

Birch Bay Action Plan

Review of Potential Implementation Tools

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Introduction

The purpose of this memo is to describe tools that could be used to help facilitate community-supported development while preserving the character of the watershed. Pages 2 through 8 provide examples of incentive based programs that may be applicable to the Birch Bay watershed. Recommendations for assessment and implementation are found on page 8 and 9. In addition to the specific examples described below, starting on page 10, Table 1 summarizes a broad range of tools that may be applicable in the Birch Bay Watershed. Find more information on the Birch Bay Action Plan at the web site:

<http://www.co.whatcom.wa.us/pds/naturalresources/specialprojects.jsp>.

Background

The Birch Bay Watershed Characterization and Watershed Planning Pilot Study prepared in 2007 represents a collaborative effort by local, state, and federal agencies to use watershed characterization techniques to guide future development in a manner that maintains—or preferably improves—the condition of wetland, stream, and terrestrial resources in the Birch Bay watershed. The results of the Pilot Study can be used to:

- Identify the relative suitability of areas within the watershed for restoration, protection and/or development.
- Recommend mitigation strategies to offset the effects on development on aquatic resources and wildlife.
- Identify options for streamlining local development review and permitting.

In considering approaches for implementation, Whatcom County is seeking to achieve the following three outcomes:

1. Development standards and guidelines (including a mixture of regulations and voluntary or incentive-based standards) that reflect unique sub watershed conditions (to replace the current 'one size fits all' development standards);
2. Coordinated restoration and mitigation that are aligned with watershed goals; and
3. Customer service improvements related to permit predictability and usability of development standards (reducing burdens on property owners during the development review process).

Potential Implementation Options

The County is considering many different approaches for managing development in the Birch Bay watershed. There are several programs in operation outside of Whatcom County that serve as potential examples for the Birch Bay watershed. While none of these programs is a ‘perfect fit’ for Birch Bay, the intent of this section is to describe examples that contain relevant object lessons and principles that may be applicable in Birch Bay. The County could elect to pursue one or more of these tools; some tools may best be applied in combination with other tools.

Examples of Programs Applicable to Birch Bay

This section highlights examples of programs that use *incentive or market-based* approaches (for example, #s 1 and 2) to manage development, programs that *consolidate mitigation* (for example, # 3) to achieve watershed goals, and programs that use *tailored regulations* (for example, #s 4 and 5) as opposed to one-size-fits-all standards (some programs have elements of more than one of these approaches). The programs discussed below are:

1. The Willamette Partnership ‘ecosystem credit’ accounting approach
2. The Lake Tahoe impervious surface reduction program
3. The King County Mitigation Reserves Program
4. The West Eugene Wetlands Plan
5. Mount Vernon Wetland Buffer Plan

The Willamette Partnership

In November 2008, federal, state, and local agencies and other stakeholders began exploring market-based approaches to restoring the health of ecosystems in Oregon’s Willamette Valley. A Working Group was convened by the Willamette Partnership, a nonprofit coalition of leaders in the Willamette striving to expand the pace, scope, and effectiveness of habitat restoration with funding from a U.S. Department of Agriculture, National Resources Conservation Service (NRCS) Conservation Innovations Grant. The Work Group created an Ecosystem Credit Accounting program in response to the following circumstances:

- Current mitigation was not moving as close to healthy ecosystems as desired.
- Current mitigation was fragmented, making it difficult for land managers to restore ecosystems to their full and broad potential.
- Current mitigation processes were often unpredictable.
- Incentivizing high quality restoration in the best places was believed to be a better, more cost-effective approach.

The Ecosystem Credit Accounting program allows buyers and sellers to trade in multiple types of *ecosystem credits* in the Willamette valley. The program works in the following manner: a land management entity or agency assesses a conservation site to determine baseline environmental conditions using a pre-approved method. The entity/agency also determines the amount of additional value the site could have if certain conservation/restoration actions are undertaken. The difference between the *baseline* condition and the *improved* condition is expressed as a number of *credits*. Once the entity/agency undertakes the conservation or restoration action (e.g., places the property in a land trust, restores with vegetation plantings, etc), the credits can be traded (sold) to any public or private entity with a regulatory obligation to mitigate the impact of their development actions. This allows developers (buyers) to meet their mitigation obligations without having to construct, manage and maintain their own mitigation project. The process for buyers to purchase credits involves interaction with many parties and a commitment to the long-term tracking of conservation projects associated with purchased credits.

The program represents agreement among federal, state, and local agencies, conservation organizations, and the buyers and sellers likely to use an *ecosystem marketplace*. Signatories include the USACE, USDA Forest Service, Oregon Department of Water Resources, NMFS, NRCS, Clean Water Services, EPA Region X, ODOT, ODEQ, ODFW, and USFWS. The system entered a pilot phase in September 2009 and will continue for a period of two years to test both accounting and credit calculation methodologies. There are different credit calculation methodologies for wetlands, salmon habitat, upland habitat and water temperature benefits from stream restoration.

Incentive- or market-based approaches involve assigning a value to environmental benefits on a given parcel of land, just as farmers assign value to the crops they grow. The environmental benefits can include fish and wildlife habitat, water storage, and water purification. Property owners who restore and maintain these environmental benefits can get paid for their efforts.

The Willamette Partnership's approach provides a potential model that could be adapted to the Birch Bay watershed. The County would need to establish an appropriate credit calculation system for wetland functions, fish and wildlife habitat, and/or water quality benefits that would apply to Birch Bay. The County would also need to determine if there was adequate demand for this type of an ecosystem marketplace.

The Lake Tahoe Program

The Lake Tahoe impervious surface reduction program is another example of a regulatory market that creates financial value for reducing impervious surface coverage. The program was designed to address pollutant loadings to Lake Tahoe from increasing development in the watershed; stormwater runoff was the single largest source of pollutants to the lake.

Management of *land coverage*, another term for impervious surface, is an essential element of the Tahoe Regional Planning Agency's (TRPA) environmental plan to protect Lake Tahoe. The coverage program is essentially a Tradable Development Rights approach that has evolved over 30 years, and is used to manage a variety of development and environmental impacts. Property owners and developers must verify how much *coverage* they are allowed using a scoring system, and may *bank* any coverage they do not use. Coverage that is banked may be used by a third party to offset impacts to land that is equally or less sensitive according to the scoring system used. Banking is defined specifically as "Recording with TRPA a particular amount of previously existing development right that is now available to use."

Legally existing development rights are categorized as follows:

- Existing land coverage
- Potential land coverage
- Commercial floor area
- Tourist accommodation units
- Residential units
- Residential development right
- Cubic volume
- Residential or tourist accommodation floor area

The *units of trade* for each of these things vary accordingly. Once existing development is removed according to an approved restoration plan the development is considered *banked* for future use or sale to a third party.

There are two *scoring systems* that determine how much of a property can be covered with impermeable surface. These are the *Bailey system* and the *Individual Parcel Evaluation System (IPES)*. The U.S. Forest Service and TRPA developed the Bailey land capability system in the early 1970s based primarily on the official United States Department of Agriculture soils maps for the Tahoe Region. Each soil type was assigned to a land capability class ranging from 1 to 7, with capability 1 being the most environmentally fragile and sensitive to development.

More recently, TRPA developed IPES. IPES assigns a numerical score to vacant parcels and ranks the parcels within each local jurisdiction according to their relative suitability for development. Any parcel with a *top rank* score may obtain an allocation from their local jurisdiction, after which a building permit may be received from TRPA or local government agencies.

There have been over \$10.4 million in transactions as a result of the *coverage* trading program. Coverage is sold through ads in the newspapers, via realtors, and prices are based on supply and demand. The current price per square foot of coverage is \$75.00.

This program has been successful for several reasons:

- A clear link existed between water quality problems and impervious surface in the basin.
- Limitations were placed on creation of new impervious surface.
- Limitations were based on science.
- Limitations differed among sites based on actual site conditions; benefits on each site are defensible.
- High land values and development pressure provided strong demand for credits.
- Creation of a regional bank/market facilitator lowered transaction costs.

A number of the foundation elements for a program such as this are already in place in the Birch Bay watershed. For example, the 2007 Birch Bay Characterization identifies potential key restoration and mitigation sites and the Birch Bay Watershed and Aquatic Resources Management (BWARM) program already tracks existing and proposed impervious surface.

King County Mitigation Reserves Program

In 2005, King County developed the Mitigation Reserves Program (MRP) as a pilot program. The purpose of the program is to give developers the option of meeting mitigation obligations associated with a project by paying a fee to King County. These fees are used by King County to complete mitigation projects designed to make up for impacts to aquatic resources that are related to the project.

Some of the program's objectives include:

- Provide high quality mitigation for unavoidable aquatic resource impacts on development sites that lack ecologically viable on-site options for mitigation.
- Create and maintain a roster of strategically selected and widely distributed sites that reflect a variety of habitat types, high potential for ecological *lift*, and valuable ecosystem services.
- Use scale efficiencies by combining the impacts from individual smaller projects within a service area into mitigation at larger reserves with greater ecological value.
- Develop an ecologically-based site selection process to identify the most appropriate off-site mitigation options that result in greater ecological benefit to a basin or watershed than could be achieved through on-site mitigation options that are impractical or of low environmental benefit.
- Procedurally decouple development projects from mitigation projects in order to put mitigation project planning and implementation into the hands of those with the appropriate experience and mandate to do so.
- Promote an ecologically necessary complement to mitigation banking, which generally provide a narrower range of habitat located at single sites within expansive service areas.

Consolidated mitigation approaches maximize the benefits of mitigation actions by identifying appropriate mitigation sites and creating a single management entity to ensure their long-term maintenance and protection. Developers who participate in these programs avoid the expense and burden of designing, constructing, and maintaining their own mitigation projects.

The King County Department of Natural Resources and Parks and the Department of Development and Environmental Services are responsible for implementing the MRP. An Interagency Review Team (IRT) composed of the USACE and the Washington Department of Ecology and other member agencies including tribes and federal, state, and local agencies play an integral role in reviewing and approving proposed mitigation *receiving sites* and mitigation plans. In some cases IRT member agencies will also play a role in reviewing permits for impact projects.

The MRP will offer mitigation credits for multiple types of aquatic resources, including wetland credits, stream credits, and buffer credits (for wetland or stream buffers). The credit system works similar to the credit system described above for the Willamette Partnership. Pricing of credits are formulated to reflect costs associated with construction, post-construction near-term and long-term maintenance, program administration, and contingencies. Additionally, a Land Cost Surcharge is added to the base credit cost. The purpose of the Land Cost Surcharge is to ensure that mitigation *rights* on publicly-owned land are not given away to private interests without reasonable

compensation. The impacted functions are replaced at a roster site using the credit fees to implement a mitigation project, while land area is replaced through future acquisition made possible by the Land Cost Surcharge.

King County is currently revising the MRP and moving it out of the pilot phase. The goal is to have the program certified and operational by the end of 2009 to comply with new federal rules governing in-lieu fee (ILF) mitigation.

Whatcom County could follow a similar process to establish an ILF program in the Birch Bay watershed. Alternatively, the County could work with the Puget Sound Partnership, which is establishing a Puget Sound wide ILF program. The County could identify ILF sites in Whatcom County that would be administered through the Partnership's ILF program once it is up and running.

West Eugene Wetlands Plan

In 1992, the Eugene City Council and Lane County Board of Commissioners adopted the West Eugene Wetlands Plan, which incorporates a tailored approach to managing wetland resources within the Amazon Creek basin and a comprehensive mitigation system involving a mitigation bank.

The West Eugene Wetland Plan addresses protection, restoration, and development of wetlands within an 8-square mile area in Eugene, Oregon. The goal of the Plan is to balance environmental protection and urban development in a manner that complies with state and federal laws and has broad public support. The Plan acknowledges situations where economic development needs outweigh the benefits of protecting low quality wetland sites. The Plan outlines a mitigation approach for the Amazon Creek basin that identifies wetlands that must be protected, wetlands that are suitable for restoration, and wetlands that can accommodate limited development without causing a net loss of wetland functions in the basin.

The Plan protects the majority of the wetland acres in the basin through acquisition, comprehensive plan designations, zoning and buffer requirements. The wetlands designated for development were determined through a process that evaluated each wetland against a set of criteria designed to identify isolated, low quality wetlands of limited value. When those low quality wetlands are impacted, the Plan requires compensation to occur at a minimum ratio of one to one. Compensation is targeted for the most ecologically beneficial areas where the likelihood of success is the highest, and where little, if any, on-going maintenance will be required. These ecologically beneficial areas are generally located on historic wetlands, disturbed agricultural wetlands and in areas adjacent to existing waterways. Mitigation efforts concentrate on reestablishing historic wetland types and habitats that naturally occur in the area, while also creating opportunities for other wetland types such as marshes and ponds. Wetland mitigation banks are the primary means for implementing the mitigation program.

Tailored regulations are development requirements that vary depending on the specific characteristics of a site or area. Sites that are more sensitive to adverse effects of development may have more stringent development standards than sites/areas that are less environmentally sensitive or valuable.

The City of Eugene Public Works Department has overall responsibility for managing and monitoring the West Eugene Wetlands Plan with assistance from other departments. The total cost for the proposed wetland acquisition, mitigation, restoration, enhancement and maintenance is estimated to be \$16.4 million over ten years (1993 - 2003). The Plan's financing effort relies primarily upon: (1) securing state and federal funds, (2)

instituting a local, city-wide stormwater utility fee, (3) sale of credits in the wetland mitigation bank, and (4) private contributions through or to nonprofit organizations and foundations.

The Birch Bay watershed characterization technical work lays the foundation for a similar program which recognizes the variable *value* of wetlands based on their location in the watershed, their condition, and other factors. The technical work also provides information that could be used to locate and or establish a mitigation bank or similar program. The technical work could be the building blocks of a specific watershed plan similar to the West Eugene Wetland Plan.

Among the many positive attributes of the West Eugene Wetland Plan approach is that wetlands are mapped and categorized up-front and the mitigation trade-offs are accounted for based on a detailed understanding of all of the resources in the basin. Property owners are aware that their property lies adjacent to a *Protection* wetland or a *Development* wetland in advance of development proposals. This gives property owners a sense of what type of development is allowed and mitigation that is required. This provides predictability with regard to how wetlands will be affected by development and how development proposals will be affected by wetlands. The Birch Bay watershed is much larger than the Amazon Creek basin, and it is unlikely that the County could definitively identify, map and classify all of the wetlands in the study area up-front; especially since this would require gaining access to vast numbers of privately owned properties. Nevertheless, the County could develop a tiered value system and corresponding mitigation approach based on developer-prepared wetland delineations. This approach would still provide customer service benefits to the applicant during development review.

Mount Vernon Ecosystem Buffer Alternative

The City of Mount Vernon also has adopted an alternative to the ‘one size fits all’ approach to managing wetland and stream buffers. The buffer program was developed to address the limitations that floodplains and mountains place on the city’s geographic expansion. In addition, existing development patterns within the city were seen as incompatible with a standard and prescriptive buffer approach. In order to maintain ecological functions in the aggregate, the program relies on implementation of pre-defined mitigation and restoration actions in specific watersheds to offset impacts of development.

The Ecosystem Buffer Alternative allows property owners to deviate from the standard wetland and stream buffer standards according to a site-specific evaluation that considers the condition of the wetland or stream and other factors. The City identifies a *management zone* that is measured from the edge of the critical area to the nearest paved public street or 200 feet, whichever is less. The management zone encompasses both a minimum buffer and a standard buffer. Property owners are allowed to construct or add impervious surface anywhere within the management zone in exchange for:

- Paying into a Critical Area Management Fund, which is used to fund predefined restoration actions, and
- Implementing specific actions to restore and/or enhance on-site critical area/buffer conditions.

The payment amount is equal to the total square feet of a building footprint and/or impervious surface added to the management zone multiplied by a dollar amount specified in the city code. The dollar amounts in the city code are modified depending on where the construction is located in the management zone, and whether tree canopy is

being removed. The prescriptive mitigation measures are determined by City staff based on site-specific conditions and the type of project proposal.

The City has attempted to make this approach desirable to property owners by ensuring that the total cost (fees paid to the Critical Area Management Fund plus costs associated with restoring smaller *managed* buffers) is at least equal to the value of buildable land added to the project as a result of a narrower regulated buffer.

The Birch Bay watershed contains both semi-urban and rural areas, so there may be challenges in applying a system that was created primarily for a densely developed city. Nevertheless, the concepts of using a tailored buffer system in combination with a targeted mitigation/restoration program are applicable and pertinent to the Birch Bay watershed.

Recommended Implementation Tools for Birch Bay

Consolidated Development Guide: Based on initial analysis, several implementation tools appear to be suitable for application in the Birch Bay watershed. These include low impact development standards and critical areas protection tailored to varied types of development in different areas of the watershed. Such *watershed-specific* development standards could have a range of requirements that are distinct from other areas in the County. For example, some wetlands might have narrower buffers than would be allowed via the existing county-wide critical areas ordinance. Also, the requirement to avoid impacts might be lessened for certain wetlands because there would be greater certainty on the implementation of mitigation measures to compensate for the impacts. Consolidated development standards could include:

- Improved infiltration by using low impact development (LID) tools, including clustering development, minimizing impervious surfaces, maintaining forest patches, re-establishing tree and shrub cover, lengthening discharge routes to the Bay, and restoring and enhancing wetland and stream corridors.
- Protect wildlife habitat by maintaining existing habitat patches with a mixture of vegetation types, clustering development closer to roads, enhancing wildlife connectivity, revegetating stream corridors, restoring forest habitats and wetlands, and developing habitat management plans for large landowners.

The standards could be packaged in a development guidebook that would have specific illustrations of the types of desired development to provide developers and property owners a clear and predictable pathway for compliance. Developers who follow the standards could earn points toward expedited permit review or other tradeoffs. This approach would combine aspects of the Mount Vernon Ecosystem Buffer Alternative and the West Eugene Wetland Plan but would be customized for Birch Bay.

Off-Site Mitigation Program: Another potential tool would be a consolidated mitigation program where the County identifies mitigation sites/projects according to the watershed characterization results and establishes a program (possibly in conjunction with the Puget Sound Partnership, a land trust, or other partner) to impose impact mitigation fees that are used to purchase property, conduct enhancement activities, and maintain sites to improve ecological functions. This type of program could be tied to the Birch Bay-specific development standards in the way that the City of Mount Vernon ties mitigation impact fees to reduced buffer requirements to create a win-win situation.

Impervious Surface Exchange: A third element of the Birch Bay implementation approach could involve creating a market to trade impervious surface or other environmental credits similar to the TRPA and Willamette approaches. The County could set a limit (cap) on impervious coverage based on the watershed characterization results and allow builders that do not use their maximum allotment to sell credits in a special market. Builders that need ‘extra’ impervious area can buy credits. The County or other third party administrator could manage and ‘enforce’ the program. Changes in impervious surface would be monitored over time using aerial photography to assess the program’s effectiveness. This approach appears to be more complex and costly and may not be viable at this time.

Next Steps

The County is in the process of doing comparative analyses to test outcomes with these different approaches. The analyses will consider all of the tools identified as being appropriate for further study (see Table 1). The County will also be conducting additional outreach to key stakeholders to obtain feedback on the merits of these ideas. The results of these analyses will be presented to the watershed residents to assess the level of acceptance before specific standards are developed.

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Table 1. Potential Tools for Implementing Watershed-Based Land Use Management in the Birch Bay Watershed

Tool	Description	Examples	Pros	Cons	Implementation Steps & Considerations
Highly Applicable in Birch Bay and Appropriate for Further Study					
Low-Impact Development Standards	<p>A stormwater strategy that emphasizes conservation and use of existing natural site features (vegetation, soils, etc) integrated with distributed small-scale engineered stormwater controls. Purpose is to closely mimic natural hydrologic patterns in developed settings. Can include requirements and/or voluntary approaches.</p>	<p>Snohomish County, cities of Port Angeles, Fife, and Sammamish, Seattle’s Priority Green Permitting program</p>	<p>Can be more effective (when used appropriately) at mimicking existing hydrologic patterns in terms of water quality, water temperature, and quantity of runoff than standard stormwater techniques.</p> <p>Can help limit construction footprint which reduces environmental impacts.</p> <p>Can allow more efficient use of property than stormwater ponds; cost savings for developers.</p> <p>Could provide aesthetic benefits from installing planted swales, etc. instead of stormwater ponds.</p> <p>Standards could be applied broadly throughout the County.</p>	<p>Application of LID techniques can vary from site to site depending on site conditions (e.g., soil type).</p> <p>Requires outreach and involvement with applicants to make sure that an effective site-specific design is employed.</p> <p>Still a new concept with some unknowns. Some engineers, developers, and contractors may resist if they lack LID experience.</p> <p>Some LID techniques such as infiltration may not be feasible in parts of the watershed because of soil/groundwater conditions.</p> <p>Hard to ensure long-term functionality/ maintenance of private systems (e.g., rain gardens, etc) as property ownerships change.</p> <p>Maintenance of LID system by Public</p>	<p>Develop a reward system that awards points for use of LID techniques. Awards create incentives for using LID that is tied to streamlined permit review.</p> <p>Develop preferred ‘LID templates’ for different areas of the watershed based on results of the watershed characterization technical work.</p> <p>Develop a map of areas where infiltration is feasible. Such areas could be required to incorporate LID. Areas that do not have ideal soil conditions would incorporate other LID techniques.</p> <p>Develop process for measuring/assessing results.</p>

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Highly Applicable in Birch Bay and Appropriate for Further Study					
				<p>Works department may require training and new equipment (e.g., vacuuming porous pavement).</p> <p>Requires separate program for retrofitting existing development.</p>	
Watershed-Specific Development Standards	<p>Development standards that apply only to the Birch Bay Watershed. The regulations vary based on the specific conditions found in Birch Bay. ‘Protection’ subbasins would have more stringent standards than ‘Development’ subbasins, for example. Developers could have option of following existing county wide standards.</p>	<p>Mt. Vernon (‘managed ecosystem alternative’)</p>	<p>Direct relationship to watershed characterization technical work. Regulations would be tailored to existing conditions in each subbasin.</p> <p>Would enable county to expedite development in ‘Development’ subbasins as identified in the watershed characterization technical work.</p> <p>Can integrate other tools (LID, in-lieu fees, etc) into ordinance.</p>	<p>Creates redundancy / overlap with existing code.</p> <p>Property owners may challenge new regulations; therefore, regulations must be based on well-documented science.</p> <p>Would require special standards to address existing development and potential non conformity.</p>	<p>Determine specific protections for different subbasin categories</p> <p>Integrate other tools into the ordinance so regulations are available in one chapter of the County code.</p> <p>Develop process for measuring/assessing results.</p>
Birch Bay Watershed Development Manual	<p>A stand-alone document that consolidates zoning, critical area, subdivision, and stormwater standards for development in the Birch Bay Watershed.</p>	<p>Highlands Lake Watershed Technical Manual for Central Texas and Watershed Ordinance for Archdale, NC</p>	<p>Would be more user-friendly to have all of the development standards consolidated into one document.</p>	<p>Would need to minimize redundancy / overlap with existing standards; could be a large document if it addressed all types of development standards.</p>	<p>Develop one manual to include all tools chosen for implementation.</p>

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Highly Applicable in Birch Bay and Appropriate for Further Study					
Watershed Development Review Board and Design Guidelines	<p>A board made up of community members and professionals in the development, environmental, and scientific fields that review site design layouts, mitigation plans, and restoration projects. Guidelines on site development (e.g., clustered housing, restoration design) would be developed as part of this tool. The board would work with the applicant to ensure consistency with the guidelines.</p>	<p>Design Review Boards in Seattle, Kirkland, Gig Harbor, Sumner, and Pacific County</p>	<p>Establishing guidelines instead of standards would allow for more flexibility which could result in better projects.</p> <p>Could give property owners access to community members with technical skills.</p> <p>Would provide an opportunity for increased community participation in decision-making.</p>	<p>Would only address new development. Does not address impacts caused by existing development.</p> <p>County staff would have to support the development review board, which could increase workload.</p> <p>May increase length and cost of permits for developers.</p>	<p>Develop detailed guidelines to ensure consistency in application. Create process and criteria for approval / denial.</p> <p>Select and empanel board members.</p> <p>Develop process for measuring/assessing results.</p>
In-Lieu Fee (ILF) Program	<p>Program that involves the restoration, creation, enhancement, and/or preservation of natural resources through funds paid to a government, NGO or other authorized third party to satisfy mitigation requirements that can not be accomplished on a development site.</p> <p>The developer has the option to pay the program sponsor to restore, establish, enhance or preserve off-</p>	<p>King County Mitigation Reserves Program, Mt. Vernon, Clark County (cumulative effects fund)</p>	<p>Mitigation / restoration would occur on pre-selected sites suited to long-term sustainability.</p> <p>Areas would be managed by a single entity to improve long-term success.</p> <p>Developers would not be responsible for designing, constructing or monitoring sites, so they would have no long-term mitigation commitments.</p>	<p>Challenging to determine the appropriate fees to charge for different types of impacts.</p> <p>County would be responsible for implementing and monitoring off-site mitigation, increasing staff workload.</p> <p>However, contracting with an NGO would avoid this issue.</p> <p>New impact fees were just imposed in Birch</p>	<p>Could be designed similar to King County program or possibly collaborate with the Puget Sound Partnership, which is in the process of establishing a Puget Sound wide ILF program.</p>

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	<p>site priority areas. Priority areas may have essential locations, sizes or other characteristics important to the watershed. Used only in situations when on-site mitigation for development impacts is not feasible / desirable.</p>			<p>Bay. Adding more fees to development may be politically infeasible.</p> <p>Would only be implemented for new development. Existing impacts would not be addressed.</p> <p>Would require certification similar to a bank if the mitigation is to be eligible for federal and state approval.</p>	
<p>Revised Open Space Taxation Program (OSTP)</p>	<p>Whatcom County’s OSTP allows property owners to have their open space, farm and agricultural, and timber lands valued at their current use rather than at their highest and best use. The County uses a public benefit rating system to determine how much tax credit a property should receive. The program is currently being redefined to take the Growth Management Act into consideration.</p>	<p>King County, Chelan County, Thurston County, Pierce County, (see Applying the public benefit rating system as a watershed action tool by Rubey)</p>	<p>Property owners can receive monetary benefits for protecting their property. Helps reduce development pressure.</p> <p>Can improve protection of privately owned properties without having to wait for development to occur.</p>	<p>May require additional staff resources to monitor properties that receive tax reduction.</p> <p>Current process to receive tax credits is time consuming.</p>	<p>Create / revise criteria that specifically apply to Birch Bay and that simplify approval process.</p>

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Tool	Description	Examples	Pros	Cons	Implementation Steps & Considerations
Less Applicable in Birch Bay, Less Appropriate for Further Study					
Transportation Standards	Road standards that minimize impacts to wildlife through roadway design, wildlife crossings, and siting standards. Standards for road design would address stormwater runoff and vegetation enhancement/retention. Wildlife crossings would help minimize road kill and habitat fragmentation. Siting criteria would prioritize areas more suited for roadway crossings and protect important migration corridors.	Habitat crossings (Florida's Alligator Alley); Amherst, Mass; Banff National Park, Alberta, Canada; WSDOT I-90 and US 97A projects).	<p>Direct relationship to watershed characterization technical work.</p> <p>Could limit future habitat fragmentation and road kills.</p> <p>Could help focus/direct future development in appropriate areas.</p>	<p>Cost of roadway development by County Public Works may increase.</p> <p>Would not address impacts from existing roadways.</p> <p>Would require additional analysis of migration corridors.</p> <p>Would not address bulk of development.</p> <p>May not improve customer service during permitting, a desired outcome by Whatcom County.</p> <p>Wildlife design standards may conflict with county design standards for safety.</p>	<p>Identify primary wildlife corridors and existing roadways that cause impacts on habitat, including fish movement.</p> <p>Develop roadway standards in conjunction with Public Works.</p> <p>Develop process for measuring/assessing results.</p>
Mitigation Bank	Mitigation banks are typically large areas (> 40 acres) created to provide high quality wetland functions. Developments that impact wetlands can compensate for impacts by purchasing credits from an approved mitigation bank managed by a qualified banker. Banks can be	Multiple examples in Snohomish, Skagit, Clark counties and outside the state of Washington. The Lummi Nation is in the process of establishing a bank on the Lummi Reservation.	<p>Would provide flexibility to the developer to mitigate off-site.</p> <p>Mitigation / restoration would occur on pre-selected sites suited to long-term sustainability.</p> <p>Developers would not be responsible for designing, constructing or monitoring sites, so they have no long-term</p>	<p>Formal bank 'certification' is required for mitigation to be accepted by state and/or federal agencies. This would take considerable time and effort.</p> <p>Lummi Tribe is in the process of establishing a mitigation bank. The service area of the bank</p>	<p>Project team can begin the process of establishing a mitigation bank by identifying an appropriate site, receiving preliminary approval from state and federal agencies, and developing a prospectus.</p> <p>This up-front work could entice a private company to purchase property, complete the certification</p>

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Less Applicable in Birch Bay, Less Appropriate for Further Study					
	<p>an alternative to traditional permittee-responsible mitigation.</p>		<p>mitigation obligations.</p> <p>Would consolidate piecemeal mitigation projects into one contiguous, unified ecosystem. May improve habitat quality and wetland functions and create more sustainable systems.</p> <p>Banker would provide assurances for long-term monitoring and maintenance.</p> <p>Could reduce mitigation enforcement burden on County staff.</p> <p>Mitigation would be developed in advance of the impacts, reducing the temporal loss of wetland functions that commonly occurs with traditional mitigation projects.</p>	<p>includes WRIA 1 (Birch Bay included). There may not be enough demand in Whatcom County to justify adding a second mitigation bank.</p> <p>Mitigation would only occur for new development. Existing impacts would not be addressed.</p>	<p>process, and manage the bank.</p> <p>Another possibility would be to work with Lummi Nation to facilitate use of their mitigation bank (if successfully established).</p>
<p>Pre-approved Mitigation Sites (Mitigation Registry)</p>	<p>Consists of a database that identifies and tracks pre-approved off-site mitigation sites for vegetation conservation, stream and ecological function restoration and stormwater management mitigation. The database can be in the form of an online</p>	<p>Clark County has a mitigation marketplace database that pairs developers with mitigation sites that meet specific criteria.</p>	<p>Mitigation / restoration would occur on pre-selected sites suited to long-term sustainability.</p> <p>Could be used to mitigate environmental impacts that are not just limited to wetland areas.</p> <p>Unlike a bank, this approach would not</p>	<p>Initial staff time to identify properties would be high.</p> <p>Developer or other third party mitigation provider would still need to design, construct and monitor the mitigation site.</p> <p>Mitigation would be</p>	<p>Project team can identify appropriate sites for pre-approval and identify mitigation actions needed to generate credits.</p>

Table 1. Potential Tools for Implementing Watershed-Based Land Use Management in the Birch Bay Watershed					
Tool	Description	Examples	Pros	Cons	Implementation Steps & Considerations
Less Applicable in Birch Bay, Less Appropriate for Further Study					
	mapping tool easily searchable by the public. County identifies sites and determines what actions need to be taken on each site to achieve mitigation credit.		require formal certification by federal or state agencies. Could expedite project approval if developer selects pre-approved mitigation sites.	concurrent with impacts, not in advance of impacts. Determining how credits will be earned can be challenging. Property ownership issues would need to be worked out; may require cooperation from a land trust or other non-governmental organization (NGO) to facilitate long-term protection of these sites. Would only be implemented for new development. Existing impacts would not be addressed.	
Conservation Registry	Similar to tool above. A database of conservation projects or sites which are suitable for conservation / restoration. The database can be in the form of an online mapping tool easily searchable by the public.	The Conservation Registry (tracks restoration projects, change in land designations, and monitoring or research projects for sites mainly in Pacific NW)	Would have direct relationship to watershed characterization technical work. Would be accessible to the public. Examples of restoration sites could be viewed online. Tool could be used by private property owners regardless of whether development occurs.	Initial staff time to input existing properties would be high.	Consider using The Conservation Registry instead of creating a new tool.

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Less Applicable in Birch Bay, Less Appropriate for Further Study					
Impact ‘Cap and Trade’ System	<p>A market-based approach that allows developers and landowners to buy and sell environmental impacts. It involves placing a limit or cap on the amount of environmental impacts. For example, a cap can be placed on the amount of new impervious surface. If developers wish to install new impervious surfaces above the cap, they must purchase credit from a landowner that either removes impervious surface from his/her property or sells his/her rights to create new impervious surface. This trade ensures that there is no net increase beyond the established limit.</p>	<p>Bellingham Code (impervious surface credit; incentive based)</p>	<p>Can help reach a sustainable level of development and protection in the watershed.</p> <p>Would apply a monetary value to environmental impacts and protection possibly encouraging developers to avoid impacting or at the very least minimizing the impact.</p> <p>Could improve understanding of how much development the watershed can take without further degradation.</p>	<p>Challenge in establishing the right market conditions to create a viable trading system.</p> <p>Challenge in creating regulations that are not too strong, discouraging developers from going beyond them by using a market system.</p>	<p>Market analysis is needed to determine the appropriate monetary value to apply towards an environmental impact.</p> <p>The trade of environmental benefits/impacts must be measurable, and scientifically backed.</p>
Transfer of Development Rights (TDR)	<p>A form of ‘cap and trade’ that focuses more broadly on development. Involves the voluntary sale of development rights from one property to another. Creates a</p>	<p>King County (environmental protection), Issaquah (environmental protection), Seattle (historic properties, affordable housing)</p>	<p>Could create a monetary incentive for property owners in sending areas to avoid development. May help reduce development pressure on properties. Helps reduce the potential</p>	<p>Development pressure in Birch Bay may not be strong enough to create a viable TDR market. Also, the Birch Bay Watershed has a large amount of area that should be</p>	<p>Market analysis is needed to determine the appropriate monetary value to apply towards an environmental impact.</p>

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Less Applicable in Birch Bay, Less Appropriate for Further Study					
	'receiving' area where development is appropriate and a 'sending' area where environmental preservation is appropriate. For development to occur, a property owner in a receiving area would purchase development rights from a property in a sending area. The property selling their development rights must record a deed restriction limiting the property's development potential.		for sprawl.	preserved. A TDR program could create more available development rights than the market could absorb. Would only be implemented when new development occurs. Does not address development that has already occurred.	
Local Awards Program	A local awards program would recognize development projects that use environmentally sensitive or energy efficient designs or property owners that help preserve, restore, or enhance their property	SeaGreen (Seattle), Community Pride Design Awards (Clark County), Green Globe Awards (King County), and Vision 2040 (PSRC)	Incentive-based program that would promote more sustainable development.	If developers do not see any benefit from the award then they are unlikely to use it. National awards (e.g., LEED) may be more attractive for developers than local awards.	Should consult developers on how to effectively help them market this approach. Community education of program is key to ensuring success.