



HOW DO WE RECOVER PUGET SOUND
TO HEALTH?

UPLAND AND TERRESTRIAL

Upland and Terrestrial

The protection and restoration of upland and terrestrial systems is fundamental to the health of Puget Sound, yet land development and associated human land use activities have damaged many of the underlying processes that support these systems. The elements of a successful approach to upland and terrestrial systems must ensure that land use and land development practices are carried out in a sustainable fashion; flood hazards do not harm people, residences, and transportation; freshwater quality and quantity supports freshwater and terrestrial food webs and human uses; groundwater levels as well as river and streamflow levels are sufficient to sustain people, fish, and wildlife; salmon are abundant and populations are significantly increasing throughout Puget Sound; species are protected and biodiversity is enhanced; and non-native species do not impair the complex functions of the Puget Sound ecosystem.

This chapter describes eleven overarching strategies that are essential to the protection and restoration of upland and terrestrial systems:

- **A1** - Focus land development away from ecologically important and sensitive areas;
- **A2** - Permanently protect the intact areas of Puget Sound that still function well
- **A3** - Protect and steward ecologically sensitive rural and resource lands;
- **A4** - Encourage compact regional growth patterns and create dense, attractive, and mixed-use and transit oriented communities;
- **A5** - Protect and restore floodplain function;
- **A6** - Implement and maintain freshwater and upland restoration projects;
- **A7** - Increase the success rate of mitigation projects to achieve, at a minimum, no-net loss of ecosystem function on a watershed scale;
- **A8** - Protect and conserve freshwater resources to increase and sustain water availability for instream flows;
- **A9** - Protect and recover salmon;
- **A10** - Protect and restore the native diversity and abundance of Puget Sound species;
- **A11** - Prevent and respond to the introduction of freshwater and terrestrial invasive species.

The 2020 ecosystem recovery targets most related to the protection and restoration of upland and terrestrial ecosystems are:

- Land development;
- Land cover – forestland and riparian;
- Floodplains;
- Summer stream flows;
- Wild Chinook salmon.

These recovery targets also are described in this section.

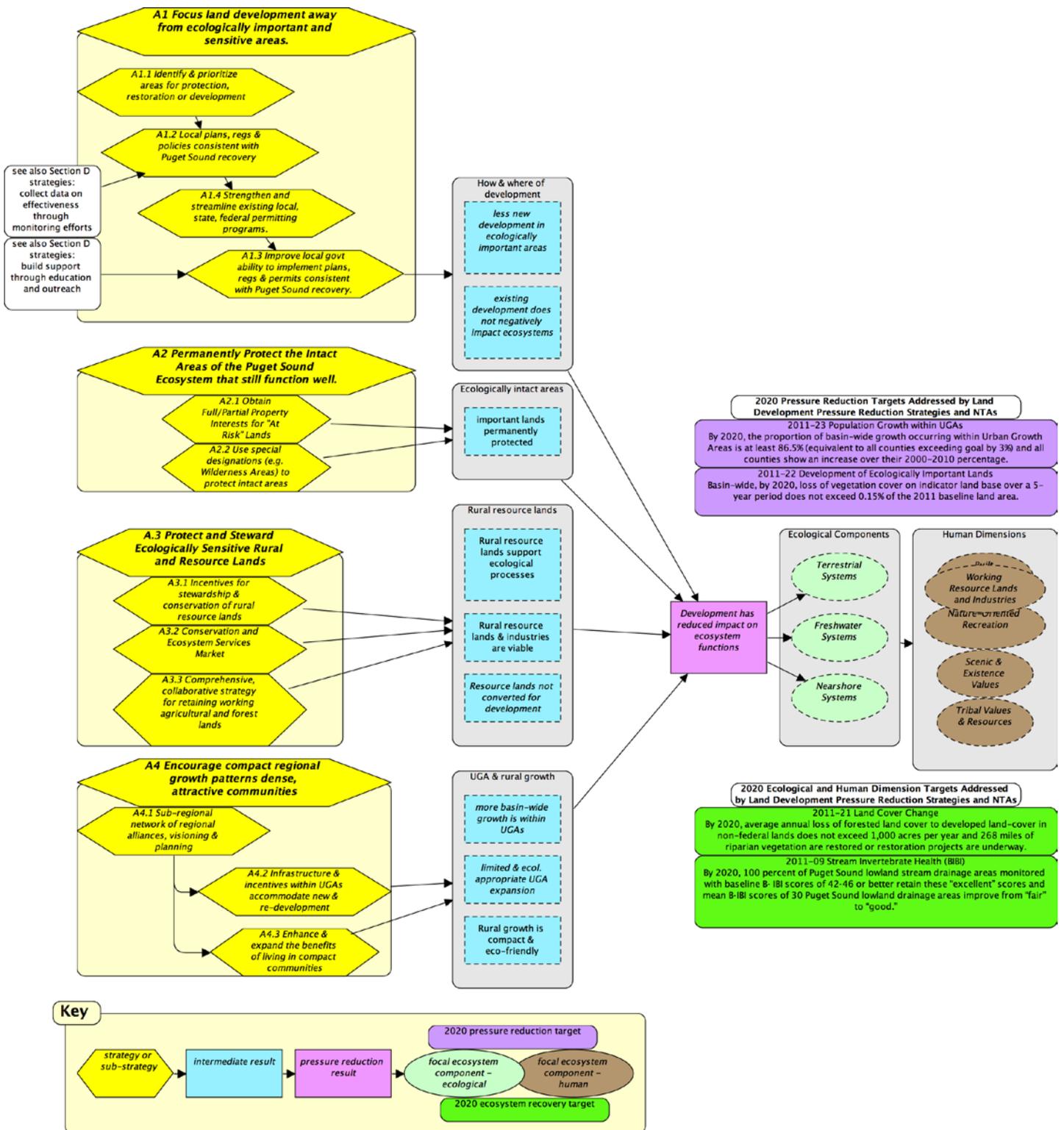
Reducing Pressures on Puget Sound from Land Development

The Challenge

Land cover and land development are essential contributors to the health of both terrestrial and aquatic ecosystem processes and habitats. Due to land conversion from growth and development pressures, many Puget Sound habitats have been reduced in size, diminished in quality and been fragmented, and the ecosystem processes (e.g., water quality, flow and retention) that form and sustain these habitats have been degraded and disrupted. During the past 50 years, Puget Sound has lost at least two thirds of its remaining old growth forest, more than 90 percent of its native prairies and 80 percent of its saltwater and freshwater marshes (PSP Topic Forum Discussion Paper, Habitat and Land Use, 2008).

Essential to our ability to protect the resources that remain will be encouraging density in urban areas, protecting rural working lands, and avoiding sprawl. Population growth and residential and commercial development are elements of a healthy economy and are not per se what threatens Puget Sound health and recovery, but rather *where* and *how* the growth and development occur that does result in adverse pressures on ecosystem functions.

Tools to protect key ecosystem processes include regulatory programs, acquisition programs, partial acquisition of development rights or conservation easements, and conservation leasing. Special designations such as Wilderness, Wild and Scenic Rivers, and Outstanding Water Resources can be used to ensure protection happens. Acquiring development rights from highly productive working resource lands, such as farms and forests, is an effective way to protect ecosystem processes/structures while ensuring long-term productivity of working landscapes and rural communities.



Relationship to Recovery Targets

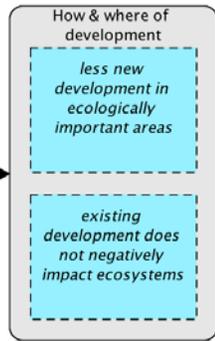
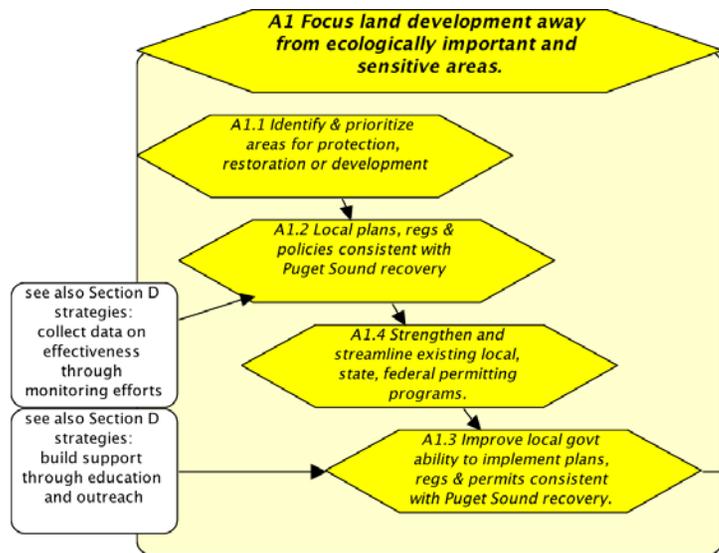
In October 2011, PSP's Leadership Council adopted land cover and land development recovery targets. Broadly speaking, the indicators and targets measure the where, how, and extent of land development and conversion. Strategies for reducing pressures from land development include efforts to identify and focus land development away from ecologically important and sensitive areas; protect and steward ecologically sensitive rural and resource lands; and encourage compact regional growth patterns and create dense and attractive communities.

The land cover and land development targets are:

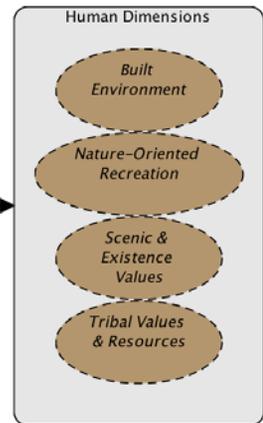
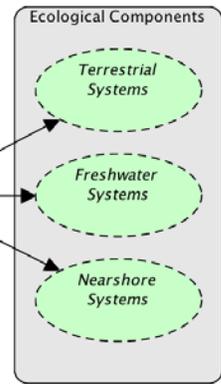
- Land cover dashboard target: By 2020, average annual loss of forested land cover to developed land cover in non-federal lands does not exceed 1,000 acres per year and 268 miles of riparian vegetation are restored or restoration projects are underway.
- Land development pressure reduction target 1: Basin-wide, by 2020, loss of vegetation cover on indicator land base over a 5-year period does not exceed 0.15 percent of the 2011 baseline land area.
- Land development pressure reduction target 2: By 2020, the proportion of basin-wide growth occurring within Urban Growth Areas is at least 86.5 percent (equivalent to all counties exceeding goal by 3%) and all counties show an increase over their 2000–2010 percentage.

A1. Focus land development away from ecologically important and sensitive areas.

Protecting high quality ecological areas is less expensive and more effective than trying to repair or restore damaged areas. In an effort to maintain a balance of development and protection, the sub-strategies recognize that population growth is an integral part of the regional economy, but aim to focus land development away from areas in the Puget Sound that are ecologically vulnerable and important to maintain. In the near term, the sub-strategies focus on identifying what lands are ecologically important and where they are located in Puget Sound, making this information available to local jurisdictions, and equipping them with information they need to make decisions consistent with the overall strategy of focusing development away from ecologically sensitive areas.



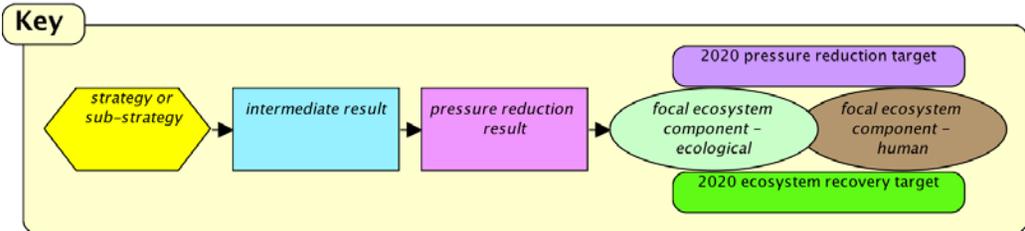
Development has reduced impact on ecosystem functions



2020 Pressure Reduction Targets Addressed by Land Development Pressure Reduction Strategies and NTAs

2011-23 Population Growth within UGAs
By 2020, the proportion of basin-wide growth occurring within Urban Growth Areas is at least 86.5% (equivalent to all counties exceeding goal by 3%) and all counties show an increase over their 2000-2010 percentage.

2011-22 Development of Ecologically Important Lands
Basin-wide, by 2020, loss of vegetation cover on indicator land base over a 5-year period does not exceed 0.15% of the 2011 baseline land area.



2020 Ecological and Human Dimension Targets Addressed by Land Development Pressure Reduction Strategies and NTAs

2011-21 Land Cover Change
By 2020, average annual loss of forested land cover to developed land-cover in non-federal lands does not exceed 1,000 acres per year and 268 miles of riparian vegetation are restored or restoration projects are underway.

2011-09 Stream Invertebrate Health (BIBI)
By 2020, 100 percent of Puget Sound lowland stream drainage areas monitored with baseline B-IBI scores of 42-46 or better retain these "excellent" scores and mean B-IBI scores of 30 Puget Sound lowland drainage areas improve from "fair" to "good."

A1.1 Identify and prioritize areas that should be protected or restored and those that are best suitable for (low impact) development.

Ongoing Programs

The Puget Sound Basin Characterization’s (PSBC, or the Characterization) assessment of Water Flow, Water Quality and Biodiversity importance of Puget Sound Basin lands and waters is a primary tool used to identify ecologically sensitive areas. This assessment is a key step for identifying which areas are appropriate targets for low-impact development, and those which should be protected from development. Gathering and analyzing the information in the Characterization will provide an essential first step toward focusing land development away from ecologically important and sensitive areas and the results are used in several of the strategies in A1, A2, A3, and A4. The Characterization incorporates many of the same data sets used in related regional analyses conducted by Department of Natural Resources (Aquatic Landscape Prioritization), The Nature Conservancy, Washington Biodiversity Council, and Washington Habitat Connectivity Working Group and is therefore an important and appropriate tool for identifying ecologically important lands for the purposes of this effort.

The Puget Sound Basin Characterization is a set of spatially explicit assessments that provide information for regional, county, municipal, and watershed-based planning. It is a coarse-scale decision-support tool that will enable better land use decisions and more effective protection, restoration, and conservation of our region’s ecologically sensitive areas. The assessments cover the entire contributing drainage area of Puget Sound and represent the physical, chemical, hydrologic, wildlife, and human attributes of this landscape that support and interact with the structure and function of ecosystems in Puget Sound. Although based on generalized data, they provide a regional-scale perspective on the spatial distribution of these attributes and impacts that is not generally provided by other available tools. The intended audience is local planners and watershed managers, tribes, PSP and other state agencies, city and county governments, and other resource managers including NGOs.

Local Strategies

North Central, Hood Canal, and Island are all considering local strategies in this area.*

** See Local Areas Chapters for more detail on local areas that are in the process of completing strategy and action identification and prioritization.*

The Characterization is a decision-support tool, not a decision-making tool. It is structured to provide an overview of likely conditions, problems, and opportunities based on GIS information, organized and analyzed in accord with well-established scientific principles. These analyses can be refined to help support a variety of actions, such as final decisions on priority efforts, designations of changed Urban Growth Areas, or specific on-the-ground actions, typically requiring further levels of local data and information and expertise not provided by the regional-scale maps or tables. In addition to the Watershed Characterization tool, use of the Puget Sound Salmon Recovery Plan, with each of its 14 watershed chapters should help to tailor information to each watershed and support decisions for what areas to protect.

Stream typing maps were developed and are maintained by DNR for purposes of implementing the Forest Practices Act and Rules. The maps classify streams and other water bodies in terms of whether or

not they are used by fish, and perennial or seasonal flow. They are provided as a starting point to help forest landowners identify and type streams on their property. Forest landowners are required to determine, in the field, the water types within their harvest area and include them on their forest practice application. While some local government entities (LGE) also use these maps for land use regulation, DNR does not require their use nor do they maintain the maps specifically for LGEs.

The stream typing maps are updated through a concurrence process managed by DNR. Water types can be updated by following a specified protocol and the priority for water type updates is streams and other water bodies on forestland subject to the Forest Practices Act and Rules.

The Natural Heritage Program is the only entity that collects and manages statewide ecosystem data. The Natural Heritage database has spatial information about important native, intact, and rare ecosystems. The program has published a draft field guide to Washington ecological systems, available through the DNR website, and has key expertise in the state's ecosystems, including Puget Sound.

Key Ongoing Program Activities

- Ecology and WDFW complete the Puget Sound Basin Characterization by 2012.
- DNR, in consultation with Ecology, WDFW, and Tribes, will continue to process stream typing updates for streams in the Puget Sound basin through 2013.
- DNR, working with key partners, shall seek to secure adequate and sustainable long-term funding for the Natural Heritage Program.

SALMON RECOVERY

Protection of Habitat – A Salmon Recovery Plan Priority: Protecting our existing habitat that supports salmon recovery efforts is a key priority for the Recovery Plan. The habitat restoration components of the Plan are based on an assumption that the existing habitat, as of 2005, would be preserved. The Plan also identified more assessment needed to understand how and whether the existing habitat protection infrastructure (regulations, incentives, technical assistance, and education/outreach) is being successful. Recent studies, including the San Juan Initiative, a NOAA/NFMS assessment, and a NWIFC document all indicate that we are losing this habitat.

As part of the way to strengthen our work around habitat protection, the Salmon Recovery Council is developing an Action Plan that will identify, and then track a set of actions to improve how we collectively protect habitat. The Council is working to identify this set of actions associated with key obstacles for habitat protection, what is needed, which should be pursued first, and who should do what. This Plan will serve both as part of the Recovery Council's work plan and as a tool to hold itself and others accountable around the habitat protection elements of the Recovery Plan.

How are these priorities integrated: The Recovery Council's work is well underway at the time of the draft Action Agenda. The work includes supporting and integrating discussions within the Federal agencies and the Federal Agencies and the Tribes; within the State agencies and between the State agencies and the Tribes; as well as the watershed caucus of the Recovery Council and the environmental, business, and agricultural representatives. Once the Recovery Council agrees to a set of actions, these will be folded into the final Action Agenda and this section will reflect their work.

Near-Term Actions

A1.1 NTA 1: PSP will convene an interagency workgroup by 2012 that, by 2013, will prepare regional ecosystem protection standards with a decision-making framework.

Performance measure: Status of standard development and status of decision making framework

Regional ecosystem protection standards with a decision-making framework are needed to guide protection and restoration decisions in marine, freshwater and terrestrial areas. A system of recommended standards should be designed to apply regionally and sub-regionally in Puget Sound, bring consistency to protection decision-making across the region, and build on existing decision-making tools as much as possible.

These standards should include a description of the conditions where protection (through impact avoidance) is absolutely necessary to prevent disruption of ecosystem processes in the marine, freshwater, and terrestrial areas. Tribal, local and regional government's protection and restoration

plans, priorities and strategies should rely on and incorporate these standards as minimum protection standards using local and site-specific information, as appropriate. Material that should be incorporated to develop these protection standards include but is not limited to: findings and recommendations from the San Juan Initiatives, material developed through the Puget Sound Salmon Recovery Council, and technical assistance material developed for land use planning by the State of Washington.

A1.1 NTA 2: By 2012, The Puget Sound Institute will work Ecology, Commerce, WDFW and other partners to develop a tool to improve and support spatial landscape data collection, sharing, and analysis to improve the ability of agencies to make land use decisions based on watershed assessments.

Performance measure: Status of data sharing tool development

Science Needs

- Continue to collect, refine, analyze, integrate and overlay landscape characterization information and data using information from existing assessments, and local and regional work including Puget Sound Nearshore Ecosystem Restoration Project (PSNERP), salmon recovery plans, Aquatic Landscape Prioritization, local assessments and shoreline inventories, WDFW priority habitats and other sources.

A1.2 Local plans, regulations and policies are consistent with protection and recovery targets for Puget Sound.

Land use planning typically occurs on a jurisdiction-by-jurisdiction basis, with some coordination across cities and counties through countywide planning policies and occasionally on a multi-county scale through broader regional initiatives. Typically, a number of jurisdictions are involved in making land use and development decisions that affect a single ecosystem or watershed. Through this strategy and the corresponding sub-strategies, the Action Agenda is working to encourage local plans, regulations and policies to be defined within a holistic watershed-based planning framework. This sub-strategy has the explicit purpose of incorporating relevant ecological, planning and land development information into local decision-making processes.

Ongoing Programs

There are two main legislative acts that govern planning and land developing in the Puget Sound region— the Growth Management Act and the Shoreline Management Act. This Action Agenda builds off of these programs and identifies actions intended to accelerate, focus, and/or address gaps.

Currently, Ecology and Commerce provide ongoing technical assistance and financial incentives to local jurisdictions to develop and adopt planning goals and policies that incorporate ecosystem characterization information and protection strategies. These goals and policies encourage compact growth patterns, density, redevelopment and rural lands protection. Ecology and Commerce are also collecting permitting and planning data from local governments to compare planned growth with watershed characterization information. Over time, it may be appropriate for state and federal grant programs to expressly prioritize projects consistent with Puget Sound ecosystem recovery goals,

including establishing priorities for projects that encourage compact growth patterns, density and redevelopment, and rural lands protection.

Near-Term Actions

A1.2 NTA 1: By 2012, Ecology and Commerce will support local and regional entities use of the PSBC results by creating easy web access to the information and an interagency Watershed Technical Assistance Team.

Performance measures: By 2012 PSBC data is available to all local governments and team established.

A1.2 NTA 2: By 2013, Ecology and Commerce will develop and distribute a set of local model planning land development and growth policies and goals that are consistent with protection and recovery targets and the Growth Management and Shoreline Management Acts, and DNR's Aquatic Lands Habitat Conservation Plan when approved by NMFS.

Performance measure: By 2013 Model growth policies are distributed to local governments

A1.2 NTA 3: By 2012, Ecology and Commerce will work with local governments to identify the primary barriers to incorporating policies consistent with implementation of the Action Agenda and identify assistance needed to overcome these barriers; including understanding how ecosystem characterization information and methods, and related protection strategies, and encouraging compact growth patterns, increased density, redevelopment and rural lands protection can be better incorporated into land use decisions.

Performance measure: By 2012, five barriers & assistance needed are identified for all jurisdictions

A1.3 Improve local governments' ability and willingness to implement, monitor and enforce plans, regulations and permits that are consistent with protection and recovery targets for Puget Sound.

Local governments operate in a highly dynamic environment with various levels of laws and regulations governing planning for land development. They must balance economic and ecological pressures along with adherence to local, regional and state laws and regulations. Further, local conditions, demographics, and preferences factor into local land use decisions. In our resource-constrained environment, the ability and willingness of local governments to implement and support the land cover and land development strategies is both the single most important success factor and also the most challenging. This sub-strategy is aimed at identifying and providing incentives to local jurisdictions for implementing, monitoring, and enforcing regulations and permits that are consistent with the broader recovery targets for Puget Sound. Material to be used for identifying and providing these incentives includes but is not limited to the San Juan Initiative recommendations, programs being implemented

through the salmon recovery plan, and material developed as part of the discussions around habitat protection at the federal, state, tribal, and local levels through the Recovery Council.

Near-Term Actions

A1.3 NTA 1: By 2013, Commerce will coordinate broad partner discussion of ways to promote state financial support for local governments for GMA comprehensive plan implementation, enforcement, management, training, and education.

Performance measure: State financial support to local governments for plan and regulatory implementation, enforcement, management, training, and education will have increased by 2013

A1.4 Strengthen and streamline existing local, state, federal permitting programs.

Local, state, and federal permitting programs all affect the type and kind of impact land development can have on the Puget Sound region. Identifying ways to strengthen and streamline elements of these permitting processes by making permitting decisions more predictable and efficient, and by making sure that information on where ecologically sensitive lands are located is considered, could help direct development to areas that are more ecologically resilient and encourage dense, compact growth patterns.

Near-Term Actions

A1.4 NTA 1: [Who?] will convene a workgroup, by 2012, that will, by 2013, conduct a cumulative effects assessment of the 'no net loss policy' in producing net gain toward the recovery targets and articulate how cumulative effects assessment could be integrated into existing programs.

Performance measure: Workgroup convened by 2012, assessment complete by 2013

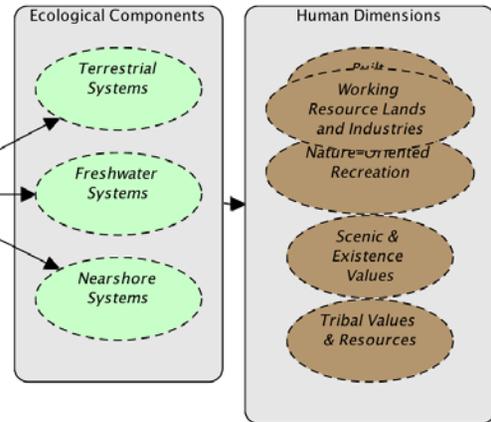
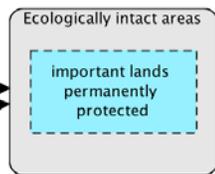
A2. Permanently Protect the Intact Areas of the Puget Sound Ecosystem that still function well.

One of the primary strategies for the Action Agenda is protection of ecologically sensitive or vulnerable lands in the Puget Sound region. This series of sub-strategies is aimed at different facets of ecological protection. Protection in this context means identifying pieces of land that are of high ecological value and protecting them from development or further development.

Local Strategies

Local areas are supportive of related strategies including South Central's priority strategy of acquiring and/or protecting high-value land at immediate risk of conversion. North Central and the Stillaguamish and Snohomish Watersheds are also considering related strategies.*

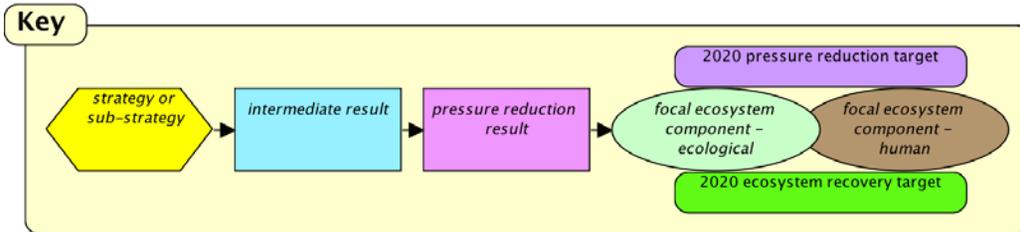
**See Local Areas Chapters for more detail on local areas that are in the process of completing strategy and action identification and prioritization.*



2020 Pressure Reduction Targets Addressed by Land Development Pressure Reduction Strategies and NTAs

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By 2020, the proportion of basin-wide growth occurring within Urban Growth Areas is at least 86.5% (equivalent to all counties exceeding goal by 3%) and all counties show an increase over their 2000-2010 percentage.

2011-22 Development of Ecologically Important Lands
Basin-wide, by 2020, loss of vegetation cover on indicator land base over a 5-year period does not exceed 0.15% of the 2011 baseline land area.



2020 Ecological and Human Dimension Targets Addressed by Land Development Pressure Reduction Strategies and NTAs

2011-21 Land Cover Change
By 2020, average annual loss of forested land cover to developed land-cover in non-federal lands does not exceed 1,000 acres per year and 268 miles of riparian vegetation are restored or restoration projects are underway.

2011-09 Stream Invertebrate Health (BIBI)
By 2020, 100 percent of Puget Sound lowland stream drainage areas monitored with baseline B-IBI scores of 42-46 or better retain these "excellent" scores and mean B-IBI scores of 30 Puget Sound lowland drainage areas improve from "fair" to "good."

A2.1 Obtain Full or Partial Property Interests for Lands at Risk of Conversion or Impacts from Human Activities.

There are a significant number of private and public land protection programs and mechanisms. Local, state, federal, and private acquisition grant programs, land banks, and land conservancies use land protection mechanisms such as fee simple acquisitions, conservation easements, and leases. For the purposes of Puget Sound recovery and the Action Agenda the preservation of intact, well-functioning land is a key strategy. The main challenges within the sub-strategy of protection through acquisition of property interests are ensuring sufficient land protection resources and implementing funding strategies that prioritize ecologically important lands.

Ongoing Programs

In 2007, the Washington State Legislature created the Habitat and Recreation Lands Coordinating Group (lands group) to improve the visibility and coordination of state habitat and recreation land purchases and disposals. The lands group is comprised of representatives from state natural resource agencies, non-profit organizations, local governments, legislators, private interests, and others. This group uses an established process for making state habitat and recreation land purchases and disposals more visible and coordinated. The process has three components:

1. The Annual State Land Acquisition Coordinating Forum brings together State agencies, local governments, non-government organizations, landowners, Tribes, and citizens to learn about and share ideas on proposals for state habitat and recreation land purchases and disposals.
2. The Biennial State Land Acquisition Forecast Report gives information about the state land purchases and disposals that are being planned around the state.
3. The Biennial State Land Acquisition Monitoring Report shows whether state agencies achieved their initial acquisition project objectives.

The Washington State Recreation and Conservation Office (RCO) provides staff support to the lands group and also supports several grant programs that support the protection of habitat and recreation lands. In 2009, using the authority of PSP's fiscal accountability legislation (RCW 90.71.340), the RCO, PSP staff, stakeholders, and the two RCO funding boards (Recreation and Conservation Funding Board and Salmon Recovery Funding Board) identified policies to align the grant processes with the 2008 Action Agenda. This work resulted in the following changes to three of the largest RCO grant programs (ALEA, SFRB, WWRP Habitat Conservation Account):

- Prohibit funding for any project designed to address the restoration of Puget Sound if that project is in conflict with the Action Agenda (effective January 1, 2010);
- Consider whether projects are referenced in the Action Agenda

Near-Term Actions

A2.1 NTA 1: To protect areas of ecological importance to Puget Sound Recovery, by 2014, RCO and PSP will revise as necessary the Recreation and Conservation Funding Board and Salmon Recovery Funding Board policies so that, for acquisitions within the Puget Sound Basin, the Aquatic Lands Enhancement Account, Washington Wildlife and Recreation Program Habitat Conservation Account, and Salmon Recovery Funding

Board grant programs include 1) a clear method for identifying whether a project is in conflict with the Action Agenda and 2) a clear method, within selection criteria, for identifying whether a project is referenced in the Action Agenda.

Performance measure: PSP and RCO will revise the Recreation and Conservation Funding Board and Salmon Recovery Funding Board policies as needed to ensure that projects in the Puget sound areas are not in conflict with the Action Agenda

A2.1 NTA 2: PSP will convene a task force to develop a funding mechanism to rapidly acquire properties with high ecological value and imminent risk of conversion by 2012.

Performance measure: PSP convenes a task force by 2012

Local Action

The South Central area identified rapid acquisition or other protection of high-value habitat and land at immediate risk of conversion as a high priority action for local governments and NGOs such as Forterra. They call for (1) utilizing existing information from adopted plans and assessments to create and implement a strategy and (2) providing increased funding for acquisition of such lands/habitats.

A2.1 NTA 3: DNR will work with Congress to encourage passage of the Community Forestry Conservation Act (HR 1982 and S 1105 of the 112th Congress), which would enable non-profit conservation organizations to use bonds to purchase private working forests for long-term environmental and economic sustainable management by 2013.

Performance measure: The Community Forestry Conservation Act is passed by 2013

A2.1 NTA 4: American Farmland Trust will identify farmlands with high ecological value and at imminent risk of conversion by 2013.

Performance measure: Farmlands with high ecological value and at imminent risk of conversion are identified by 2013

A2.1 NTA 5: Forterra, working on behalf of Kitsap County, the Port Gamble S'Klallam Tribe and the Suquamish Tribe, will coordinate funding and agency participation to secure the conservation of ~7,000 acres of land near Port Gamble, including ~2 miles of shoreline, within the next 30 months.

Performance measure: acres and miles of shoreline protected.

A2.1 NTA 6: PSP, working with Forterra, Kitsap County, the Port Gamble S'Klallam Tribe and the Suquamish Tribe will convene the State agencies, federal agencies and federal delegation to seek their engagement in leveraging available resources – from funding

to programmatic involvement, as possible – to conserve and restore the ~7,000 property near Port Gamble

Performance measure: acres and miles of shoreline protected.

A2.2 Use Special designations to protect intact areas

Using special designations, e.g., the Wilderness Act and the Wild and Scenic Rivers Act to protect high priority lands is an important tool for Puget Sound recovery. The 2008 Action Agenda included an action to advocate for proposed Wilderness designations, specifically, supporting the Alpine Lakes Wilderness addition and the Pratt River Wild and Scenic designation.

Near-Term Actions

No near-term actions were identified.

Target View: Land Development

The land surrounding Puget Sound is home to several million people who live, work, and play in our region. The needs for homes, office buildings, stores, and agricultural lands to support our lives must be taken into consideration as we strive to preserve forests and habitats, and reduce polluted runoff into streams and the Sound.

In 1990, Washington State passed the Growth Management Act (GMA), which requires local governments to comprehensively plan for the location and manner of land development. Although the GMA has been successful in addressing our growth needs, there still are many pressures to develop in our rural areas which would further affect some of our high quality remaining habitat. Watershed based approaches to locating where development occurs within Urban Growth Area's (UGA)s and how it occurs within UGAs are essential to minimizing pressures to ecological processes, habitat structures, and ecosystem functions.

A functioning, resilient Puget Sound ecosystem includes landscapes that provide important habitat and hydrology functions and a land base to support the built environment for a growing human population. The 2020 target for land development has two parts:

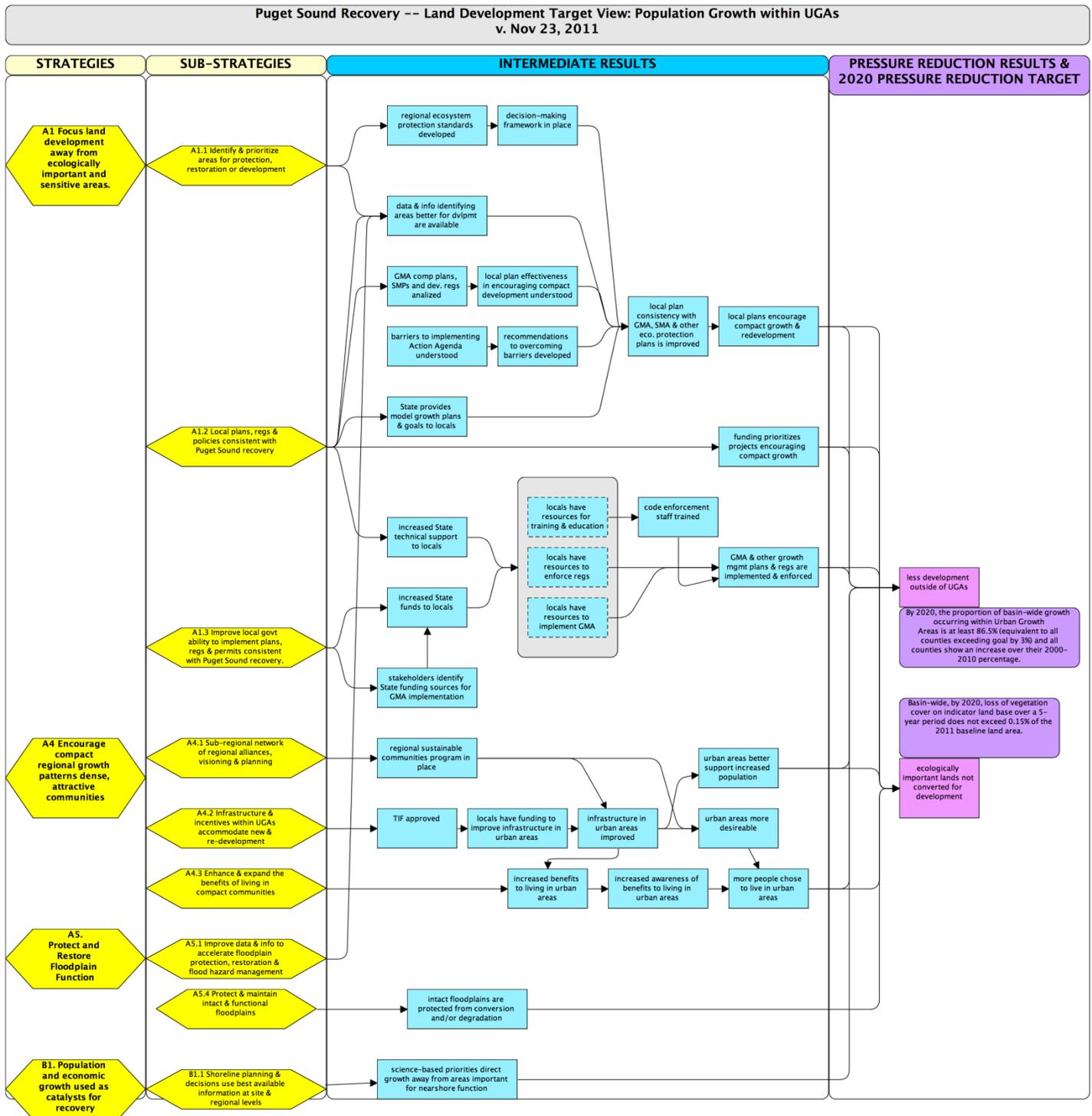
- For avoiding development of ecologically important areas:
 - Basin-wide, by 2020, loss of vegetation cover on indicator land base over a 5-year period does not exceed 0.15% of the 2011 baseline land area.
- For directing growth to urban growth areas:
 - By 2020, the proportion of basin-wide growth occurring within Urban Growth Areas is at least 86.5% (equivalent to all counties exceeding goal by 3%) and all counties show an increase over their 2000-2010 percentage.

There are several Action Agenda strategies related to the land development target, including:

- Identify and prioritize areas that should be protected or restored and those that are best suitable for (low impact) development (A1.1)
- Local plans, regulations and policies are consistent with protection and recovery targets for Puget Sound (A1.2)
- Improve local governments' ability to implement, monitor and enforce plans, regulations and permits that are consistent with protection and recovery targets for Puget Sound (A1.3)
- Encourage compact regional growth patterns and create dense, attractive, mixed-use and transit-oriented communities (A4)
- Protect and restore floodplain function (A5)
- Ensure complete, accurate, and recent information directly assists shoreline planning and decision making at the site-specific and regional scales (B1.1)

In the following results chain, or logic model, yellow polygons identify strategies and actions from the Action Agenda that we believe will contribute significantly towards meeting the target. Arrows to the blue boxes describe the intermediate results the strategies and actions are expected to achieve. The

purple boxes show the reduced pressure on the ecosystem that is expected to occur, the green ovals show the areas of the ecosystem where the change will be observed, and the dark green square shows the recovery targets.



A3. Protect and Steward Ecologically Sensitive Rural and Resource Lands.

Private forest and agricultural lands provide critical fish and wildlife habitat and other ecosystem functions, especially in highly productive lower elevation riparian areas. These lands are, however, are at significant risk of conversion to non-farm and forest uses, particularly residential and commercial development.

Forest Lands

According to the Washington State Forestland Database, developed by the University of Washington Rural Technology Initiative (RTI), about 972,000 acres of private forestland in western Washington are threatened with conversion. Population pressures, changing forest ownership patterns and the desire for rural housing sites are fragmenting once continuous forests into smaller tracts that are economically and environmentally unsustainable. The potential risk of private forestland conversion is highest in the Puget Sound region. Forest conversion would not only adversely affect the local timber industry, it would eliminate major opportunities to leverage forest carbon sequestration to address climate change and also negatively affect biodiversity, fisheries resources and open space. ⁶

Agricultural Lands

In 1950, there were about 1.4 million acres of farmland in the region. Today, less than 600,000 acres remain—a 58 percent loss. If this rate of loss continues, we would lose the last acre of farmland in seven of the Puget Sound counties by 2050 and the last acre in 2065.

Analyses indicate that an acre converted from agricultural to urban development produces ten to fifteen times the runoff and runoff-borne pollutants, including far higher concentrations of heavy metals, petroleum and other key pollutants. Farmland also promotes aquifer recharge and uses far less water than an equivalent area of urban development. At the same time, many salmon-bearing rivers and streams traverse farmland, which often results in degraded or removed habitat degrades or changes the habitat. This creates a challenging dynamic between protecting farmland from urban development while also recognizing that some farmland is located in prime salmon habitat.⁷

Development in rural areas presents a particularly concerning pressure on the ecosystem because it is in those rural areas (including both forested and agricultural lands) where high-quality habitat and

Local Strategies

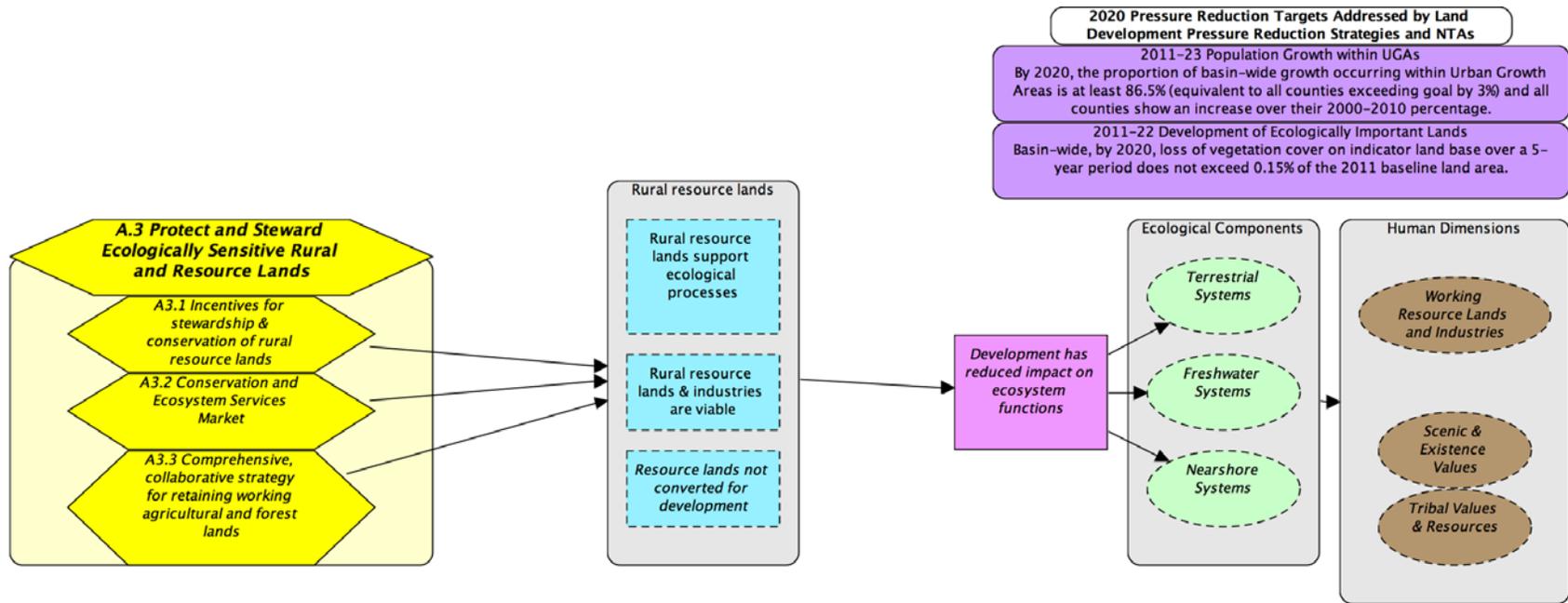
Many local areas, especially those that have a large amount of rural working lands such as Skagit, Stillaguamish, and Snohomish, see this strategy as important and are thinking about complementary local strategies.*

** See Local Areas Chapters for more detail on local areas that are in the process of completing strategy and action identification and prioritization.*

⁶ *Retention of High-Valued Forest Lands at Risk of Conversion to Non-Forest Uses in Washington State, Final Report*, Prepared for the Washington State Legislature and Washington DNR by the College of Forest Resources, University of Washington, March 25, 2009

⁷ Dennis Canty, Pacific Northwest Director, American Farmland Trust, Comment Letter to PSP, August 2011

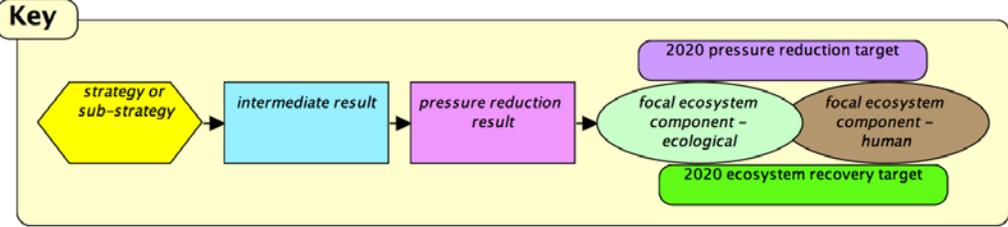
significant ecological processes remain partially or largely intact. Rural area forest cover and agricultural land is being converted to housing and other uses in five-acre and smaller patchwork patterns. The network of infrastructure (primarily roads, but also other utilities) constructed to serve such development further fragments the landscape, and interrupts or modifies the delivery, movement and storage of water, sediment, woody debris, and nutrients, and impairs functions of wildlife habitats for feeding, breeding, rearing, migrating, for numerous species.



2020 Pressure Reduction Targets Addressed by Land Development Pressure Reduction Strategies and NTAs

2011-23 Population Growth within UGAs
By 2020, the proportion of basin-wide growth occurring within Urban Growth Areas is at least 86.5% (equivalent to all counties exceeding goal by 3%) and all counties show an increase over their 2000-2010 percentage.

2011-22 Development of Ecologically Important Lands
Basin-wide, by 2020, loss of vegetation cover on indicator land base over a 5-year period does not exceed 0.15% of the 2011 baseline land area.



2020 Ecological and Human Dimension Targets Addressed by Land Development Pressure Reduction Strategies and NTAs

2011-21 Land Cover Change
By 2020, average annual loss of forested land cover to developed land-cover in non-federal lands does not exceed 1,000 acres per year and 268 miles of riparian vegetation are restored or restoration projects are underway.

2011-09 Stream Invertebrate Health (BIBI)
By 2020, 100 percent of Puget Sound lowland stream drainage areas monitored with baseline B-IBI scores of 42-46 or better retain these "excellent" scores and mean B-IBI scores of 30 Puget Sound lowland drainage areas improve from "fair" to "good."

SALMON RECOVERY

Protection of Working Lands – A Salmon Recovery Plan Priority: The Recovery Plan calls for the protection of working lands within the context of how these working lands contribute to salmon recovery. Many of the watershed plans in Volume II specifically call out this need and also speak to the fact that some working lands are located in areas critical to salmon, for example some estuarine habitat is currently being farmed and that it is important to find solutions to both sustain working lands and recover salmon. Watershed chapters such as the Whatcom, Skagit, Stillaguamish and Snohomish are areas where this is called out.

How are these priorities integrated: The restoration of habitat needed for salmon recovery is generally reflected in the strategies and actions associated with the protection of working lands as well as the restoration of habitat. However, more discussion and agreement about these slightly different areas of focus is needed. Where working lands are the same as the lands needed for habitat restoration, more flexibility and creativity in conservation tools may be needed to achieve both restoration and farmland protection.

A3.1 Create and offer an expanded, integrated suite of incentives and market-based programs that make voluntary stewardship and conservation of private forest and agricultural lands practical and economically rewarding.⁸

There are numerous incentive programs available for landowners to encourage stewardship and conservation. However, they are not well coordinated, the eligibility requirements may not address the resource impacts, lack adequate funding, tend to be opportunistic rather than strategic, and are not being fully utilized or targeted at most important lands. The strategies contained in this Action Agenda support the prioritization of incentive programs toward the highest-priority ecologically sensitive and important lands.

Ongoing Programs

Programs include the Designated Forest Land and Open Space Tax Program as well as the Forest Riparian Easement Program, Riparian Open Space Program, the Family Forest Fish Passage Program and the newly established voluntary stewardship program established by HB 1886 in the 2011 legislative session, among others. There are also numerous federal incentive programs offered through NRCS and other federal programs.

DNR offers and administers a variety of landowner assistance programs targeted primarily at private forest landowners. The Forest Stewardship Program is a nationwide program which provides advice and assistance to help family forest owners manage their lands. The program is cooperatively funded by the USDA Forest Services and state forestry agencies and offers stewardship assistance, technical assistance,

⁸ This sub-strategy, its NTAs and the major activities and milestones are adapted from *Washington Biodiversity Conservation Strategy, Sustaining our Natural Heritage for Future Generations*, Washington Biodiversity Council, December 2007.

educational materials and financial/cost-share assistance. At DNR, the Forest Stewardship Program is administered by the Small Forest Landowner Office (SFLO).

The Voluntary Stewardship Program at the Washington State Conservation Commission (WSCC), created in 2011, requires counties across the state to either opt into the program or resume the process of updating their critical areas on agricultural lands under existing GMA processes. Counties who opt in must designate their priority watershed, then designate a lead agency to coordinate other local entities toward developing a work plan, which identifies critical areas on agricultural lands as well as an outreach plan to offer landowners incentives to protect critical areas. These coordinated efforts will enable resources to be targeted toward the most ecologically important areas, improving the efficient application of these incentives.

The USDA offers programs to support the conservation of private forest and agricultural lands through economic incentives and market-based programs. The Conservation Reserve Enhancement Program (CREP), administered by the Farm Services Agency and the WSCC, is a voluntary land retirement program that helps agricultural producers protect environmentally sensitive land, decrease erosion, restore wildlife habitat, and safeguard ground and surface water. The Environmental Quality Incentives Program (EQUIP) is a voluntary program that provides financial and technical assistance to agricultural producers through contracts up to a maximum term of ten years. EQUIP provides financial assistance to help plan and implement conservation practices that address natural resource concerns and for improvements to soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland.

There also a wide variety of financial incentive-based programs for private forest and agricultural landowners in Washington administered through other state agencies. For example, the Conservation Reserve Enhancement Program offered by the Farm Service Agency focuses on improving the water quality of streams that provide habitat for endangered salmon by planting trees along riparian buffers. Natural Resources Conservation Service's EQUIP provides technical assistance and funding for conservation practices on private, non-industrial forests or agricultural land anywhere in the state.⁹ Washington DFW also administers a financial incentive program for private landowners called the Landowner Incentive Program (LIP). LIP is a competitive grant program to provide financial assistance to private landowners for the protection and restoration of habitat to benefit species-at-risk on privately owned lands. Funds are a direct appropriation from Congress passed through the U.S. Fish and Wildlife Service (USFWS) to state fish and wildlife agencies in a nationally competitive process. Currently, there are no funds for LIP.

Key Ongoing Program Activities

- DNR and the Conservation Commission will continue to direct stewardship funding, consistent with current statutory and regulatory requirements, to ecologically important areas as defined by the Puget Sound Basin Ecosystem Characterization and other assessment and characterization information.

The Conservation Commission will continue assessing existing stewardship incentive programs to identify changes to better include underserved landowners, including small farmers and owners of non-working rural lands.

⁹ <http://www.cfr.washington.edu/nwef/documents/ForestIncentivePrograms.pdf>

- The Conservation Commission will continue working with other entities including WSU Extension, Conservation Districts, UW Sea Grant and counties, to improve and expand public recognition for voluntary private sector stewardship of lands.

Near-Term Actions

A3.1 NTA 1: By 2012, the Conservation Commission will work to enhance use of all USDA conservation and habitat restoration program funding, i.e., CREP and EQUIP, which are currently underused by and not tailored for western Washington growers.

Performance measure: Amount of enhancement to habitat restoration program funding

A3.2 Create a Comprehensive Conservation and Ecosystem Services Market focused on resource lands for the Puget Sound Region.

A common theme among five reports¹⁰ addressing the preservation, conservation and stewardship of important resource and habitat lands is consideration of ecosystem markets for farm and forest land services as a mechanism for conserving and stewarding these valuable lands at high-risk of conversion by keeping them economically viable. The Washington Conservation Markets Study, issued by the Washington Conservation Commission in response to SSB 6805 (2008), specifically evaluated the feasibility of conservation markets in Washington to pay farmers and foresters for environmental benefits from conservation projects on their land and concluded “Private farms and forests could supply substantial conservation gains in Washington” and that “conservation actions on private farms and forests can be a viable, sustainable and cost-effective way to achieve a wide variety of environmental goals.”

Various ecosystem markets or “conservation banking” services, that are either topical or geographically limiting, are beginning to emerge in Washington, including markets for wetlands, carbon credits, biodiversity conservation and development rights. Currently, however, these markets are uncoordinated and operate with different procedures and by various organizations—at least eight state agencies have conservation markets within their purview—and some centralized organization and management of these markets may be beneficial.

Near-Term Actions

A3.2 NTA 1: DNR will support pilot market transactions for delivery of watershed services from private forest landowners to downstream water beneficiaries in at least the Snohomish and Nisqually watersheds.

Performance measure: A pilot market for delivery of watershed services from private forest landowners will exist in Snohomish and Nisqually watersheds

¹⁰ The Washington Conservation Markets Study (2009), issued by the Washington Conservation Commission; Washington Biodiversity Conservation Strategy, Sustaining our Natural Heritage for Future Generations, Washington Biodiversity Council, (December 2007); and Retention of High-Valued Forest Lands at Risk of Conversion to Non-Forest Uses in Washington State, College of Forest Resources, UW (March 2009); The Cascade Land Conservancy’s Cascade Agenda (2005) and the Olympic Agenda (2011).

A3.3 Develop a comprehensive strategy for retaining economically viable and long-term successful working agricultural and forest lands through a collaborative process.

Forest lands: The key recommendation from by the 2008 NW Environmental Forum on protecting Washington forests led by the UW College of Forestry is the establishment of a legislatively appointed Task Force to direct and produce an overall plan for integrating Washington’s complex and various regulatory, tax and forest land protection initiatives.

Agricultural lands: As described earlier, since 1950 we have lost more than half of the farmland in the Puget Sound region. Effectively preserving agricultural land will involve tackling a complex set of interrelated issues including real work to ensure that agriculture continues to be a viable, and vibrant, industry in Puget Sound.

Ongoing Programs

Key Ongoing Program Activity

- DNR will incorporate analysis of third party certification standards when DNR recalculates the sustainable harvest on state trust lands in 2014.

Near-Term Actions

A3.3 NTA 1: By Q3 2013, DNR will identify and lead a collaborative process to develop a comprehensive strategy for retaining economically viable and long-term successful working forestlands.

Performance measure: By Q3 2013, DNR will have initiated a collaborative process

A3.3 NTA 2: PSP, in collaboration with Agriculture, Ecology, and the Conservation Commission, will convene a series of workshops to engage agricultural stakeholders to identify needs for maintaining the health of the industry, and identify key areas where the agricultural industry can assist in the protection and restoration of Puget Sound.

Performance measure: done or not

In addition, potential legislative actions associated with the Open Space Tax Program are described in the Introduction to this Section.

Local Strategies

This strategy is especially important to those local areas that have significant forestlands and economies built around these lands. For example, the Strait and Hood Canal call out local strategies to protect and foster working forests and ecologically sound forest practices.*

** See Local Areas Chapters for more detail on local areas that are in the process of completing strategy and action identification and prioritization.*

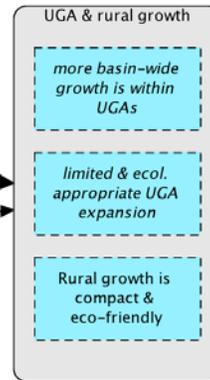
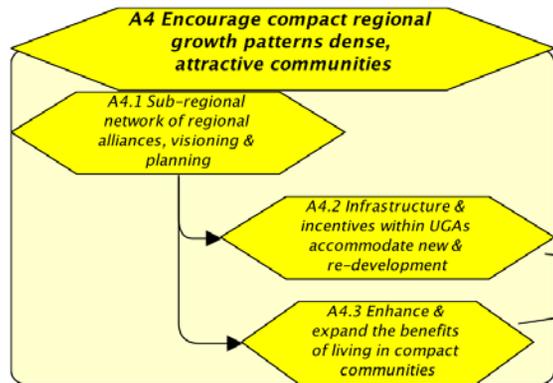
A4. Encourage compact regional growth patterns and create dense, attractive and mixed-use and transit-oriented communities.

Local Strategies

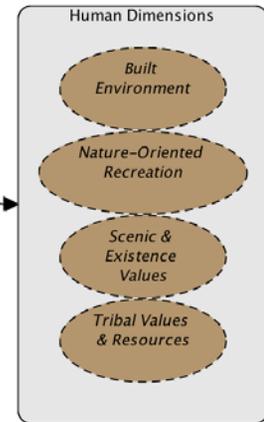
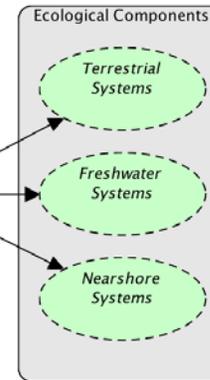
Island, North Central, Skagit, and Stillaguamish and Snohomish have identified potential supporting local strategies that address this concern.*

** See Local Areas Chapters for more detail on local areas that are in the process of completing strategy and action identification and prioritization.*

Encouraging compact urban patterns would direct development away from working farms and forestlands and protect food and fiber production, wildlife habitat, ecosystem functions and water quality. Compact development patterns reduce impervious cover that leads to run-off pollution, and decrease shoreline development that leads to erosion and habitat destruction. Finally, compact development is more energy efficient, reducing energy-related pollution including green house gas emissions.



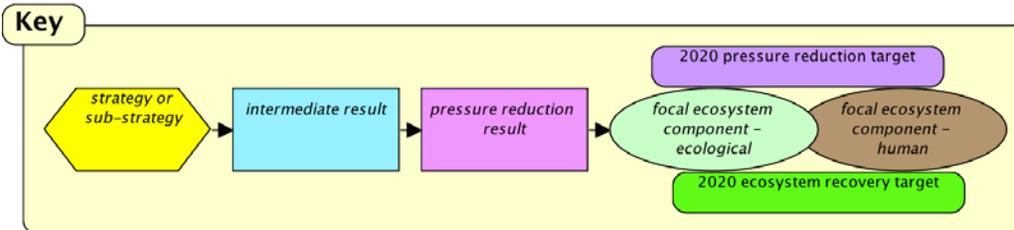
Development has reduced impact on ecosystem functions



2020 Pressure Reduction Targets Addressed by Land Development Pressure Reduction Strategies and NTAs

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2011-22 Development of Ecologically Important Lands
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2020 Ecological and Human Dimension Targets Addressed by Land Development Pressure Reduction Strategies and NTAs

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2011-09 Stream Invertebrate Health (BIBI)
By 2020, 100 percent of Puget Sound lowland stream drainage areas monitored with baseline B-IBI scores of 42-46 or better retain these "excellent" scores and mean B-IBI scores of 30 Puget Sound lowland drainage areas improve from "fair" to "good."

A4.1 Create a sub-regional network of regional alliances and multi-county scenario visions or plans.

Regional planning alliances similar to the Puget Sound Regional Council, Thurston Regional Planning Council, or Skagit Alternative Futures could plan for growth and corresponding infrastructure needs and concurrent ecosystem protection and recovery strategies at scales that are more efficient and provide more opportunity for examining and optimizing future planning scenarios and alternatives that reduce sprawl, increase density in urban areas, and promote and plan for regional transit solutions. For example, they could tackle issues related to which jurisdictions or portions of jurisdictions are best suited to accommodate projected growth, develop regional economic development strategies which could allow for revenue sharing and minimization of competition among local governments, address inequities of tax structure that occurs with new development (e.g. fiscal zoning) and annexation issues.

Regional alliances could be created anew by willing jurisdictions and existing sub-regional alliances could be broadened or strengthened. In particular, regional transportation planning organizations could strengthen their required regional land use plans to do integrated land use planning across the jurisdictions.

Near-Term Actions

A4.1 NTA 1: Commerce will launch a regional program similar to the federal sustainable communities program by 2013.

Performance measure: To be determined

The program would provide funding, incentives, and assistance to local governments to create new alliances, or support existing regional alliances that undertake integrated and sophisticated regional planning to guide state, metropolitan, and local investments in ecosystem protection, land use, transportation and housing, as well as to challenge localities to undertake zoning and land use reforms.

Incentives for participation could include expert policy institutes, training, technical assistance and additional funding and/or extra points when applying for federal or state Puget Sound funds. Program should define desired outcomes; for example, a regional capital facilities plan, a regional economic development strategy or regional transit solutions that encourage transit-oriented communities.

Major Activities or Milestones:

- Convene stakeholder group to plan program, incentives, and desired outcomes
- Identify funding sources
- Develop and issue RFPs
- Award grants
- Implement ongoing policy institutes and training programs

A4.2 Provide the necessary infrastructure and incentives within urban growth areas to accommodate new and re-development.

Barriers to achieving dense and vital urban centers can include various things like restrictive development regulations, environmental constraints, legacy pollution, land ownership patterns, inadequate infrastructure, lack of coordination between cities and special purpose governments, lack of urban amenities, lack of grocery stores, lack of schools, public perceptions and fear of political risks.

Infrastructure gaps remain a hurdle to allowing additional population, whether it is water supply, sewer treatment capacity, or transportation improvements. Beyond such functional infrastructure, investments in urban amenities and recreational facilities can also make a large difference in how cities attract additional population and private investment. Infrastructure is expensive and is a growing concern as cities address both existing and planned future development.¹¹

Near-Term Actions

Potential legislative actions associated with tax increment financing as described in the Introduction to this Section.

A4.3 Enhance and expand the benefits of living in compact communities to increase consumer demand for them.

Near-Term Actions

No near-term actions were identified.

¹¹ Doug Peters, Commerce, Comment Letter to PSP, August 2011

Target View: Land Cover

Land cover is an essential indicator of ecosystem health because of its importance for both terrestrial and aquatic ecosystem processes and habitats. During the past 50 years, Puget Sound lost at least two thirds of its remaining old growth forest, more than 90 percent of its native prairies, and 80 percent of its saltwater and freshwater marshes. From 1992-2006, approximately 60,000 acres of forest-covered lands were converted to developed land.

A functioning, resilient ecosystem includes a mosaic of forestlands, agricultural lands, open space, natural lands (i.e., forest, prairie), and developed lands and related infrastructure to support habitat needs, support natural processes, and generate ecosystem services.

The 2020 recovery target for land cover in forested lands and riparian areas is:

- average annual loss of forested land cover to developed land-cover in non-federal lands does not exceed 1,000 acres per year and 268 miles of riparian vegetation are restored or restoration projects are underway.

There are several Action Agenda strategies related to the land development targets:

For forested lands:

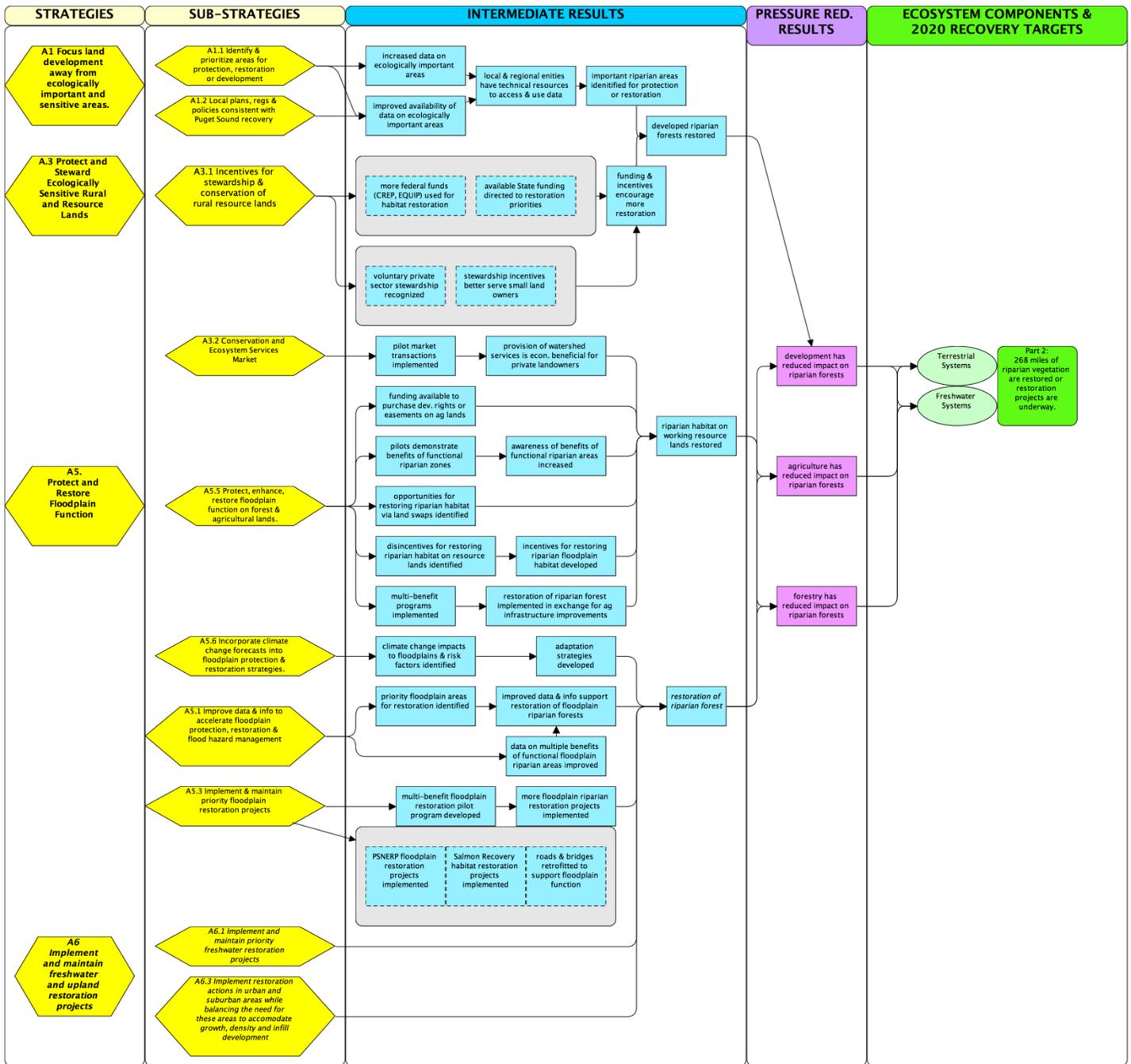
- Focus land development away from ecologically important and sensitive areas (A1)
- Permanently protect the intact areas of the Puget Sound ecosystem that still function well (A2)
- Protect and steward ecologically sensitive rural and resource lands (A3)
- Protect and restore floodplain function (A5)
- Ensure complete, accurate and recent information directly assists shoreline planning and decision making at the site-specific and regional levels (B1.1)

For riparian areas:

- Focus land development away from ecologically important and sensitive areas (A1)
- Protect and steward ecologically sensitive rural and resource lands (A3)
- Protect and restore floodplain function (A5)
- Implement and maintain priority freshwater restoration projects (A6.1)
- Implement restoration actions in urban and suburban areas while balancing the need for these areas to accommodate growth, density and infill development (A6.3)

In the following results chain, or logic model, yellow polygons identify strategies and actions from the Action Agenda that we believe will contribute significantly towards meeting the target. Arrows to the blue boxes describe the intermediate results the strategies and actions are expected to achieve. The purple boxes show the reduced pressure on the ecosystem that is expected to occur, the green ovals show the areas of the ecosystem where the change will be observed, and the dark green square shows the recovery targets.

Puget Sound Recovery -- Land Cover Target View: Part 2: Riparian Forest Restoration
v. Nov 23, 2011



Puget Sound Recovery -- Land Cover Target View: Part 1 Forested Land Cover Change
v. Nov 23, 2011

