additional authorities needed for voluntary, collaborative work with suppliers and manufacturers.
Funding/Resources	Most of the agency costs associated with this set of supplier-focused programs would be incurred in the development of the programs. Once in place, there would be some oversight and administrative resources required, but implementation would be primarily be the responsibility of product suppliers.
Partner Participation	OHA and product retailers, and possibly local governments and non-governmental organizations
Effectiveness Measures	Environmental monitoring of Focus List chemicals that are addressed by these initiatives will provide a general indication of whether the actions are effective over time. Other effectiveness measures would be gross estimates (or ranges) of quantities of Focus List chemicals in products reduced through changes in products sold in Oregon, and the number of retailers adopting programs to replace products with Focus lList chemicals with safer alternatives.

ACTION N-2 [ ]: Collaborate with other states to develop and disseminate guidance on toxic chemical alternatives assessments, and identify and pursue alternatives assessment priorities for common uses of Focus List chemicals	
Focus List Chemicals Addressed	Potentially all, with an emphasis on Consumer Product Constituents, metals, PAHs, VOCs, and flame retardants.
Description of Proposed Action	One of the impediments to transitioning from Focus List chemicals to less toxic alternatives is a lack of knowledge of about which alternative chemicals or processes are less toxic and still viable from a technical efficacy and cost perspective. Substitutions can be made based on the regulatory status of a chemical rather than the inherent hazards of the chemical, while other alternatives may be clearly less toxic but don't work as well or are cost-prohibitive. DEQ and OHA have an opportunity to work with other states and EPA through the newly-established Interstate Chemicals Clearinghouse (IC2) and other regional partners to access comprehensive chemical data and resources (including the Green Screen for Safer chemicals and EPA's Design for Environment Program) and develop guidance for conducting alternatives assessments that can be shared with Oregon businesses and public agencies. This guidance can be incorporated into existing technical assistance activities in Oregon, thereby providing businesses with an effective tool for making informed substitutions that have long-term viability. Oregon agencies can also identify priorities for alternatives for widely used products containing Focus List chemicals, and use the interstate chemical data

	and alternatives assessment guidance to support assessments for these product uses. These broad uses of Focus List chemicals that may not have known viable alternatives, but could have potentially significant impacts through multiple environmental pathways, most notably urban stormwater runoff. Examples include: copper and other metals in vehicle brake pads, PAHs in asphalt sealants, flame retardants for electronics and furniture, and plasticizers in children's products. Oregon agencies can work with a broad range of stakeholders and other states with similar priorities to encourage and support the completion of alternatives assessments for these types of priority Focus List chemical uses.
Rationale	Efforts to reduce priority toxic chemicals in the environment often don't focus on the replacements for those chemicals beyond ensuring the replacements aren't also on a priority list. As a result, the substitute chemicals used in products or processes may pose similar or different types of hazards and, therefore, may become priorities for reduction in the future. Alternatively, other substitutes may be promoted or used without fully evaluating their efficacy or costs. In these instances, investments could be made into changes that do not have long-term environmental or economic viability. Thus, making informed substitutions of Focus List chemicals through some type of comprehensive assessment is critical. The development, dissemination and use of alternatives assessment guidance can ensure that effective and efficient substitutions are made, while reducing the likelihood of multiple, costly modifications to processes over time. Participation in the Interstate Chemicals Clearinghouse (IC2) allows Oregon to benefit from the efforts of multiple states to develop a robust set of chemical data and alternatives assessment information. The guidance developed through this group will have broad applicability for all types of businesses, as well as public institutions. The potential environmental benefit from this guidance is significant, as it's designed to address the reduction of Focus List chemicals at the source rather than managing chemicals after use.
Lead Implementing Agency(s)	DEQ, OHA in collaboration with other states and EPA
Implementation Considerations	
Authorities	No new authorities needed for these voluntary, collaborative activities
Funding/Resources	The resource investment needed for developing and disseminating alternatives assessment guidance is low because these activities can be integrated into existing interstate frameworks and technical assistance programs. Working on larger scale alternatives assessment projects for broad uses of Focus List chemicals could involve additional resource needs, depending on the level of involvement of DEQ and OHA. More work may be involved at the initial stages of such projects to gain support and bring the interested stakeholders together, but the agencies would then play more of a support role in the assessment process.
Partner Participation	EPA, other states, the Pacific Northwest Pollution Prevention Resource Center (PPRC), Clean Production Action, business organizations, and possibly academic institutions with expertise in alternatives assessment.
Effectiveness Measures	Reductions in the use of specific Focus List chemicals by Oregon businesses can be tracked through the Toxics Use and Hazardous Waste Reduction Program and related technical assistance activities. In addition, facility reports providing data on chemical releases to the environment or waste generation can be reviewed to

	determine reductions in Focus List chemicals that were addressed by alternatives assessments.

ACTION N-3 [ ]: Develop and implement risk reduction and outreach plans in areas determined to have high potential for human health exposure to Focus List chemicals through domestic drinking water wells	
Focus List Chemicals Addressed	Heavy Metals, VOCs, Legacy Pesticides, Current Use Pesticides.
Description of Proposed Action	In Oregon, over 600,000 rural citizens get their drinking water from individual domestic wells. Although these wells use a locally shared resource (the groundwater) the property owners generally receive no direct assistance or guidance from state agencies. The water quality of private drinking water wells is not regulated and owners are not required to test their well water under the federal Safe Drinking Water Act. Under Oregon law, property owners are required to test domestic well water for arsenic, nitrate and total coliform bacteria only when selling real estate (ORS 448.271(1)), however, there are no requirements for treatment if compounds exceed safe levels. Nitrate is frequently detected in private wells and USGS testing has shown that when nitrate levels are elevated, it is an indicator for the presence of other contaminants in the drinking water. Contamination of the groundwater serving private wells increases the public health risks associated with exposure to toxics. Recent testing provides data to show why there are public health concerns in rural private wells. In DEQ groundwater testing, 24% of 1156 wells sampled for arsenic exceeded EPA's established Maximum Contaminant Level (MCL) of 10 parts per billion. 67% of wells sampled in Malheur County contained the pesticide Dacthal with concentrations up to 32 times the Health Advisory level. Another recent USGS study revealed that 33% of rural wells in Willamette Valley contain pesticide contamination with 15 different pesticides detected. Very few rural water wells incorporate any kind of treatment, so the local groundwater quality can significantly affect the health of private well consumers in rural Oregon. Recently, because of the health concerns presented by contaminated drinking water, the Center for Disease Control has started a national program to assess the health of the nation's domestic well water quality. CDC is working with the States to best determine the path forward. DEQ and the Oregon Health Authority will work directly with OSU Extension and USDA Rural Development to develop a detailed strategic plan for assisting rural Oregonians that may currently be exposed to high levels of pollutants in their private drinking water wells. OHA and DEQ will coordinate to identify through GIS services the *discreet areas where toxics are above current drinking water standards and/or there are other environmental factors that make the areas a high risk*. This site identification would be used by DEQ, OHA, and other partners to select the clusters of wells presenting health risks and identify County or other local partners to assist in implementation of the risk reduction in those specific areas. The areas with highest

	levels and risks of exposures through private wells will be prioritized for this work. DEQ already coordinates closely with the other agencies involved in toxic reduction on rural lands. For example, DEQ works with the Oregon Department of Agriculture on the implementation of water quality protection programs implemented on rural lands. Within the limited geographic areas identified in this approach, pesticides could be included in the Agriculture Water Quality Management Plans to reduce levels in private wells. DEQ can also work with ODA to incorporate technical assistance in geographic areas into the county SWCD's work plan and scope of work in areas that both agencies agree are high priorities. In addition, the Focus List can be used as the basis for requesting pollution prevention grants for discreet rural (private well) areas from the US Department of Agriculture Rural Development and the Natural Resource Conservation Service (NRCS) grant funds to assist in the implementation of best management practices that protect source areas for private well water from the impacts of toxic chemicals.
Rationale	This recommended action builds on well-established public water system assessment and management programs, and attempts to optimize efficiencies of state agency resources by addressing multiple pollutants through these existing programs. It will use public water system data and other environmental monitoring data of priority toxic chemicals and pollutants as the basis for prioritizing actions. Existing activities associated with public water system source protection technical assistance, Agriculture Water Quality Management Planning, and the Water Quality Pesticide Management Plan (as well as other similar rural water quality programs) can be better integrated to focus on small areas to improve private well water quality and prevent contamination that impacts public health.
Lead Implementing Agency(s)	Oregon Health Authority, DEQ
Implementation Considerations	
Authorities	An assessment should be conducted regarding whether additional authorities are needed for integrating priority chemicals and actions into existing rural water quality programs. However, given the broad authority of state statutes (e.g., ORS 468B.050) governing water quality, addressing additional pollutants through existing state programs is likely not a legal barrier.
Funding/Resources	Existing public health resources will evaluate and assess the potential sources of funding for implementing this strategy. One example of how the implementation could be funded includes structuring the private well protection as a *Technical Assistance and Training Grant* from USDA Rural Development and the funds would be given directly to the County Environmental Health within the specific counties that are identified as having a very high risk to the pollutants.
Partner Participation	Oregon Health Authority, Oregon Department of Agriculture, OSU Extension Service, US Department of Agriculture Rural Development, Oregon county environmental health staff
Effectiveness Measures	Use new private well assessment/implementation grants, existing Safe Drinking Water Act funds (for those within public source areas), and existing ambient water quality monitoring programs to document the effectiveness of these actions.

ACTION N-4 [ ]: Implement comprehensive state agency procurement initiative to acquire products and services that minimize or avoid the use of Focus List chemicals	
Focus List Chemicals Addressed	All
Description of Proposed Action	The State of Oregon purchases large quantities of products and materials, some of which contain Focus List chemicals. By making changes in state procurement practices, the state can significantly reduce the quantity of Focus List chemicals released to the environment, while increasing market demand for safer alternatives. The Department of Administrative Services (DAS) and DEQ can work together to prioritize product categories to focus changes in procurement policies and contracts, and then begin developing guidelines for the top priority product categories. The first category will likely be cleaning products because of their widespread use and because the state contracts for janitorial supplies are slated for renewal in the short term. The first task in developing purchasing guidelines will be to identify Focus List chemicals commonly found in the product category. A preference can then be included in the guidelines for those products that do not contain these chemicals. The use of third-party certifications for products that meet low toxicity criteria can provide both suppliers and end users in state agencies an efficient tool for ensuring the guidelines are followed. Currently, third party certification programs exist for cleaning products, electronics and building materials. In the course of identifying products that meet the low toxicity guidelines, DAS and DEQ can add these products to the "core list" of products in the state procurement system, which will help to drive down the prices of these products. As a result, products that may have been too expensive become competitively priced. These purchasing guidelines could also be used by other state agencies, such as the Department of Transportation (ODOT), that may In addition to the products, the state also has contracts with private service providers and building owners who lease space to state agencies, and these entities use products and raw materials with Focus List chemicals. The guidelines developed for direct state purchasing of products can be shared with contractors, with encouragement to apply those guidelines to their use of materials in performing work for the state.
Rationale	One of the barriers to increasing the use of less toxic alternatives to products with Focus List chemicals is that the prices may not be as competitive because of limited demand in the marketplace. The state's purchasing power can be used to create more demand in Oregon for these alternative products, thereby helping to drive prices downward in the market as a whole. By having an impact on the availability and price of such products, the state is helping to reduce toxic chemical impacts at the source at a large scale. Setting guidelines for purchasing low toxicity alternatives also provides state agencies with more credibility when promoting these types of alternatives in public and business outreach activities. If the state isn't "walking it's talk" with regard to moving away from the use of Focus List chemicals, the case agencies make to consumers and businesses to change practices will be much less convincing.

Lead Implementing Agency(s)	DAS and DEQ
Implementation Considerations	
Authorities	No new implementing authorities needed beyond the establishment of procurement criteria and preferences.
Funding/Resources	No additional staffing resources needed. In some instances, prices of effective alternatives to products with Focus List chemicals may be greater than current products, which would increase cost outlays for the state. However, those prices may be reduced if the alternatives are added to the core list of products because of the greater quantities purchased.
Partner Participation	Input on procurement guidelines will be sought from other state agencies and other interested external stakeholders.
Effectiveness Measures	The most practical measure of effectiveness would be to track decreases in the number of products with Focus List chemicals purchased by the state, as well as increases in the number of lower toxicity alternative products could be tracked as measure of effectiveness.

ACTION N-5 [ ]: Increase understanding of the benefits of green chemistry among key Oregon decision-makers and gain commitment to adopt policies that foster green chemistry	
Focus List Chemicals Addressed	Potentially all chemical categories , with primary emphasis on Consumer Product Constituents, metals, VOCs and flame retardants
Description of Proposed Action	Provide information to key decision-makers in the regulated community to educate them about green chemistry and motivate them to apply it in their organizations. Coordinate with the Governor's office to adopt an executive order that encourages state agencies to work together to create incentives for businesses to manufacture, use and distribute materials based on the principles of green chemistry.
Rationale	Designing chemicals, materials and products using the principles of green chemistry is a powerful way to reduce impacts to human health and ecosystems throughout their lifecycle. The application of green chemistry is an important, emerging tool in our pursuit of more sustainable materials management and toxics use reduction. Supporting the use of green chemistry by Oregon businesses is an upstream strategy that will help reduce the use and release of Focus List chemicals to air, land and water. It is also an action that complements DEQ's adoption of the Natural Step framework. Few of the 80,000 plus known chemicals currently used in the United States included human health or ecological toxicity considerations during their design. Consequently, many of these chemicals are harmful to humans and the biota. Green chemistry offers a principled framework for designing, manufacturing and using safer alternative to toxic chemicals. Long term human health and ecological risk reduction requires the development and use of safer alternatives to toxic chemicals. Currently, one of the primary barriers that prevent organizations from using green

	chemistry is a lack of awareness. Many organizations do not know what green chemistry is, what the benefits of using green chemistry are, or how to apply it to their goods or services. Oregon DEQ will play an important role in developing and disseminating information that addresses this barrier in partnership with other agencies and organizations. Nationally, the US EPA is actively supporting the use of green chemistry and safer alternatives assessment through their Design for the Environment Program and Presidential Green Chemistry Challenge Awards, among other projects and programs. In Oregon, a group of stakeholders including representatives from DEQ, have developed recommendations to advance green chemistry in Oregon. These recommendations are included in the report, "Advancing Green Chemistry in Oregon" and specifically identify lack of awareness as a barrier to the use of green chemistry in Oregon. The recently-published paper "Leadership in Sustainable Chemicals Policy: Opportunities for Oregon" from Portland State University highlights the need for leadership from state government and agencies to support green chemistry innovation.
Lead Implementing Agency(s)	DEQ
Implementation Considerations	
Authorities	Governor's Office executive order
Funding/Resources	From existing resources dedicated to the Toxics Reduction Strategy effort.
Partner Participation	Governor's Office, Metro, Oregon Environmental Council, Oregon Health Authority, Oregon Toxics Alliance, Portland State University, Business Oregon, PPRC
Effectiveness Measures	Number of presentations, meetings or events held; Number and quality of actions taken by decision makers.

ACTION N-6 [ ]: Create and support a green chemistry innovation "Hub" that catalyzes the use of green chemistry by Oregon businesses and fosters collaboration between public and private stakeholders	
Focus List Chemicals Addressed	Potentially all chemical categories with an emphasis on Consumer Product Constituents, metals, VOCs and flame retardants.
Description of Proposed Action	Engage decision-makers internally and in the regulated community through presentations and discussions with decision-makers to educate them about green chemistry, including the 12 Principles of Green Chemistry, and how Oregon businesses can benefit from development of materials and products based on those Principles.
Rationale	Oregon has important building blocks in place to emerge as a national leader in green chemistry research, education, and application. Oregon University System has renowned expertise in developing safer alternatives to toxic chemicals. Innovative private sector actors from key industries in Oregon are actively pursuing green chemistry solutions. Consumers are increasingly concerned about exposure to toxic chemicals in products and the environment. There are a variety of barriers that prevent organizations from using green chemistry in Oregon. The Oregon Green Chemistry Advisory Group, among other organizations

	and individuals, have identified and described these barriers including: Lack of awareness, technical challenges, financial limitations, regulatory hurdles, and organizational change issues. Given the diversity and interconnectedness of these barriers, a coordinate approach to providing resources and expertise in support of green chemistry innovation is necessary. Some existing organizations and programs in Oregon currently provide services that help address individual barriers. Some barriers are not currently addressed by existing organizations in Oregon. A single hub for coordinating existing efforts and manage new efforts designed to foster the use of green chemistry would be the most effective and efficient approach to implement a comprehensive statewide strategy. Existing research centers in Oregon, including Oregon BEST and ONAMI provide a working model for the Hub. The Hub concept was initially developed by the Oregon Green Chemistry Advisory Group, including a DEQ representative, is described in the report, "Growing Green Chemistry in Oregon". Additionally, the recommendations featured in the recently-published paper titled, "Leadership in Sustainable Chemicals Policy: Opportunities for Oregon" describe the need for a coordinated public-private effort to support the development and use of safer alternatives to toxic chemicals.
Lead Implementing Agency(s)	Oregon University System with assistance from DEQ, Business Oregon and possibly others
Implementation Considerations	
Authorities	No new authorities needed.
Funding/Resources	Initial funding could come from a grant, but sustaining funding could be a combination of private-public partnership
Partner Participation	Governor's Office, Oregon Environmental Council, Oregon DEQ, Oregon Legislature, Business Oregon, businesses and trade associations, Oregon Innovation Council , PPRC
Effectiveness Measures	An operational Hub or similar at an Oregon university or at a public organization helping develop business ideas and providing technical assistance to businesses and the public with concerns related to green chemistry.

ACTION N-7 [ ]: Increase information disclosure for products with Focus List constituents to allow for improved assessment and pollution prevention actions	
Focus List Chemicals Addressed	Potentially all chemical categories, with an emphasis on Consumer Product Constituents, heavy metals, VOCs, flame retardants and VOCs.
Description of Proposed Action	Certain toxic chemicals used in consumer products are not disclosed by product manufacturers, often because they are covered by Confidential Business Information (CBI) claims. The state faces a major challenge to assess and address environmental or public health impacts of certain Focus List chemicals if information about their presence in ubiquitous consumer products is not known. In 2010, EPA launched a

	review of CBI claims for chemicals made under the Toxics Substances Control Act (TSCA), and is encouraging the chemical manufacturing industry to reduce the number of claims in new TSCA filings. Oregon can also play a role in encouraging the release of information on toxic chemicals in products. Specifically, DEQ and OHA can work with other stakeholders to identify specific priority needs associated with chemical information disclosure. Based on this prioritization, several options for increasing information disclosure can be evaluated, including: • Sharing priority information needs with EPA independently or in conjunction with other states with similar priorities • Opportunities for collaborative engagement with manufacturers on information disclosure priorities • Mandated disclosure of chemical ingredients for specific priority products Based on the evaluations, different actions may be recommended for different types of products, or recommendations could be made for sequential actions. If mandated disclosure actions are recommended, a comprehensive stakeholder process will be initiated prior to initiating any proposals.
Rationale	There could be significant sources of certain Focus List chemicals in the environment or people that aren't known because their presence in commonly-used products is not known. Without this information being disclosed, the ability to develop effective and comprehensive pollution prevention responses is severely limited. Oregon cannot change national manufacturing trends independently, but can play a contributing role in influencing supply-side changes, especially in concert with other states and EPA.
Lead Implementing Agency(s)	DEQ and Oregon Health Authority (OHA)
Implementation Considerations	
Authorities	No new additional authorities needed for voluntary, collaborative work with EPA, other states, and suppliers and manufacturers. New statutory authorities would be required for any mandated chemical information disclosure recommendation.
Funding/Resources	The resources needed for the initial prioritization of products and evaluation of options by multiple agencies would be relatively small (i.e., no new staff resources). However, the implementation of some recommended options for increasing information disclosure would likely require additional staff resources, most notably any option involving mandates.
Partner Participation	OHA, local governments, product manufacturers, EPA
Effectiveness Measures	Disclosure is an interim step needed to refine and improve monitoring and pollution prevention actions. Ultimately, environmental or human bio-monitoring of Focus List chemicals that are addressed by these initiatives will provide a general indication of whether the actions are effective over time. A more immediate program measure would be the level of information disclosure achieved (e.g., number of products) relative to the priorities originally identified.

ACTION N-8 [ ]: Use the Focus List to help identify new opportunities for product stewardship initiatives	
Focus List Chemicals Addressed	Consumer Product Constituents, Heavy Metals, VOCs, Flame Retardants
Description of Proposed Action	DEQ's E-Cycles for electronics and Paint Product Stewardship programs are examples of successful product stewardship efforts that have significantly improved end-of-life management practices for products while encouraging more environmentally sustainable design of products. Among the objectives of product stewardship programs include ensuring the safe management of toxic materials in product wastes and reducing the toxicity of consumer products over time. The DEQ Focus List will be used to help guide decision-making about future product stewardship initiatives launched as part of the agency's materials management planning activities. In evaluating product stewardship opportunities, DEQ will assess the toxicity and potential impacts of Focus List chemicals and other toxics in products considered for new initiatives. In addition, the selection of specific types of product stewardship actions will be based, in part, on the potential for reduction of Focus List chemicals in Oregon's environment.
Rationale	Product stewardship strategies have shown to be effective ways of minimizing the harmful release of chemicals into the environment. Ensuring that Focus List chemicals, and the potential for reduction of these chemicals, are included in the process of assessing, selecting, and designing new product stewardship activities will increase the effectiveness of these activities in reducing toxics released to Oregon's environment and posing risks to people.
Lead Implementing Agency(s)	DEQ
Implementation Considerations	
Authorities	No new additional authorities needed for including Focus List chemicals and other toxics in the planning process for new product stewardship initiatives. If mandatory product stewardship activities are proposed, new statutory and rule authorities would be necessary.
Funding/Resources	There are some existing DEQ staff resources for identifying and developing future product stewardship opportunities, but no dedicated sources of funding to work on initiatives related to chemical reduction in products and information disclosure.
Partner Participation	Product retailers, distributors and manufacturers; local governments; non-governmental organizations.
Effectiveness Measures	Environmental monitoring of Focus List chemicals that are addressed by these initiatives will provide a general indication of whether the actions are effective over time. Other effectiveness measures would be gross estimates (or ranges) of quantities of Focus List chemicals in products reduced through changes in products sold in Oregon, and actual quantities of chemicals diverted into safe management through end-of-life management programs.

Assessing and Characterizing Toxics in Oregon	
ACTION A-1 [ ]: Incorporate all Focus List chemicals into existing state environmental toxics monitoring or modeling initiatives, considering appropriate pathways.	
Focus List Chemicals Addressed	All
Description of Proposed Action	The DEQ Laboratory has greatly expanded its analytical capabilities in recent years to identify toxic chemicals in different types of environmental media (e.g., water, air and sediment samples). As a result, many Focus List chemicals can now be detected as part of DEQ's ambient environmental monitoring activities. However, there are still some Focus List chemicals for which analytical methods have yet to be developed (e.g., certain consumer product constituents). The DEQ Laboratory will give these chemicals top priority for future development of analytical methods with environmentally relevant levels of quantitation . In addition, DEQ programs will work with the Laboratory to assess on-going or planned monitoring activities to ensure that all relevant Focus List chemicals are included (or planned for inclusion) in the scope of the monitoring activities. The relevancy of a chemical for a particular monitoring effort will be based on the environmental sources and pathways of those chemicals as summarized in the Toxics Reduction Strategy documentation and other available information resources. DEQ also conducts environmental contaminant modeling to estimate the potential magnitude and geographic distribution of pollutants, including toxic chemicals. DEQ will evaluate data and information on relevant Focus List chemicals that can be included in these modeling efforts. This will allow the agency to determine if priority toxic chemicals could be posing previously unknown potential environmental or human exposures. Again, the assessment of what is considered relevant for inclusion in modeling can be based on available environmental sources and pathways information.
Rationale	Using the Focus List to prioritize the DEQ laboratory analytical suite for toxic chemicals allows the agency to make the most efficient use of limited monitoring resources. Given the hundreds of chemicals the Lab is capable of analyzing and the costs associated with these analyses, narrowing the list of chemicals included in monitoring programs is critical. Conversely, if there are chemicals identified as priorities by the agencies that aren't included in current monitoring programs, DEQ and other agencies will not be able to assess the level of these chemicals in the environment and the effectiveness of reduction efforts. Thus, DEQ needs to harmonize the toxics reduction and monitoring prirorities.
Lead Implementing Agency(s)	DEQ
Implementation Considerations	
Authorities	No new authorities needed.
Funding/Resources	Additional resources are required for adding any new laboratory analytes. However, these additional costs can be offset by removing toxic chemical analytes that are lower priorities (i.e., not on Focus List or other agency priority lists) or those chemicals that previous monitoring demonstrates are not present in Oregon's environment.
Partner Participation	Possible consultation with USGS, academic institutions and other organizations

	with laboratory analytical expertise
Effectiveness Measures	The primary measure of effectiveness for this recommended action is the harmonization of DEQ's priority monitoring analytes with DEQ's toxic chemical and pollutant reduction priorities.

ACTION A-2 [ ]: Assess DEQ program data needs related to Focus List chemicals in environmental media or environmental treatment by-products	
Focus List Chemicals Addressed	All
Description of Proposed Action	To fully assess the presence and potential impacts of toxic pollutants in the environment, DEQ and partner agencies must identify and evaluate all of the relevant environmental media (e.g., air, surface water, sediments, etc.) and environmental treatment by-products (e.g., leachate, biosolids) where toxic chemicals could be present. For instance, there are some chemicals that, due to their physical and chemical characteristics, adsorb to sediments when they reach surface waters rather than staying dissolved in the water column. Therefore, if only water samples are analyzed for these chemicals, it is likely they would not be detected or detected infrequently or at low levels. However, such results may not reflect the actual presence of these chemicals in water environments because they are bound to sediments. DEQ programs will work with partnering agencies to better define and characterize gaps in current Oregon environmental monitoring and assessment programs and implement actions that address those gaps over time. Environmental media for which limited Focus List chemical data is available and which will be considered for this assessment include, but aren't limited to: biosolids, sediments, groundwater, and landfill leachate. The need for an assessment will be based on an evaluation of the potential presence, pathways and impacts on human and ecological life of Focus List chemicals in those media and by-products. Rather than initiating comprehensive, statewide monitoring of these media, an incremental approach to monitoring can be used to reduce costs and focus resources in the most critical areas. For instance, pilot monitoring projects can be designed and implemented for a small number of geographic areas that are representative of the sources and pathways of relevant Focus List chemicals. Based on the results of these pilot projects, more comprehensive monitoring activities may or may not be deemed necessary.
Rationale	To adequately assess the nature and magnitude of toxic chemicals in Oregon's environment, DEQ and partnering agencies need to evaluate all relevant environmental media. Inadequate assessments could result in agencies incorrectly concluding that there are no concerns related to certain Focus List chemicals because only a limited set of environmental media were evaluated. These conclusions would, in turn, lead to the development of toxics reduction programs that place less emphasis on chemicals not detected widely from a limited monitoring effort.

	DEQ and partnering agencies have the capability to monitor all relevant environmental media and by-products and, thus, expanding the scope of monitoring will build on existing sampling and analytical methods. In addition, the monitoring and assessment activities for the various media can be scaled to optimize efficiencies by focusing on a limited set of chemical analytes (i.e., most relevant to the specific media) and geographic areas.
Lead Implementing Agency(s)	DEQ
Implementation Considerations	
Authorities	No new authorities required for conducting collaborative monitoring and assessment studies. Mandating regulated entities to conduct monitoring of environmental media or by-products would require new rules and permit modifications. However, such requirements would only be initiated if the results of collaborative pilot studies demonstrated a long-term need.
Funding/Resources	Some shifts in existing monitoring resources could occur to expand the scope of environmental media and by-products. However, to adequately assess all relevant media, new resources would likely be needed. Grants and cost-sharing with other partner agencies could be used to fund pilot monitoring and assessment projects. If more comprehensive, long-term monitoring activities are deemed necessary, new dedicated sources of funding would be needed.
Partner Participation	Possible partners include local governments, USGS, academic institutions.
Effectiveness Measures	The identification of relevant environmental media and by-products to be assessed would provide a baseline for evaluating the effectiveness of this recommended action. Specifically, if definitive conclusions can be made about the nature and magnitude of Focus List chemicals in each of the identified media where gaps exist, then the action would be deemed effective.

ACTION A-3 [ ]: Identify localized impact areas ("hot spots") that could pose higher risks to people and ecological life due to exposure to multiple chemicals from multiple sources	
Focus List Chemicals Addressed	All
Description of Proposed Action	Geographic assessments of toxic and other pollutants in Oregon typically focus on entire airsheds or watersheds (or larger geographic units). The results of these assessments highlight the concerns associated with "area-wide" pollutants. However, there are often smaller geographic areas within these watersheds and airsheds, such as neighborhoods, where pollutants from local sources can pose potential human or ecological risks without affecting the larger area. The combination of the area-wide pollutants and the local pollutants can result in disproportionally greater adverse effects on some parts of an airshed or watershed than other areas. Monitoring and assessment efforts conducted by DEQ and partner agencies will evaluate potential localized toxic chemical and pollutant concerns as well as the area-wide concerns. In addition to identifying monitoring sites representative of the

	entire airshed and watershed, DEQ's geographic assessments will consider including locations that could be affected by more toxic chemicals than other areas or higher levels of area-wide toxics, based on an evaluation of potential local sources and pathways. These assessments will characterize the nature and magnitude of localized toxic pollutant concerns, particularly as it relates to the potentially disproportionate impacts to human populations or ecological life.
Rationale	Allocating limited toxics monitoring and reduction resources to pollutant sources and pathways that have the greatest potential impacts for the most number of people or ecological resources is the most efficient and effective approach to reducing toxics at statewide or regional scale. However, if there are smaller areas or populations that are disproportionally affected by multiple toxic pollutants at higher levels, directing some resources to identifying and addressing those concerns may allow agencies to achieve a greater level of toxic pollutant impact reduction. DEQ and other agencies can dedicate the majority of its toxics reduction efforts to the area or region-wide concerns, while still addressing those areas exposed to disproportionate levels and numbers of toxic pollutants. The first step in ensuring that this multi-pronged approach can be implemented is to design monitoring and assessment programs in a way that allows for the identification of highly vulnerable local areas and populations.
Lead Implementing Agency(s)	DEQ
Implementation Considerations	
Authorities	No new authorities needed to conduct more refined geographic assessments of toxic chemicals in the environment.
Funding/Resources	It's possible that some existing larger scale ambient air or water monitoring resources could be re-allocated to identifying "hot spots" where disproportionate levels of exposure to toxic chemicals are occurring. However, because DEQ's existing monitoring resources are decreasing, such a re-allocation could impair the agency's ability to conduct adequate ambient monitoring studies. Therefore, additional resources would be needed to do these more focused assessments.
Partner Participation	OHA, USGS, other agencies and academic institutions with monitoring and assessment capabilities.
Effectiveness Measures	The primary effectiveness measure would be the identification and characterization of "hot spots" within airsheds, watersheds or other regions where toxic pollutant assessments are conducted.

ACTION A-4 [ ]: Use all available and credible internal and external sources of data to identify potential sources of Focus List toxics for all DEQ programs, and integrate toxics databases and source modeling information when feasible	
Focus List Chemicals Addressed	All
Description of Proposed Action	The identification of specific sources of Focus List chemicals in the environment, or categories of sources, is a critical first step in developing and implementing effective toxics reduction programs. Given that many toxic chemicals move readily from one environmental media to another (e.g., from air to land, and then to water), relying solely on program-specific data or models to identify such sources can result in the incomplete data or incorrect assumptions about sources. Therefore, individual DEQ programs need to conduct a comprehensive evaluation of all relevant internal and external sources of data to ensure their toxics source identification and characterization findings are accurate and complete. Examples of external data sources that should be considered include the federal Toxics Release Inventory (TRI) data, Oregon State Fire Marshal data on storage of toxic chemicals, and monitoring data from entities like the U.S. Geological Survey. TRI reports include measured or estimated data from several hundred Oregon facilities related to the discharge or generation of certain toxic pollutants through various air, land and water media. Reviewing TRI data can help DEQ programs verify source identification findings or identify potential sources that were not found through an analysis of program-specific data. To facilitate more comprehensive and accurate source identification and characterization work at DEQ, opportunities for integrated databases or data modeling information across programs – or even across agencies – should be pursued when feasible. Some progress has been made on data integration through DEQ's work on the Pacific Northwest Data Exchange, which can be used as a foundation for future work. Integrating databases would reduce the time spent searching multiple data sources, and would provide a more systematic way of assessing cross-program and cross-media data. As a result, this more comprehensive assessment of toxics source data and information would become an institutionalized part of DEQ staff activities.
Rationale	Assessments of sources of Focus List chemicals that do not consider all available data can potentially lead to the development and implementation of toxics reduction efforts that are misdirected, and therefore, ineffective at reducing toxics. DEQ needs to ensure that potentially significant sources of toxics are not overlooked through narrowly constructed data searches or pollutant modeling efforts. Although some data sources (e.g., TRI) have limitations because they rely on estimates or data not collected by DEQ, they can help identify possible sources that DEQ can research further. Integrating toxics source databases within DEQ and possibly from external agencies is a way to improve efficiencies within programs by making cross-media and cross-program information readily available and usable. This type of integration will help DEQ program staff better understand the connections between air, land and water pathways for toxic chemicals in the environment, which can result in more cross-

	media assessments and toxics reduction solutions.
Lead Implementing Agency(s)	DEQ
Implementation Considerations	
Authorities	No new authorities needed.
Funding/Resources	Increasing the use of all credible internal and external data for source identification can be done with existing resources within DEQ programs. Integrating databases and modeling information will require additional short-term resources to complete. However, this initial investment should produce long-term resource savings by reducing staff time spent investigating and reviewing disparate data sources.
Partner Participation	EPA and other state and local government agencies
Effectiveness Measures	In the short term, the effectiveness measure for this recommended action would be the level of increase in the use of external or other DEQ program toxics source data. This can be accomplished through an internal review or survey of completed or on-going source identification and modeling activities. A longer term measure of effectiveness for this action would be the completion of a database integration project for toxics source data.

ACTION A-5 [ ]: Establish ecological and human health indices to assess Focus List chemicals without regulatory standards and to provide context for communication of monitoring data.	
Focus List Chemicals Addressed	All
Description of Proposed Action	Approximately half of the chemicals on the Focus List, as well as many other commonly used toxic chemicals, have no established ecological or human health risk standards. To address this gap, DEQ will work with other state agencies to develop non-regulatory indices that can put monitoring data into context with regard to the potential to cause harm. These indices could include a cumulative toxics index that provides a tool to gauge the potential impacts from multiple toxic chemicals, chemical-specific benchmarks for various environmental media and species (e.g., fish in surface waters, human health drinking water), or a combination of both. The agencies would first determine the needs for indices, and then develop the appropriate tool(s) to most effectively meet those needs. Methodologies for developing indices (or the indices themselves) established by federal agencies or other states could be used as a foundation for Oregon's efforts. For instance, the EPA Office of Pesticide Programs has developed aquatic life benchmark concentrations for over 50 pesticides without in-stream criteria. Currently, Oregon's inter-agency Water Quality Pesticide Management Team uses those benchmarks to put monitoring data into context. To ensure the most appropriate benchmarks are used in Oregon, adjustments may need to be made to these federal benchmarks by assessing and incorporating Oregon-specific ecological

	considerations.
Rationale	Without some type of index or set of benchmarks for priority toxic chemicals, DEQ and other agencies have no way of determining whether the levels of these chemicals detected in the environment are of concern to humans or ecological life. This not only poses a challenge for communicating the data to the public, but also doesn't allow DEQ and partner agencies to determine if toxics reduction actions should be accelerated or re-prioritized for certain areas of the state or for specific chemicals. Establishing toxic indices will improve the utility of the data collected by DEQ, and thereby improve the efficiency with which it focuses its toxics reduction resources
Lead Implementing Agency(s)	DEQ, OHA, ODA, ODF
Implementation Considerations	
Authorities	No new authorities are needed.
Funding/Resources	Additional resources would be required to develop toxics indices. However, the level of resources required can vary greatly, depending on the approach or combination of approaches that are implemented. Developing a single, cumulative toxics index with existing data sources and methodologies would entail a relatively small resource investment, whereas developing individual chemical benchmarks for a range of chemicals with limited available data would require significant resource investment.
Partner Participation	Other state agencies and possibly local governments, tribal governments, federal agencies and academic institutions.
Effectiveness Measures	The effectiveness measure would be the completion and implementation of toxics indices for Focus List chemicals (and other toxic chemicals that may be appropriate to include). Implementation effectiveness would be assessed by determining whether, and to what extent, toxics reduction activities were influenced by the use of the indices.

ACTION A-6 [ ]: Develop, fund and implement human biomonitoring program to track levels of Focus List chemicals in people over time	
Focus List Chemicals Addressed	All
Description of Proposed Action	The State of Oregon currently does not have a program in place to measure the levels of Focus List and other toxic chemicals in human blood and urine. Conducting this type of human biomonitoring would be provide the state with data on types of toxic chemicals found in Oregonians that are the most prevalent and at the highest concentrations. This data, in turn, would be used to raise public awareness of exposures and to inform priorities for toxics reduction actions designed to reduce human exposures. The State Public Health Lab has the technical capability to conduct this monitoring.

	The Oregon Health Authority would design the scope of the biomonitoring activity to ensure a representative sample of the population is included, recruit participants, conduct the monitoring at the Public Health Lab, and manage and assess the data. Based on the assessment of this data, recommended public awareness strategies and modifications to toxics reduction (or exposure reduction) actions would be developed and implemented.
Rationale	At a national level, CDC's National Health and Nutrition Examination Survey (NHANES), which obtains and releases health-related data from a nationally representative sample in two-year cycles, includes biomonitoring data for some toxic chemicals. The data produced from this program shows that a wide range of toxic chemicals are found in people residing in various parts of the country. However, the size of the Oregon residents sampled for this study is not large enough to draw conclusions about the chemical exposure profile for Oregonians. Having this state-generated data would allow OHA to more precisely assess the chemicals of concern for human populations in Oregon. Some of the chemicals detected could be widespread, while others could be found in specific geographic, cultural, socio-economic, or occupational populations. This type of data could then be used to craft the most effective strategies to reduce Focus List chemical exposures to all Oregonians, most notably those that the data shows are uniquely vulnerable.
Lead Implementing Agency(s)	Oregon Health Authority (OHA)
Implementation Considerations	
Authorities	No new authorities needed.
Funding/Resources	New resources would be needed to support the laboratory sampling and analysis work, and to collect, manage and assess the data.
Partner Participation	DEQ, tribal governments, non-governmental organizations
Effectiveness Measures	The primary measure of effectiveness would be whether, and to what extent, the biomonitoring data was used to develop or modify specific toxics reduction (or exposure reduction) actions.

* Priority Level for Short-Term Implementation:

[ ] Green = High priority for short-term implementation activity, involving possible re-prioritization of resources

[ ] Yellow = Short-term development or implementation with existing resources (i.e., no additional resources allocated)

[ ] Red = Longer-term implementation priority