

STAFF REPORT

**OFF-SITE WETLAND MITIGATION
PROGRAM FOR TUKWILA**



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EXECUTIVE SUMMARY

Introduction

In an effort to address the increasing pressure for development in Tukwila on properties that have wetlands, staff is proposing a program for off-site wetland mitigation when on-site alternatives are not adequate. The program has been conceived as a way to help facilitate development, particularly for small developers, while at the same time providing an innovative mechanism for mitigating wetland impacts. It could be beneficial environmentally, by directing mitigation for many small wetland losses to larger or more highly functioning sites.

This report summarizes the key points of a study carried out by staff, with the support of a wetland consultant. It also establishes program objectives and components, presents conceptual mitigation plans for selected sites on city-owned properties, and identifies the next steps necessary for implementing the program.

Regulatory and Planning Context

As part of the study, staff analyzed the regulatory and planning context related to wetland mitigation. Tukwila's Sensitive Areas Ordinance (TMC18.45) establishes mitigation sequencing that first requires avoidance of wetland impacts, then minimization of impacts, and finally compensation through mitigation. It allows for off-site mitigation under certain circumstances. The proposed program respects the intent of the ordinance.

The US Army Corps of Engineers and Department of Ecology also regulate wetland impacts, but the Corps does not have jurisdiction over isolated wetlands (those not "connected" hydrologically to waters of the United States). The proposed program would be limited, at least initially, to wetlands not regulated by the Corps.

Tukwila's commitment to implementing the WRIA 9 Salmon Enhancement Plan is also an important consideration when thinking about off-site wetland mitigation, as some wetland mitigation projects could be directed to also enhancing salmon habitat, thus achieving some of the objectives of the plan.

Alternative Wetland Mitigation Management Approaches

Staff evaluated three alternative wetland mitigation management instruments that could be used to implement the program:

- 1) Alternative 1: wetland banking;
- 2) Alternative 2: consolidated mitigation at designated sites; and
- 3) Alternative 3: in-lieu fee program

Wetland banking (Alternative 1) would require the City to implement mitigation up front at a designated site and later “sell” credits to developers that need to do off-site wetland mitigation. This approach would require a complicated and lengthy authorization process with the Corps of Engineers and the Department of Ecology.

Consolidated mitigation (Alternative 2) would be an informal program that directs off-site mitigation to designated sites (both City-owned and privately-owned properties), but the mitigation would be carried out by the developer under City supervision.

An in-lieu fee program (Alternative 3) would establish fees to be charged to developers in-lieu of them carrying out wetland mitigation. The City would then use the fees to implement a mitigation plan and to conduct ongoing monitoring and maintenance.

The following table summarizes the advantages and disadvantages of each approach.

Instrument	Advantages	Disadvantages	Comments
Wetland Mitigation Bank	<p>Consolidates mitigation for greater environmental benefit</p> <p>Mitigation in advance, ensures success, no lag between impact and mitigation</p>	<p>Difficult and lengthy process for set-up</p> <p>City (or other sponsor) would have to fund mitigation up-front</p> <p>Risk of not being able to sell credits/recoup investment</p>	<p>No suitable city-owned sites available</p>
Consolidated mitigation at designated sites (city and privately-owned sites)	<p>Consolidates mitigation for greater environmental benefit</p> <p>Applicants would prepare and carry out detailed mitigation plans under City oversight</p> <p>Minimal lag time between impact and mitigation</p> <p>Potential for coordinating with WRIA 9 projects</p>	<p>Potential adverse environmental impacts to some existing wetlands due to repeated interventions over time</p>	<p>Not as feasible for Macadam or Green River sites unless a proposed project needed a medium to large site for mitigation.</p> <p>Actual availability over time of privately owned sites is uncertain</p>
In-lieu fee program at designated sites	<p>Could consolidate mitigation for greater environmental benefit</p> <p>Mitigation would be entirely under City control</p> <p>Would allow for fees to be contributed towards WRIA 9 projects with wetland components</p>	<p>Possible long period between when impact occurs and mitigation takes place</p> <p>Risk of not receiving enough fees to carry out a full mitigation or long-term maintenance</p> <p>Risk of cost overruns that would have to be borne by City</p>	<p>Modification to TMC 18.45 needed</p> <p>Sufficient staff needed to implement (contracting, construction oversight, monitoring, long-term maintenance)</p>

Identification of Potential Wetland Mitigation Sites on City-Owned Land

Staff mapped all City-owned sites and overlaid this information on the Sensitive Areas Map to determine possible locations suitable for wetland creation or enhancement. Criteria were applied for evaluating the sites and Public Works, the Fire Department, and the Parks and Recreation Department were consulted in the process to ensure that there were no conflicts with future proposed uses of the sites.

The results of the analysis of available sites for wetland mitigation indicate that:

- feasible sites do not exist for every sub-basin where there is potential demand;
- it will not be possible to achieve “in-kind” mitigation in every case (i.e. to match wetland classifications between the wetlands impacted and the wetland sites to be used for mitigation); and
- Tukwila suffers from a shortage of suitable areas on City-owned land (and in general) and there are no large amounts of contiguous acreage that would be suitable as a large bank or mitigation site.

As a result of this effort, three sites were initially identified for preparation of conceptual mitigation plans:

- 1) Macadam wetlands, located on the east side of Macadam Road and just south of S. 144th (mostly south of the proposed Winter Garden). A small amount of wetland creation and considerable wetland enhancement would be possible at this site and would also complement the Winter Garden project. Buffers would not be extended any further on to private property.
- 2) Fire Station 53 (undeveloped portion), located 4202 S. 115th, behind the fire station. This site presents opportunities for wetland enhancement and a small amount of creation, without causing buffers to be expanded.
- 3) A site on the Green River, located adjacent to and north of the Riverview Plaza development, and across the river from the Best Western Hotel. The site has an upper and lower bicycle trail managed by the Parks Department. The lower trail periodically floods during high water. The site presents an opportunity for wetland creation along the river (while leaving the upper trail in place) that would also provide off-channel salmon habitat. An access point for boat launching could also be incorporated into the project.

Additional city-owned sites, such as Tukwila Pond, could be candidates for off-site mitigation in the future.

Potential Wetland Mitigation Sites on Private Property

Off-site wetland mitigation on private properties is allowed under the Sensitive Areas Ordinance and is already an established practice in Tukwila. However, with the idea of helping to facilitate off-site mitigation, especially for small developments, staff researched the availability of privately-owned sites in Tukwila. The idea would be to serve as a matchmaker between developers needing mitigation sites and property owners interested in making their sites available for mitigation. Negotiations regarding financial compensation and easements would be between the property owner and the developer.

We identified potential wetland mitigation sites on privately-owned properties using the same process and criteria that were used for identifying city-owned sites and began contacting the property owners to see if they would be interested in the program. Staff has been unable to reach all of the property owners as of this writing, but some interest by has been expressed those reached.

Recommended Approach

Staff recommends the consolidated mitigation approach, using designated City or privately-owned properties, but requiring that the developer be responsible for preparation and implementation of detailed mitigation plans under the City's oversight.

The consolidated mitigation approach could work well at Fire Station 53, where there are separate, well-defined small sections of the site that could be mitigated by different applicants at different times.

The Macadam site would best accommodate one or two large projects to avoid repeated interventions into the wetland. Smaller projects are not out of the question, but this would require very careful planning and coordination to accommodate small projects.

The Green River site would be better suited to large projects (such as a WSDOT or Sound Transit project), where a one-time intervention would be preferable due to costs and to minimize negative impacts.

The consolidated approach could lend itself to supporting WRIA 9 projects in some circumstances, where a WRIA 9 project is underway or close to starting up, and an applicant could provide part of the restoration as mitigation (such as purchasing plants, planting, or some other discrete task related to the restoration project).

In order to implement the proposed plan staff is seeking CAP Committee approval of program and a Council resolution approving the use of City properties for wetland mitigation under the program and establishing criteria for determining fees on a case-by-case basis.

1. INTRODUCTION AND BACKGROUND

As available land becomes more and more scarce in Tukwila, we are starting to see an increase in proposals for development on properties with wetlands. Often, these are small sites that would be denied use of their property because of the percentage of wetland on the site.

Although the Sensitive Areas Ordinance establishes a preference for on-site mitigation of wetland impacts, it is often not technically or environmentally feasible to carry out mitigation on-site, particularly on small sites. In such situations, requiring on-site wetland mitigation could result in smaller and smaller fragments of wetlands with inadequate buffers to protect them.

Staff has been working on an approach for off-site wetland mitigation. The proposed program is presented in this report. It has been conceived as a way to provide an alternative mitigation mechanism and is aimed primarily at small property owners.

Such a program could be beneficial for environmental reasons, in addition to facilitating development. Much of the remaining wetland in Tukwila consists of small, hydrologically isolated wetlands that are degraded and disconnected from surrounding natural areas. Although these wetlands provide some functions, their small size and isolation significantly limit those functions. An innovative mitigation approach to allow off-site mitigation of unavoidable impacts to these wetlands could result in some creation of new wetland areas and improvement of wetland functions in other, more suitable locations in the city.

We are proposing a program to allow for consolidated wetland mitigation, based on a study carried out by staff during 2005 and early 2006. A wetland consultant, Adolfson Associates, Inc., was hired in 2005 to provide some technical support for the work.

This report summarizes the key points of the study, establishes objectives and program components, presents conceptual mitigation plans for selected sites, and identifies the next steps necessary in carrying out the program.

2. OBJECTIVES AND RATIONALE OF THE PROPOSED PROGRAM

The objective of the proposal is to establish a program that provides a flexible mechanism to allow for consolidated off-site wetland mitigation in situations where small wetland fills cannot be avoided on a property, and where on-site mitigation is not practical. The program would provide a network of city-owned and possibly some privately-owned sites. It would also provide a management instrument for wetland compensation on city property, with the goal of consolidating wetland compensation or restoration actions into

larger, less isolated and/or higher functioning sites. The goal would be to achieve no net loss of wetland and/or an increase in wetland functions.

This program is not intended to alter the mitigation sequencing requirement in TMC 18.45.090 C, which states that applicants must demonstrate that reasonable efforts have been made to avoid and minimize impacts. Only after it is demonstrated that on-site mitigation is not practicable or would result in a net wetland loss or a net loss in wetland function, would off-site mitigation under this program be considered.

Properties eligible to participate in the program would be limited to those where wetland fills are not regulated by the US Army Corps of Engineers – i.e. isolated wetlands (those that are not hydrologically connected to other wetlands or to watercourses). Both private and public projects would be eligible to participate in the program – including projects carried out by Public Works.

Benefits of such a program include:

- Consolidating mitigation for many small losses in larger sites can be more environmentally beneficial than traditional piecemeal on-site compensatory mitigation;
- Selected mitigation sites can be more efficiently monitored than numerous smaller sites, providing some economies of scale with respect to staff oversight and monitoring.
- The wetland resources on city-owned property can be protected in perpetuity;
- Some wetland mitigation projects could work hand in hand with Parks and Recreation Department projects;
- Some mitigation could be directed to the Green/Duwamish River in support of WRIA 9 goals; and

3. ANALYSIS OF REGULATORY AND PLANNING CONTEXT

This section of the memorandum summarizes the regulations, policies, and plans that affect development in wetlands and establish requirements for compensation of adverse wetland impacts, including off-site mitigation. They include Tukwila's zoning ordinance, Corps of Engineers and Department of Ecology authority, and the policies established in the recently adopted WRIA 9 Salmon Habitat Enhancement Plan.

3.1 Tukwila Comprehensive Land Use Plan

The Tukwila Comprehensive Land Use Plan – Policy 4.1.8, allows off-site wetland and flood control mitigation. The policy is:

“Allow off-site wetland and flood control mitigation where there is an equivalent benefit within the affected basin, no significant adverse impact to the adjacent property, and where it may be combined with City-sponsored programs.”

3.2 Tukwila Sensitive Areas Ordinance

The Sensitive Areas Ordinance (18.45.090 B) establishes that alterations to wetlands must be limited to the minimum necessary for project feasibility. Alterations may only be approved if they will not adversely affect water quality; fish, wildlife or their habitat; storm drainage or detention capacities; other properties; other sensitive areas or cause erosion hazards or slope instability. TMC 18.45.090 C establishes mitigation sequencing to ensure that all reasonable efforts have been made to avoid and minimize adverse impacts to wetlands. When an alteration to a wetland is proposed the following preference of actions (mitigation sequencing) is required:

- (a) Avoidance by relocating proposed activities or finding a different site;
- (b) Minimizing impacts by limiting degree of impact; and
- (c) Compensation through restoration of wetlands on upland sites, enhancement of significantly degraded wetlands, and finally, creating wetlands on disturbed upland sites.

TMC 18.45.090E allows for off-site mitigation under certain circumstances when:

- (a) On-site mitigation is not scientifically feasible due to problems with hydrology, soils, waves or other factors; or
- (b) Mitigation is not practical due to potentially adverse impact from surrounding land uses; or

- (c) Existing functional values created at the site of the proposed restoration are significantly greater than lost wetland values; or
- (d) Established regional goals for flood storage, flood conveyance, habitat or other wetland functions have been established and strongly justify location of mitigation at another site.

The ordinance further states that mitigation shall occur within the same watershed where the wetland loss occurred and that mitigation sites located within Tukwila City limits are preferred. The Director may approve mitigation sites in other jurisdictions if certain conditions are met that guarantee that the mitigation site will receive long-term protection.

Type 1 wetlands cannot be altered except for certain specific permitted uses. Type 2 wetlands cannot be altered except for certain specific permitted uses and except where the location or configuration provides practical difficulties that can be resolved by modifying up to 0.10 acre of wetland. For these wetlands, mitigation must be contiguous to the impacted wetland, thus no off-site mitigation would be allowed, except, perhaps, under a reasonable use exception. However, under a reasonable use application, it is possible that off-site mitigation would be necessary for Type 1 and 2 wetlands.

To summarize, the existing Sensitive Areas Ordinance allows for off-site mitigation of wetland impacts that affect Type 3 wetlands.

3.4 Corps of Engineers and Department of Ecology Regulatory Authority

The Corps of Engineers regulates dredging and filling of wetlands, except those that are determined to be isolated. The determination of whether a wetland is isolated is to be made by the Corps of Engineers through a jurisdictional determination.

Filling of wetlands that are not isolated are subject to Corps jurisdiction even if they are small fills. Small fills are generally managed under nationwide permits, which simply require notification by the applicant.

The Department of Ecology regulates all wetlands, including isolated wetlands. Ecology's authority over wetlands is through Section 401 of the Clean Water Act. In the case of an isolated wetland, Ecology issues an administrative order regarding alterations to the wetland. Thus, Ecology would have a role in approving all wetland filling and mitigation that occurs in Tukwila, be it for isolated or non-isolated wetlands.

The Corps and Ecology also regulate the establishment of wetland mitigation banks, which are sites established for wetland creation/restoration/enhancement where mitigation is carried out in advance for future projects and the acreage of mitigated wetland is converted into credits which can be used to offset future wetland impacts (see

Section 4.2 for a more detailed discussion of wetland banks and the rules that govern them). In addition to the establishment of wetland banks, both the Corps and Ecology have supported alternative wetland mitigation management instruments, including consolidated mitigation at designated sites and in-lieu fee programs.

Both the Department of Ecology and the Corps would have to approve use of existing wetlands for enhancement projects in non-isolated wetlands that are identified as mitigation sites. Ecology would have to approve enhancement for existing, isolated wetlands used as mitigation sites.

Staff has consulted with Ecology on these issues but further coordination will be needed both with the Corps of Engineers and Ecology if this proposed wetland mitigation program is to be implemented.

3.5 WRIA 9 Plan

As a party to the WRIA 9 Salmon Enhancement Plan, Tukwila has agreed to support and help implement several policies, programs and specific projects related to the enhancement of salmon habitat. A wetland mitigation program could play a role in carrying out some of Tukwila's responsibilities for the plan implementation. The policies generally related to wetland mitigation are:

Policy IN1: "Local governments shall encourage activities within the designated land uses of WRIA 9 that: maintain, restore, and rehabilitate natural watershed and ecological processes; facilitate the expansion of refugia; and enhance connectivity between refugia"

Policy IN4: "Support new and existing incentives to protect salmon habitat, including mitigation banking....".

Policy IN6: "Local governments should evaluate shorelines and critical areas under public ownership prior to sale or exchange in light of WRIA 9 salmon habitat priorities."

Policy I16: "An appropriate level of mitigation funding should be re-directed (either on-site or off-site, whichever is applicable) toward Habitat Plan priority actions in the distinct habitats outlined".... (including Duwamish Estuary transition zone habitat and Lower Green River rearing and spawning habitat).

This last policy suggests that local jurisdictions should, direct some off-site mitigation activities to enhancement projects along the river.

A number of specific restoration projects, located in Tukwila, have been identified in the WRIA 9 plan for the Duwamish Estuary and the Lower Green River. Many of the

projects are general in nature and depend on the willingness of private landowners to sell or otherwise make available their property abutting the river. Many of the projects that have elements of riparian wetland restoration could potentially be used as off-site mitigation sites to compensate for wetland impacts elsewhere in Tukwila. The projects in the WRIA 9 plan are shown in Appendix A along with a brief analysis of their suitability as wetland mitigation sites.

4. ALTERNATIVE WETLAND MITIGATION MANAGEMENT APPROACHES AND INSTRUMENTS EVALUATED

There are several ways that a wetland mitigation program could be set up and managed in Tukwila. The goal of any of the alternatives would be to achieve no net loss of wetland or wetland function and to provide in-kind mitigation at larger and/or higher functioning wetland sites wherever possible.

In some cases in-kind mitigation is not always possible or desirable. These situations involve resource trade-offs. Resource trade-offs occur when losses of a certain type of habitat are not replaced in-kind, but are replaced with other types of habitat creation or restoration. Normally, under state and local policies of no net loss of wetland or wetland functions, the goal is to replace wetlands or their functions through creation, restoration or enhancement of other wetlands. In some cases, however, compensation of wetland losses through non-wetland mitigation can be justified and approved by the regulatory agencies. An example cited by Ecology is riparian restoration when the functions provided by those resources are limiting or are critical for restoring the health and function in a watershed. An example for Tukwila would be allowing compensation for wetland impacts to be applied to salmon habitat enhancement projects that don't necessarily involve wetland creation or restoration.

The potential wetland mitigation management instruments that staff evaluated, with the assistance of Adolphson and Associates are:

- 1) providing for consolidated mitigation at designated sites;
- 2) establishing sites as formal mitigation banks; and
- 3) establishing a fee-in-lieu of mitigation program that would allow the city to use the fees in future wetland creation and/or enhancement.

Each of these instruments is discussed in more detail below.

4.1 Consolidated Mitigation at Designated Mitigation Sites

This approach would direct wetland compensation projects to an area (or areas) previously identified as desirable for restoration or additional wetland creation. Staff has explored two approaches: 1) identification and evaluation of potential sites that are in city ownership and 2) identification of potential privately-owned sites that could be used for various mitigation projects.

The first approach would involve establishing sites in city ownership or identifying potential easements that could be used as mitigation sites for impacts from projects where on-site mitigation is not feasible. The City would establish overall mitigation goals for the site(s) and as projects needing compensation occur, the City could direct the applicant(s) to develop and carry out a mitigation plan at the designated site, depending on each applicant's requirements for compensation.

A variation on this approach would be to designate specific sites for which a conceptual mitigation plan has been prepared by the City and where the plan allows for phased mitigation. Under this approach, different phases could be carried out by different applicants, depending on how much compensation each would be required to provide. The mitigation plan would need to be designed in such a way as to minimize potentially recurring impacts to the remainder of the wetland as mitigation projects are carried out.

The second approach would involve identification of privately-owned sites that could be used for wetland mitigation, where the city would function to match the sites with developers needing locations for carrying out off-site mitigation. Under this approach, private owners could negotiate fees for use of their property for mitigation (through easements) and the developers would be responsible for carrying out the basic wetland studies and for preparing and implementing mitigation plans as approved by the City.

The advantage of either or both of these consolidated wetland mitigation approaches is that they can allow wetland creation in desirable areas or the enhancement of larger or more valuable wetlands in a consolidated manner, instead of many small, individual wetland compensation projects in scattered locations. It would make the applicants responsible for implementation and not the City, although the City would eventually become responsible for ongoing maintenance and monitoring on city-owned sites. Another advantage is that there would not necessarily be a time lag between when wetland impacts occur and when mitigation is carried out.

The risks of this approach relate to the timing and staging of mitigation and the potential negative impacts that could result. That is, different mitigation projects with different acreage requirements carried out at different times would mean repeated disruptions to the wetland area being mitigated and could result in this approach not being feasible from an environmental or technical perspective.

The consolidated mitigation approach, where applicants carry out mitigation off-site, has been used successfully to some extent in Washington. An example is the Mill Creek Area in Auburn where several very large wetland compensation projects have been performed by private developers in response to the area being designated as a preferred restoration area. According to the Department of Ecology this approach has also been used in Kitsap County in a designated watershed and in the Willapa Bay watershed under an agreement with WSDOT.

In addition to the costs incurred by the applicant for detailed design and implementation of the wetland compensation, applicants could be charged a fee for the right to use City-owned property. Alternatively, the applicant could carry out additional enhancement work as an in-kind contribution in lieu of paying the fee.

Staff's interpretation of Tukwila's Sensitive Areas Ordinance is that carrying out a wetland mitigation program under this instrument would not require an amendment to TMC 18.45.

4.2 Mitigation Banking

Mitigation banks usually involve the consolidation of many small wetland mitigation projects into one larger, more ecologically valuable mitigation area. They are formal instruments that require permitting from the federal and state government.

The federal definition of a wetland mitigation bank is:

Wetland restoration, creation, enhancement, and in exceptional circumstances, preservation undertaken expressly for the purpose of compensating for unavoidable wetland losses in advance of development actions, when such compensation cannot be achieved at the development site or would not be as environmentally beneficial. It typically involves the consolidation of small, fragmented wetland mitigation projects into one large contiguous site. Units of restored, created, enhanced or preserved wetlands are expressed as "credits" which may subsequently be withdrawn to offset "debits" incurred at a project development site.¹

Wetland mitigation banks establish "credits" related to the values the wetland provides. As development projects with unavoidable wetland impacts and need for off-site mitigation are permitted, credits equivalent to the estimated unavoidable losses are withdrawn or purchased by the applicant. As withdrawals/purchases of credits continue over time, the bank credits are eventually exhausted.

¹ *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks* Federal Register: November 28, 1995 (Volume 60, Number 228) Pages 58605-58614

The benefits of wetland mitigation banking include the possibility of achieving a cost-effective mitigation and reducing uncertainty and delays for qualified projects. Also, because wetlands in the banks are restored and become functional in advance of project impacts, the success of the compensation can be ensured and the temporal losses of wetland values that occur during or after the development impacts can be eliminated or reduced.

An important consideration to keep in mind with regard to mitigation banking is that the construction/restoration of the wetland bank must be done in advance by the wetland bank sponsor. So if Tukwila were to choose to establish a mitigation bank, the resources would need to be available up-front to complete the mitigation. Another important consideration is that establishment of a wetland mitigation bank requires state and federal approval. Federal guidance² requires that a prospectus be submitted to the Corps of Engineers to begin the process of establishing a bank. A banking instrument (a document that details the physical characteristics, legal obligations, operational procedures, monitoring, and maintenance requirements) must be developed by a bank sponsor (the agency or company that wants to set up the bank) and approved by an interagency Mitigation Bank Review Team (MBRT).

Draft regulations have been published in Washington for wetland mitigation banking. They are being “tested” currently through several pilot projects with Department of Ecology. These draft regulations would be applicable if Tukwila were to pursue a mitigation bank. The Ecology regulations are similar to the federal guidelines in that they require that wetland banks be certified by a MBRT. One bank in Snohomish County was recently inaugurated under this demonstration program and is being operated by a private company. It consists of 225 acres. Other banks proposed include two in Skagit County of 311 and 260 acres, one in Moses Lake of 11.3 acres, and one in Stevens County of 11 acres.

A variation of wetland mitigation banking that has been used frequently is “programmed wetland compensation”, which is a type of mitigation bank developed for the exclusive use of one entity such as a highway department or a port authority. These sites are used for mitigating future wetland impacts expected to be caused by the agency’s own infrastructure development and they are not established as a for profit endeavor. Examples in Washington State include a WSDOT operated site in Moses Lake that is under a memorandum of agreement with Corps, USFWS, Ecology, Moses Lake and others. WSDOT took on the responsibility of restoring/enhancing an existing degraded wetland, owned by the City, as compensation for being unable to avoid wetland impacts (or mitigate on site) for future highway projects in the basin. Another example is a mitigation bank established by and for Paine Field for impacts related to construction at the airport.

² Federal Guidance for the Establishment, Use and Operation of Mitigation Banks, Federal Register, Nov. 28, 1995.

King County has several mitigation banks in operation and began with one developed for the County's own use on the Sammamish Plateau for mitigating impacts to public works road projects. There are some private sector mitigation banks already established in the state, where private owners sell credits to parties needing locations for off-site mitigation of wetland impacts.

The City of Eugene, Oregon operates a large complex of wetlands (over 1,000 acres) as a mitigation bank that sells credits for various public and private projects. Some privately owned and operated mitigation banks also exist in the Puget Sound region. There are no wetland banks in Tukwila or the immediate vicinity, but a bank is under development in Renton (the Springbrook wetland mitigation bank). It is being created by WSDOT for mitigation of highway construction impacts. Credits not needed by WSDOT will be used or sold by the City of Renton for mitigation of other projects.

Staff research into existing wetland mitigation banks in the Pacific Northwest revealed that most wetland banks:

- 1) involve very large parcels where wetland can be created or restored;
- 2) are in less urbanized areas than Tukwila; and
- 3) are most often established and operated by a large public infrastructure agency with experience in doing so (such as a highway department or airport authority).

Because Tukwila doesn't have any large city-owned sites suitable for wetland creation or restoration, it is unlikely that an agency like WSDOT would be interested in sponsoring a wetland bank here on City-owned property.

Creation of wetland mitigation banks in Tukwila would require an amendment to TMC 18.45.

4.3 In-Lieu Fee Mitigation

Another tool available for wetland mitigation programs is the "in-lieu fee" instrument whereby the applicant would be required to pay a fee to a third party (in this case the City) as compensation for permitted impacts, instead of conducting project-specific mitigation. The idea would be that the City could use the collected funds for larger wetland projects in the future when sufficient funds are accumulated.

Advantages to this approach include:

- The local jurisdiction would have full control over the mitigation, thereby better ensuring its success, since applicant-provided mitigation often fails; and
- The cumulative impacts of minor projects could be offset to a greater extent than for mitigation for small wetland fills carried out on a piecemeal basis in isolated, low functioning wetlands.

One big drawback to in-lieu fee programs is that mitigation is not done in advance of when the impact occurs and considerable time might pass between when a wetland was filled and when mitigation takes place. There may be no way to shorten this time lag.

A problem that has been detected in researching other in-lieu fee programs is that the revenue paid to local jurisdictions "in lieu" of mitigation has not always been spent on creating or restoring wetlands. In some cases, fees have been used for projects other than wetland mitigation. In others, fees have been accumulated and not been used at all. Therefore, the standard of "no net loss" of wetlands can be compromised when in-lieu fees are not spent on replacing lost wetlands.

To help avoid these problems an in-lieu program could identify specific mitigation site(s) where the funds must be used and a mitigation plan and cost estimates could be pre-established indicating where and how funds would be applied. An ordinance could place limits on the use of the funds.

The fees the applicant must pay into the fund if on-site mitigation is not feasible should include costs related to development of detailed mitigation design, contract preparation, construction and construction oversight of mitigation, and long-term monitoring and maintenance of the mitigated site. Fees could also include an amount for use of City-owned property and some type of inflation factor to allow for increases in the costs of wetland work done at a future date.

A risk associated with the in-lieu fee approach is related to "demand" for off-site wetland mitigation sites. If demand is low, sufficient funds may not be accumulated to carry out full wetland creation or restoration at a designated site. However, portions of a plan could be carried out.

Another potential risk is that if fees are perceived to be high, applicants may prefer to request reasonable use exemptions, where applicable, by filling a portion of a wetland and enhancing the remaining degraded wetland on the site. This would result in a net loss of wetlands and potentially only a short-term gain in wetland functions if the property owner does not maintain the wetland. This approach would end up maintaining a system of scattered isolated and even smaller wetlands. Depending on the wetland function being provided at each site this may or may not be a desirable outcome. A way

around this would be that under some circumstances, when it can be shown that off-site mitigation provides better wetland function, applicants be required to provide off-site mitigation rather than enhancement of the remaining wetland on the site.

Another disadvantage or potential difficulty related to implementing an in-lieu fee program is that the City would be taking on all the risk of ensuring that mitigation is effective. Also, the City would be responsible for contracting and contract supervision. In addition, if costs were to rise much higher than whatever inflation factor was incorporated into the fee, the City could potentially have to make up the difference in order to complete a mitigation and/or to ensure the availability of staff to carry out construction oversight, monitoring, and maintenance.

Creating an in-lieu fee program would require an amendment to TMC 18.45.

5. ESTIMATE OF “DEMAND”

Since TMC 18.45 prohibits alterations in Type 1 wetlands and provides that any alterations allowed in Type 2 wetlands (up to 0.10 acres) must be contiguous to the impacted wetland (unless the developer applied for a reasonable use exemption), these types of wetlands were excluded from consideration for estimating “demand” for off-site mitigation.

Using the Sensitive Areas Ordinance map and the County Assessor’s data, staff identified the approximate acreage of wetlands on private property of all Type 3 wetlands (those less than 1 acre and with two or fewer wetland classes). Tukwila’s Type 3 wetlands are generally isolated and have low wetland functions and may be altered with permission of the Director. A copy of the map generated as a result of this process is provided in Appendix B.

A worst case estimate was developed using the assumption that no on-site mitigation of the Type 3 wetlands was feasible and that all these wetlands would be 100% filled on residential, commercial and industrial zoned sites, as well as private rights-of-way. This would bring the total worst case “demand” for alterations to Type 3 wetlands to approximately 11.44 acres.

This acreage would be multiplied by the appropriate mitigation ratio stipulated in TMC 18.45.090 D – 1.5:1 for creation or restoration and 3:1 for enhancement. So to meet the worst case demand, if applicants wanted to use City-owned sites for off-site mitigation, the City would need between 17.16 acres (if all mitigation was for creation/restoration) and 34.32 acres (if all mitigation was for enhancement) of available acreage.

Staff did not include the potential demand for wetland filling due to Public Works projects because it was not possible to determine at this time. This is not to say that these

types of projects would not have access to any mitigation sites established by this program.

Staff divided the estimated worst-case demand by sub-basins in order to determine if demand could be met with available mitigation acreage within each sub-basin. The largest demand may be in the Gilliam Creek sub-basin (about 6.8 acres), followed by the P-17 sub-basin (3.1 acres) and then Southgate Creek sub-basin (1.2 acres). No Type 3 wetlands exist on private property in the Nelson Place/Longacres or the Southeast CBD sub-basins.

6. IDENTIFICATION AND EVALUATION OF AVAILABLE MITIGATION SITES ON CITY-OWNED LAND

As an initial attempt to identify potential sites available for wetland mitigation under this program, only currently city-owned properties were considered. Staff mapped and conducted the initial analysis of all the currently City-owned properties (identified from King County property files) and overlaid this information on the Sensitive Areas map. A copy of the map is provided in Appendix C.

A determination was made regarding each site's feasibility for wetland creation, restoration, or enhancement. The criteria used for evaluating feasibility were:

- Hydrology (as demonstrated by presence of existing wetland, or proximity to stream or river);
- Extent of isolation versus connectivity of site to other wetlands, streams, wildlife corridors, vegetated areas, parks;
- Potential conflicts with the City's future development plans;
- Size;
- Accessibility for achieving enhancement of existing wetlands or creation of new wetland; and
- Geographic location by sub-watershed (in an attempt to locate potential mitigation sites for every sub-watershed where there could be demand).

Those sites that were extremely small, had no habitat connectivity and had no obvious hydrology were immediately eliminated from consideration. City-owned sites that had already been restored as part of required mitigation or current federally-funded salmon enhancement projects were also eliminated from further consideration (the Codiga site, the Cecil B. Moses park site, and the North Winds Weir site).

Public Works, Parks and Recreation and the Fire Department were consulted to discuss potential conflicts with the preliminary list of sites and to identify additional sites based on their specialized knowledge.

Staff conducted field visits to the sites and from this effort a short list of sites was developed. Feasibility was further assessed by Adolfson Associates, the consultant hired to assist with this project. Sites considered but eliminated from further consideration are shown in Appendix D, with the explanation of why they were eliminated from consideration at this time.

The results of the analysis of available sites for wetland mitigation indicate that:

- feasible sites do not exist for every sub-basin where there is potential demand
- it will not be possible to achieve “in-kind” mitigation in every case (i.e. to match wetland classifications between the wetlands impacted and the wetland sites to be used for mitigation)
- Tukwila suffers from a shortage of suitable areas on City-owned land (and in general) and there are no large amounts of contiguous acreage that would be suitable as a large bank or mitigation site.

Based on the feasibility evaluation and the consultant’s review of staff conclusions, three sites were selected for the development of initial conceptual mitigation plans and cost estimates. The cost estimates will help provide the basis for assessing the fees to applicants for an in-lieu of mitigation program or other instrument.

The three sites are Macadam wetlands, Fire Station 53, and a site on the Green River. Site locations are shown in the map in Figure 1. A brief description of each site is provided below along with an assessment of the potential mitigation opportunities and estimated costs for wetland creation or wetland enhancement.

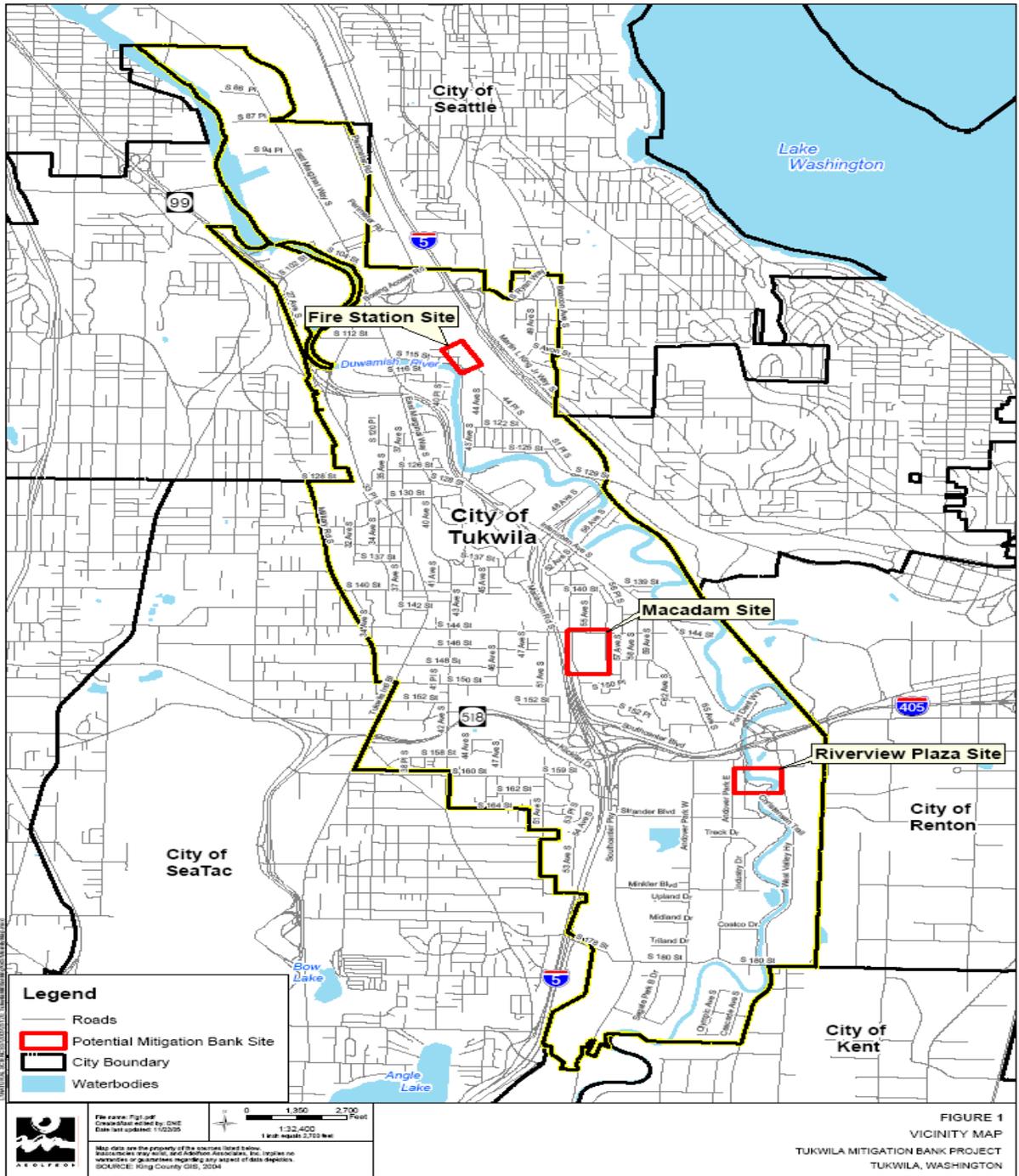


Figure 1. Map showing City-owned sites selected for initial development of conceptual wetland mitigation plans

6.1 Macadam Wetlands

This site is located on the east side of Macadam Road and south of S.144th Street. The wetlands are just south and east of the proposed Winter Garden. Figure 2 shows an aerial view of the City-owned portions of the wetland with existing buffers.

The site consists of a series of five city-owned parcels and one utility easement, totaling approximately 10-acres. The site supports undeveloped forest, shrub, and emergent habitat. A single-family residence and associated landscaping occupies the southwest corner of the southernmost parcel.

Most of the 10-acre site is occupied by a large wetland (Figure 3) that contains primarily shrub and wetland grass habitat types. The dominant plants in the wetland are Douglas' spirea, Himalayan blackberry, and reed canarygrass, with some red alder and black cottonwood trees along the perimeter. There is a small area of open water that can be seen in Figure 3. The wetland is classified as a Type 1 wetland under Tukwila's Sensitive Areas Ordinance. The entire Type 1 wetland, which extends off site to the east and south, covers about 5.85 acres. Approximately 4.71 acres of this wetland occurs on City-owned parcels.

Additionally, a small (approximately 0.02 acres) Type 3 wetland is located just north of the large Type 1 wetland (see Figure 4).

Assuming that the Winter Garden will be created, and therefore, excluding that area from the assessment, mitigation opportunities at the Macadam site include:

- Creation of additional wetland along the east, north (between the northern edge of the Type 1 wetland and the Type 3 wetland) and on the southwest side of the existing Type 1 wetland, by excavating fill materials and planting with appropriate plants. The total creation opportunity here is approximately 0.37 acres, which would still allow for a 100-foot buffer, without additionally impacting existing residences along the west side of Macadam Road, the existing residence to the south, or the planned Winter Garden.
- Enhancement of the Type 1 wetland through creation of open water, removal of invasive plants, and planting of native wetland plants. Approximate enhancement opportunity is 4 acres.
- Enhancement of Type 3 wetland through removal of invasive plants and planting of native vegetation. Approximate enhancement opportunity is 0.29 acres.

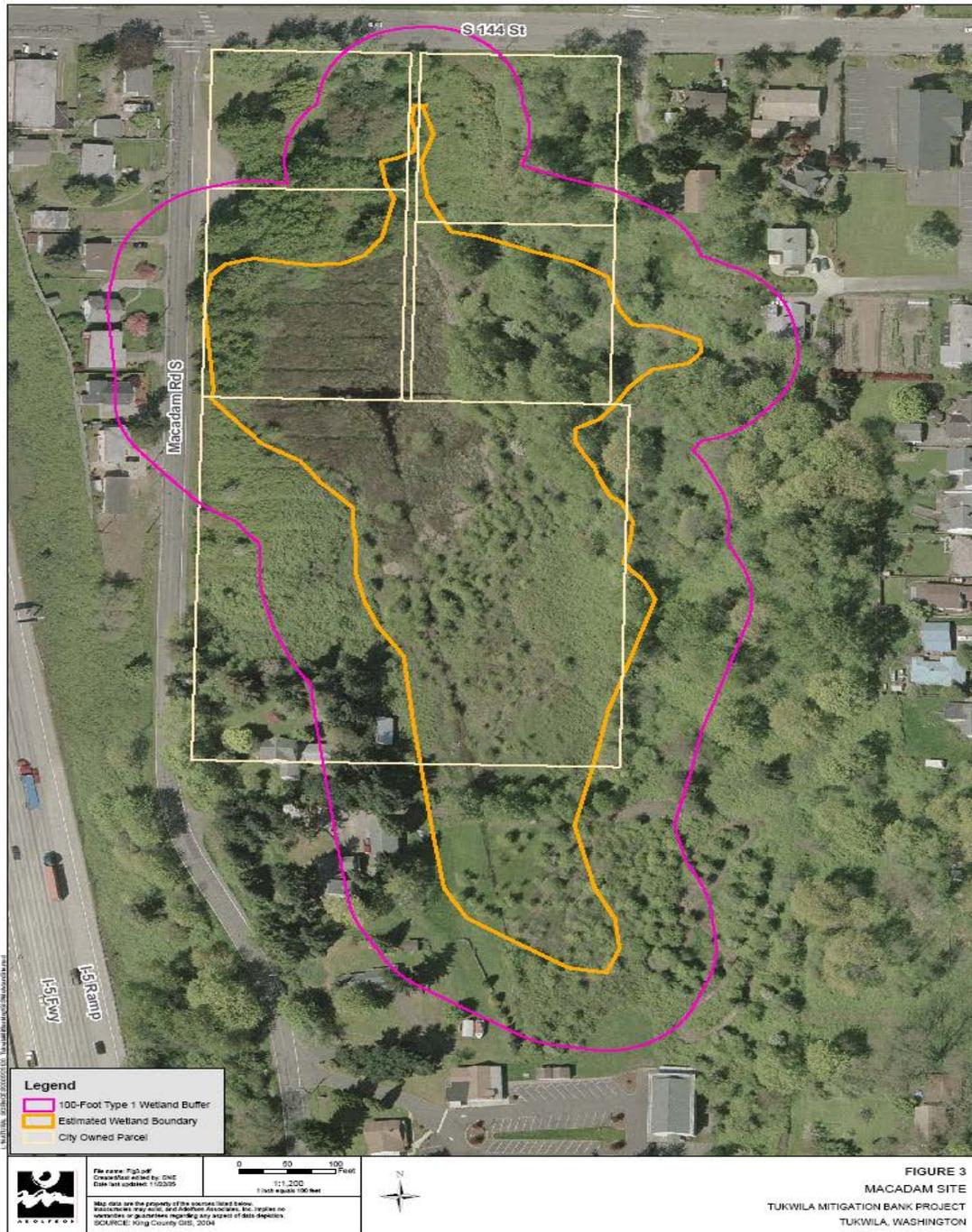


Figure 2. Aerial view of existing Macadam wetland showing current wetland boundaries in orange and existing wetland buffers in pink (Note: boundaries of the small Type 3 wetland are not shown, nor is the wetland visible in this photo).



Figure 3. Macadam, Type 1 wetland - from Macadam Road S, looking east (03/06).



Figure 4. Macadam, Type 3 wetland, located north of larger Type 1 wetland (03/06)

The proposed areas for wetland creation will not cause wetland buffers to be extended on to private property as a result. Buffers that are already located on private property will not change. A conceptual mitigation plan for this site is provided in Appendix E. The areas for possible enhancement are not indicated in the plan, but virtually all areas of the two wetlands could benefit from enhancement due to the presence of invasive plants.

This site would have the advantage of improving the surroundings of the future adjacent Winter Garden and improve opportunities for future passive recreation opportunities such as viewing platforms and trails around the edges of the wetland. Some of these improvements could potentially be included as part of mitigation.

The estimated cost for creation of wetland on the edge of the Type 1 wetland range from \$3,500.00 to \$5,000.00, not including costs for formal delineation, detailed design, use of the land, or ongoing maintenance and monitoring. The 2006 King County assessed value of the parcel where this creation would be done is \$38,300 per acre. However, it should be noted that this assessment does not take into account the wetland located on the property. Recent appraisals in the region suggest that values for properties containing wetlands are much lower than assessed value and are in the neighborhood of \$20,000.³

The estimated cost for creation of wetland on the edge of the Type 1 wetland range from \$3,500.00 to \$5,000.00, not including costs for formal delineation, detailed design, use of the land, or ongoing maintenance and monitoring. The 2006 King County Assessed value of the parcel where this creation would be done is \$38,300 per acre. As previously mentioned, the market value may be lower.

Estimated costs for wetland creation around the Type 3 wetland range from \$6,300.00 to \$9,300.00, not including costs for detailed design, use of the land, or ongoing maintenance and monitoring. No assessed value of the parcel where this creation would be done is available in the King County database. Tukwila purchased the property for \$155,000.00 in 1992 (around \$122,000.00 per acre).

Estimated costs for enhancement of the Type 1 wetland range from \$286,000.00 to \$462,000.00, and of the Type 3 wetland from \$23,000.00 to \$36,000.00 not including costs for detailed design, use of the land, or ongoing maintenance and monitoring. The King County assessed value of land that would be enhanced varies, depending on the parcel. Assessed values range from \$38,000.00 to nearly \$60,000.00 per acre. Market value for the parts of the property with wetland would likely be much less.

³ Complete Summary Appraisal Report, Tukwila Pond Mitigation Parcel, Andover Park West, Strickland, Heischman and Hoss, Inc., September 19, 2005.

6.2 Fire Station 53, Allentown

This site contains an existing degraded wetland located behind the fire station (to the east) at 4202 S. 115th. An aerial photo of the site showing wetland boundaries and the existing buffer is provided in Figure 5.

The parcel is about 1.8 acres in size and the wetland consists of approximately 1.13 acres. The wetland, which is classified as a Type 3 wetland under the Tukwila Sensitive Areas Ordinance, is characterized by a forested plant community on the north underlain by reed canarygrass and Himalayan blackberry and an emergent area to the south dominated by reed canarygrass and blackberry. The wetland is small, but has some habitat connectivity because of its proximity to the Duwamish River and the intermittent corridor formed by the Burlington Northern right-of-way, which is forested in places. The buffers along the east and west sides are very narrow and suffer from invasive plants. The buffer on the north is forested steep slope, which is mostly off-site. Photos of this site are shown in Figures 6 and 7.

A conceptual mitigation plan for the site is provided in Appendix F. Mitigation opportunities at this site include a very small amount of area for creation (0.086 acres) and about 0.8 acres for enhancement. This would allow for the wetland's use for a few small mitigation projects totaling no more than 0.26 acres of fill.

A disadvantage of this site in terms of enhancing the wetland for wildlife habitat is the periodic disruption due to noise when there is a response to a fire and from the railway activities on the east side of the wetland. Buffer widths were taken into account in the design of the conceptual mitigation plan to avoid potential economic impacts to adjacent properties. Therefore, creation of additional wetland on this site would not cause wetland buffers to extend any further on to private property. Wetland enhancement and/or creation will not cause a change in wetland category and, therefore, there would be no required increase in buffer widths as a result.

This site could incorporate some recreational access through a viewing location and signage if this were deemed desirable.

Estimated costs for creation of wetland range from \$3,500.00 to \$5,000.00, not including costs for detailed surveying and design, use of the land, or ongoing maintenance and monitoring. Cost for enhancement of the wetland range from \$35,000.00 to \$62,000.00. The King County assessed value of the land (not including improvements) at the site was \$333,100.00 in 2005 and jumped to \$888,500 in 2006. The market value of the wetland portion of the site is likely much less.



Figure 6. Fire Station 53 wetland, looking east. Note Reed canarygrass in middle and disturbed buffer of blackberries. Railroad cars in background. (March 2006).



Figure 7 North end of Fire Station 53 wetland looking northeast (March 2006)

6.3 Green River – Riverview Plaza/Bicycle Trail/Picnic Site.

This site is located on the left bank of the Green River, across the river from the Best Western Hotel and adjacent to (north of) Riverview Plaza. An aerial photo of the site is provided in Figure 8 showing the current fringe of riparian wetland and its current wetland buffer.

The site is currently a picnic area that is part of the Duwamish Green River Trail. The trail splits into an upper and lower trail at Christiansen Road. The upper trail is part of the King County Drainage District flood protection levee. According to the County the lower area is entirely within the floodplain, and overtops when flows at Auburn exceed about 6,000 cfs. During the recent rains in the region, the lower trail was flooded and water was flowing into the area between the upper and lower trails. The riverbank along the lower trail is covered with blackberries, as is the area in between the two trail segments. Large cottonwood trees also populate the site. Picnic tables are located near the lower trail. Photos of the site are provided in Figures 9 and 10.

The entire site consists of about 2.5 acres, of which the City owns 1.46 acres. The remainder of ownership (levee) is in easements. There is a narrow band of riverine wetland along the edge of the river that is very degraded and dominated mostly by Himalayan blackberry with some interspersed willows. It meets the criteria for a Type 2 wetland because it is connected to a Type 2 watercourse.

In terms of mitigation opportunities at this site, wetland could be created between the lower bike trail and upper trail (levee) and it could be connected to the river through culverts (culverts would be required due to the differences in elevation between the upland and the river on either end of the site). This alternative could provide off-channel habitat for salmon, which is consistent with the goals of the WRIA 9 Plan. Another alternative would be to excavate the entire area from the river's edge up to the upper trail, eliminating the lower trail to create wetland alongside the river and re-sloping the river side of the levee. A very preliminary conceptual mitigation plan is provided in Appendix G.

The maximum potential acreage available for wetland creation is about 1.7 acres. However, this amount might need to be reduced in order to provide adequate buffer on the south and to avoid expanding the buffer on to private property (as is shown in the conceptual mitigation plan).

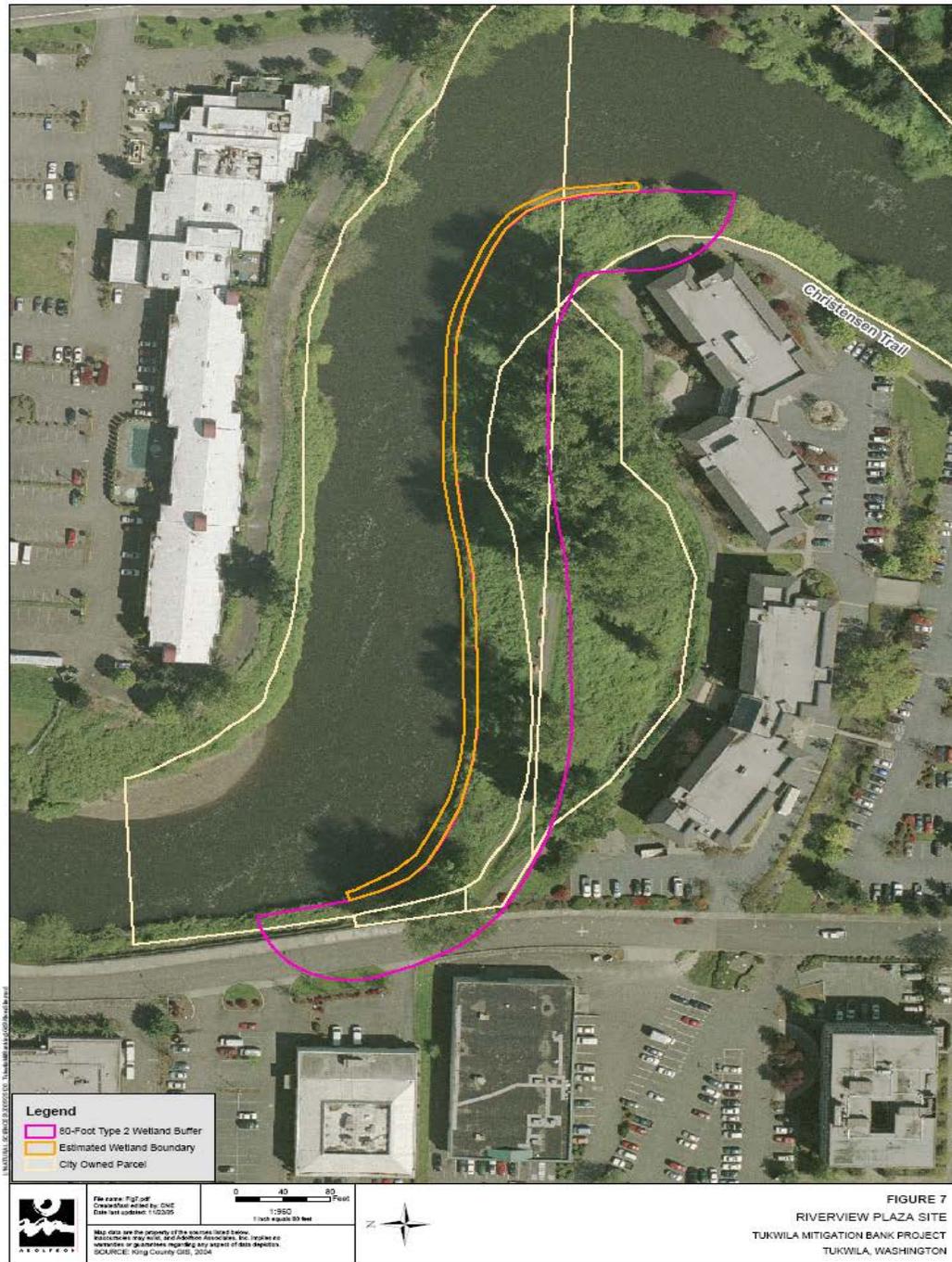


Figure 8. Green River/Riverview Plaza site showing current riparian wetland fringe in orange and its buffer in pink. Riverview Plaza development is to the right. Best Western Hotel is across the river to the left.



Figure 9. Green River/Riverview Plaza site showing lower trail, looking southeast from Christensen Road. Riverview Plaza in background. (March 2006).



Figure 10. Green River/Riverview Plaza site, lower trail, looking easterly (03/06).



Figure 11. Green River/Riverview Plaza site – lower trail, looking east, during partial flooding of lower trail area. (January 2006)

Under both scenarios, due to the extensive earthwork involved, it is highly likely that grants would need to be sought for financing the design and at least part of the wetland creation. Wetland mitigation projects could contribute to the effort but would not likely be sufficient to carry out the entire mitigation, unless there was a very large project with significant wetland impacts that would utilize the site. Extensive coordination with the County and the Corps of Engineers would be required for design and permitting. The project could become a WRIA 9 project and then be eligible for receiving salmon habitat-related grants.

The mitigation could incorporate interpretive access for the public, along the upper trail. Wetland creation would enhance the visual aspects of the site and therefore also improve the recreational experience. In addition, the design of the mitigation could include installation of a boat ramp for hand launching of small boats, thus improving public access even further.

The site also offers some potential enhancement opportunity of about 0.2 acres to improve habitat conditions in the existing wetland along the shoreline.

Disadvantages of the site include the likely high cost of implementing mitigation, the loss of picnic area, and the possible loss of several cottonwood trees on the site.

Very rough estimated costs⁴ for creation of wetland/off-channel habitat at this site range from \$700,000 to just over a million dollars, not including costs for use of the land or ongoing maintenance and monitoring. The King County assessed value of the land for 2006 is set at \$1,017,500.00.

The estimated cost for simply enhancing the existing riverine wetland ranges from \$14,300.00 to \$23,000.00.

6.4 “Demand” Versus “Supply”

Comparing the estimated worst case demand for filling of Type 3 wetlands to “supply” provided by the above three sites, it is obvious that Tukwila does not have enough available and feasible City-owned acreage to satisfy all the potential demand. This demand could be even higher in the case of reasonable use exemptions for filling Type 1 and 2 wetlands.

A worst case “demand” for entire filling of Type 3 wetlands on private property and rights-of-way is estimated at 11.44 acres, which would result in a compensation need of between 17.16 and 34.32 acres. The “supply” provided by the above three sites is about 2.1 acres of opportunity for creation and 4.84 acres of opportunity for enhancement.

However, it is unlikely that all Type 3 wetlands would be completely filled and more likely that only a portion of them will be filled through on-site enhancement of remaining wetland that is not filled. This would result in the wetlands not being candidates for off-site mitigation. Therefore, establishing the three sites analyzed above as mitigation sites, together with future sites and opportunities would partially meet demand.

This program, using the three proposed sites, even though it wouldn’t meet all potential demand, would have some other benefits: providing habitat improvements in Tukwila without needing to use much in the way of City funds, enhancing public access and passive recreation, and restoring some salmon habitat.

⁴ Cost estimate based on data from WRIA 9 plan for similar projects.

6.6 Other Potential Wetland Mitigation Sites on Tukwila-Owned Property

As mentioned in the introduction to this section, other sites are potentially available to form part of a wetland mitigation program in the future. The most likely sites are:

- Tukwila Pond wetlands west of the pond (between the existing park and the pond). These existing wetlands could be enhanced and a small amount of additional wetland could possibly be created. The amount of mitigation potential is very small, however, and a means of restricting access would be needed. The buffer on the west of the wetlands could be enhanced with additional plantings. Coordination would be needed with the Parks and Recreation Department to ensure there are no conflicts with the plans for that part of the site.
- Tukwila Pond, open water. The pond could be enhanced by creating different types of wetland within the open water, through filling of selected areas. This approach could increase wetland functions, particularly for wildlife, by providing nesting and perching sites. This alternative should be evaluated in the context of proposed improvements to Tukwila Pond. It is uncertain how the regulatory agencies would view enhancement of the pond for compensation of wetland impacts. A functional assessment of the pond under existing conditions and under proposed enhancement conditions would need to be carried out to demonstrate whether significant gains in function would be possible. Obviously, this alternative would not provide additional wetland to meet the objective of no net loss of wetland.
- Nelson Farm. This site is located near the intersection of I-405 and West Valley Highway. It contains a small wetland which is believed to be the remnant of a channel of the Green River. The site has been identified as a potential WRIA 9 project (see Appendix A – project LG 15) with the goal of reconnecting the wetland to the river to provide off-channel salmon habitat. It would likely also involve wetland creation and enhancement. It has been suggested that WSDOT might use the site for mitigation of impacts from the widening of I-405, but now that the agency is setting up a wetland mitigation bank in Renton, it is uncertain if WSDOT will choose to use the Nelson Farm site for mitigation. Therefore, the site might be available as an off-site mitigation candidate under the City's program, if other funding sources did not already exist. Further coordination with WSDOT would be necessary.

In addition to the sites mentioned above, other sites might become available if the City acquires new properties.

7. POTENTIAL WETLAND MITIGATION SITES ON PRIVATE PROPERTY IN TUKWILA

Off-site wetland mitigation on private properties is allowed under the Sensitive Areas Ordinance and is already an established practice in Tukwila. However, with the idea of helping to facilitate off-site mitigation, especially for small developments, Staff researched the availability of privately-owned sites in Tukwila.

We identified potential wetland mitigation sites on privately-owned properties using the same process and criteria that were used for identifying possible city-owned sites (see page 13). It should be noted that the availability of potentially suitable sites is very limited. Sound Transit has already purchased several sites for its own mitigation needs. Other sites already contain significant development, are surrounded by development, or contain wetland that spans several small properties with different owners.

One site located on the Duwamish River has been identified as a potential WRIA 9 project (the Carosino property). This property is being evaluated by the WRIA 9 staff as a potential location for creation of off-channel habitat for salmon. Purchase of the site with grant funds and turn over of ownership to Tukwila is under consideration. The site is about 2.18 acres.

A few other privately-owned sites were identified as being good candidates for use as mitigation sites. Two sites are located along Macadam Road South, between South 136th and South 138th. Two sites are located just south of South 128th, to the east of Military Road and west of 32nd Avenue South (one parcel is owned by Highline Community Hospital and the other is the site of the formerly proposed Opus Gardens Living Care Senior Housing (currently owned by a private holding company). Letters were sent out to the property owners explaining the program and asking if they might be interested in participating. They were then contacted by telephone, where possible, to follow up and determine their level of interest in the program.

One of the property owners of a site on Macadam would be interested in selling his property outright for wetland mitigation or another use but expressed reservations about easements, fearing that this would affect the value of the property.

Highline Community Hospital may be interested in the program, but further discussions will be needed as well as a preliminary assessment of the wetland enhancement and creation potential.

Staff has been unable to talk with the other property owners to determine their interest in the program, but will continue to try and contact them, as demand for off-site mitigation locations materializes.

8. DISCUSSION AND RECOMMENDED PROGRAM

This section presents a brief analysis of each wetland mitigation instrument and provides staff's recommendations for the preferred alternative.

Table 1 summarizes the advantages and disadvantages of the main wetland mitigation instruments evaluated.

Table 1. Comparison of Three Wetland Mitigation Instruments

Instrument	Advantages	Disadvantages	Comments
Wetland Mitigation Bank	<p>Consolidates mitigation for greater environmental benefit</p> <p>Mitigation in advance, ensures success, no lag between impact and mitigation</p>	<p>Difficult and lengthy process for set-up</p> <p>City (or other sponsor) would have to fund mitigation up-front</p> <p>Risk of not being able to sell credits and recoup investment</p>	<p>No suitable city-owned sites available</p>
Consolidated mitigation at designated sites (city and privately-owned sites)	<p>Consolidates mitigation for greater environmental benefit</p> <p>Applicants would prepare and carry out detailed mitigation plans under City oversight</p> <p>Minimal lag time between impact and mitigation</p> <p>Potential for coordinating with WRIA 9 projects</p>	<p>Potential adverse environmental impacts to some existing wetlands due to repeated interventions over time</p>	<p>Not as feasible for Macadam or Green River sites unless a proposed project needed a medium to large site for mitigation.</p> <p>Actual availability over time of privately owned sites is uncertain</p>
In-lieu fee program at designated sites	<p>Could consolidate mitigation for greater environmental benefit</p> <p>Mitigation would be entirely under City control</p> <p>Would allow for fees to be contributed towards WRIA 9 projects with wetland components</p>	<p>Possible long period between when impact occurs and mitigation takes place</p> <p>Risk of not receiving enough fees to carry out a full mitigation or long-term maintenance</p> <p>Risk of cost overruns that would have to be borne by City</p>	<p>Modification to TMC 18.45 needed</p> <p>Sufficient staff needed to implement (contracting, construction oversight, monitoring, long-term maintenance)</p>

Given the limited amount of available city-owned acreage for wetland creation and enhancement and the difficulty of setting up and operating a wetland bank, Staff does not recommend this alternative.

An in-lieu fee program, although in principle is simple, carries risks associated with the delay between an impact to a wetland and when mitigation is implemented; the potential lack of demand and insufficient fees to complete mitigation at a site; the potential for unforeseen increases in costs for mitigation over time; and the fact that the City would be responsible for carrying out the mitigation. There may also be the public perception that a developer can simply pay his/her way out of a problem without taking any responsibility for wetland mitigation. For these reasons, Staff does not recommend this alternative.

Recommended Approach and Actions

Despite some potential problems with the consolidated mitigation approach, Staff recommends this alternative. It would combine the use of City-owned sites and the referral of developers to the private property owners who have expressed interest in using their land as a mitigation site.

If the expected demand materializes, it is probable that several applicants with very small fills on Type 3 wetlands would be likely candidates for using City-owned sites or privately-owned sites for mitigation.

The consolidated mitigation approach using designated sites could probably work well at the Fire Station site, where there are separate, well-defined small sections of the site that could be mitigated by different applicants at different times.

The Macadam site is better suited to one or two large projects to avoid repeated interventions into the wetland. Using the site to accommodate mitigation of several small projects, although not out of the question, would require very careful planning and coordination.

The Green River site would be better suited to large projects (such as a WSDOT or Sound Transit project), where a one-time intervention would be preferable due to costs and to minimize negative impacts.

The consolidated approach could lend itself to supporting WRIA 9 projects in some circumstances, where a WRIA 9 project is underway or close to starting up and there are insufficient funds for fully completing the project. An applicant could provide part of the restoration as mitigation (such as purchasing plants, planting, or some other discrete task related to the restoration project). However, it wouldn't be our intent to allow a developer to use a WRIA 9 site for mitigation if sufficient outside funding was already identified or expected for that site.

If this recommended approach is adopted, staff suggests that the fees that would be charged for the use of city property as wetland mitigation sites be negotiated on a case-by-case basis, to allow for fluctuations in property values over time. Staff also recommends that the fees be used for ongoing maintenance of the mitigated wetland after the developer's responsibility for monitoring and maintenance has been completed, and/or to carry out further enhancements or create infrastructure for passive recreation, such as trails, viewing platforms, etc.

The City would function as a matchmaker for privately-owned sites that are available for mitigation and would, of course, review and approve all off-site wetland mitigation plans.

How the Program Would Function

The program would be carried out as follows

1. Applicant submits permit application for development and indicates the need to fill a wetland or portion of a wetland on the property to be developed.
2. Applicant prepares Sensitive Area Special Study characterizing the wetland to be filled and proposing a conceptual plan for on-site mitigation.
3. City Urban Environmentalist reviews the Sensitive Area Special Study and verifies field conditions. If it is determined that wetland filling cannot be avoided and that on-site mitigation is not technically feasible and would result in a net loss of wetland or wetland function, the City Urban Environmentalist recommends off-site mitigation and tries to match the mitigation needs to the sites already identified as mitigation candidates.
4. If the best off-site mitigation alternative is on City property, DCD and the applicant negotiate a fee for use of the property and develop an easement or lease agreement.
5. The applicant prepares a detailed mitigation plan based on the conceptual mitigation plan already prepared by the City. The applicant would be responsible for developing any additional information (such as topographical surveys) necessary to adequately prepare a detailed mitigation plan.
6. The City's Urban Environmentalist reviews and approves the plan once it is considered satisfactory.⁵
7. Upon permit approval, the applicant implements the mitigation plan and provides the agreed on remuneration to the City.
8. The applicant monitors and maintains the mitigated area for the period of time established in the permit and reports annually to DCD.
9. Upon termination of the monitoring and maintenance plan, the City takes on responsibility for ongoing maintenance of the mitigated wetland.

⁵ For some mitigation sites, the Corps of Engineers and Department of Ecology may also be involved in approving a mitigation plan.

Recommended Actions

The actions needed in order to carry out this plan include:

City Council Action:

- Obtain CAP Committee approval of program
- Obtain Council resolution approving the use of City properties for wetland mitigation under the program and establishing criteria for determining fees on a case-by-case basis.

Staff Action (if program is approved):

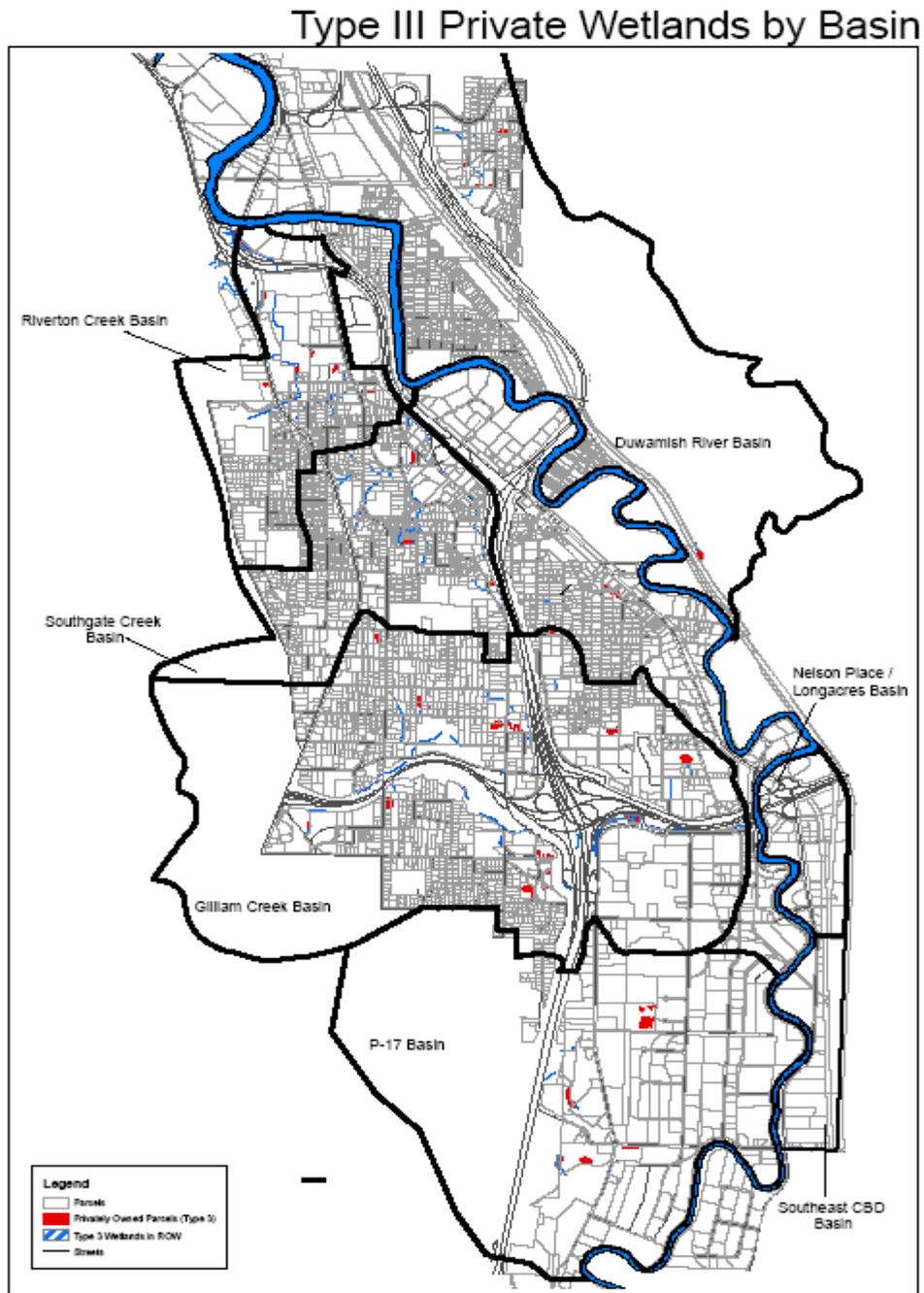
- Coordinate with Department of Ecology and Corps of Engineers
- Establish procedures and criteria for assessing fees for use of city property and establish an account for the destination of the fees
- Develop conceptual mitigation plans for additional city-owned sites that could be used as mitigation sites
- Additional follow-up with owners of private sites
- Seek grant funding through WRIA 9 for developing a detailed plan for Green River site

APPENDIX A - PROPOSED WRIA 9 PROJECTS IN TUKWILA

Project Number	Title/Location	Description	Potential for wetland mitigation site
Duw-1	Shallow Water Habitat Creation at RM 11.0-7.0 (both banks) (Allentown, Gateway, Foster Golf Course)	Create 15 acres (not necessarily contiguous) of new off-channel shallow water/marsh habitat with associated riparian vegetation.	Possible but in very distant future, project depends on finding willing landowners
Duw-2	Shallow Water Habitat Creation and Bank Reshaping at RM 10.3 – 9.9 (right bank) (across from Foster Golf Course - rendering plant property)	Create off-channel, shallow water refuge habitat, re-slope rock-lined and over-steepened bank to create low bench (sand beach) and excavation of shallow off-channel habitat.	Possible site for wetland creation along river, property not yet acquired
Duw-3	Bank Restoration and Revetment Set Back at RM 8.9-8.6, 8.4-8.2 (Gateway South)	Reshape revetment by relocating a segment of the Green River Trail and place large woody debris and install riparian vegetation.	Low – not enough area to create wetland
Duw-4	Wastewater Pipeline Crossing Retrofit, RM 8 (King County pipeline near pedestrian bridge in Allentown)	Evaluate pipeline's effect on upstream salinity & if technically worthwhile, lower pipeline below bed of river (as per original plan when it was installed)	none
Duw-5	42 nd Ave S. Bank Restoration, RM 7.9-7.1 (both banks)	<p>Improve riparian habitat conditions. Relocate water main that is on west edge of 42nd Ave. S to other side. Restore more stable bank angle and/or excavate benches along river. Place large woody debris on existing island. Fence off northern portion or post to eliminate parking.</p> <p>Complementary project: work with property owners on RM 7.6-7.1 to restore riparian vegetation and create a flat bank toe on inside bend at mile 7.3-7.2</p>	Low – immediate project won't allow enough area for wetland creation. Long term project has low likelihood due to need to find willing landowners
Duw-6	S. 115 th St. Bank Restoration and Revetment Setback, RM 7.2-6.9 (Grandmother's Hill park)	Reshape and re-vegetate bank, set back revetment where possible. Place large woody debris and plant native vegetation	Low due to potential conflict with park plans
Duw-7	Shallow Water Habitat Creation, RM 7.0-5.5, both banks (W Marginal Way, near North Winds Weir site, north of intersection with Int. Blvd, W. Marginal Way S, E. Marginal Way S, north of Boeing Access Rd)	Create minimum of 20 acres of off-channel shallow water/marsh habitat with associated riparian vegetation.	Possible with Carosino property, which County is exploring now – might be transferred to Tukwila. Otherwise low potential due to need to find willing landowners

Duw-8	Riverton Creek Habitat Rehabilitation and Fish Passage Improvement, RM 6.6 left bank (where creek meets Duwamish)	Replace flapgate with self-regulating tidegate, place large woody debris, remove accumulated sediment, add gravel, re-vegetate (ERP project)	none
Duw-9	Bank Restoration and Revetment Setback, RM 6.6-5.5, left bank (W. Marginal Way S)	Set back and restore bank, re-vegetate.	Low not enough area for wetland creation
Duw-10	North Wind's Weir Shallow Water Habitat Rehabilitation, RM 6.3, right bank	Create 2 acres of off-channel shallow water habitat. Remediate soil contamination (completed).	Low – assume funds already available for project
Duw-11	Shallow Water Habitat Creation, RM 5.5-5.7, both banks (Turning Basin, partly in proposed Tukwila annexation area)	Create a minimum of 10 acres of off-channel shallow water/marsh habitat	Possible, but in distant future if property owners willing
LG-10	Mainstem maintenance RM 20.5 – 16.3 (only partially in Tukwila annexation area – Segale property)	Set back levee, reshape shoreline, widen channel cross-section, excavate low benches, riparian vegetation and LWD	Low – little opportunity to create wetland
LG-11	Acquisition and Off Channel Habitat Rehabilitation RM 17.3-16 (left bank) and Between Johnson Creek Mile 0 and 0.5 (Segale site)	Excavate flood refuguim, realignment of stream channel, improvement of fish passage, restoration of wetland complex, planting, LWD	Being done by developer
LG-15	Off-Channel Habitat Rehabilitation, RM 12.65-12.5, right bank (Nelson Farm site)	Reconnect abandoned river channel segment, re-slope banklines, install large woody debris, plant riparian vegetation (note: Site currently regulated as wetland)	Possible - depends on WSDOT participation.
LG-16	Gilliam Creek Fish Passage Improvements and Riparian Rehabilitation, RM 12.5, left bank	Eliminate fish passage barrier (fish ladder & self-regulating tide gate), improve 2000 feet of creek for rearing and refuge habitat (widen, add gravel, riparian vegetation, LWD)	none
LG-17	Levee Setback RM 11.7-11.4 (right bank) – Fort Dent	Set back levee (without affecting soccer fields or trail), plant native vegetation, LWD	Low – not likely enough area to create wetland
LG-18	Black River marsh RM 11 (right bank)	Remove 200 cu yd fill, plant with wetland vegetation, LWD. Create 50 ft wide riparian buffer	High, depending on existing funding

APPENDIX B – MAP OF TYPE 3 WETLANDS ON PRIVATE LAND AND RIGHTS OF WAY IN TUKWILA



APPENDIX C – MAP OF CITY-OWNED PROPERTIES, WETLANDS AND WATERCOURSES

**APPENDIX D - CITY-OWNED SITES CONSIDERED AND ELIMINATED FOR
WETLAND CREATION OR ENHANCEMENT**

Site	Reason for initial consideration	Reason for Elimination	Comment
P-17 Stormwater pond	Existing wetland on edges of pond could be expanded. Proximity to Duwamish	Currently classified as stormwater pond and not wetland. Untreated stormwater goes into pond. If we changed classification to wetland could interfere with stormwater management (and wouldn't be able to discharge untreated stormwater)	Not feasible
P-17 Stormwater pond upland area	Public works wants to move out of site, might make it available	Property value would suggest that selling site would be better than developing it as wetland	Not feasible
Strander Blvd/West Valley Blvd	Currently upland, adjacent to restored wetland mitigation site	Extension of Strander Blvd planned through this site	Not feasible unless Strander Blvd extension abandoned
Fort Dent	Possible wetland creation or expansion of wetland around stormwater pond	Untreated stormwater goes into pond, which is not classified as wetland. Wetland expansion along pond would interfere with stormwater management function. Wetland creation in vicinity would potentially interfere with future plans for park (additional parking)	Maybe consider a separate site in park for wetland creation near the pond in the future, depending on Park plans
Southgate Park	Streams present – possible wetland creation opportunity, existing wetland in northeast corner could be enhanced or possibly expanded	Access to wetland difficult. Sewer line runs between two forks of the creek. Too steep for effective wetland creation	Not feasible
Tukwila Pond	Opportunity to improve/expand small wetlands on west side, wetland enhancement on southeast corner, create different types of wetland by filling areas of open water	Wetland enhancement of southeast corner expected to be carried out by developer as mitigation for wetland filling on J.C. Penney site. Planning process for Tukwila pond programmed for next year – better to wait until planning process finished before designating any area for wetland expansion	Consider as part of proposed improvements to Tukwila Pond
Grandmother's Hill	Existing wetland along north border (not owned by City) – possibility for expansion into park area	Wetland would have to be expanded into steep slope	Not feasible

Ryan Heights Rights-of-Way	Several mapped wetlands that straddle rights-of-way could be enhanced	Rights-of-way too small to have any significant enhancement opportunity	Land surrounding ROW could be acquired by developers in future for enhancement of larger areas
Nelson Place, sheep farm	Existing wetland could be reconnected to Duwamish. Identified in WRIA 9 plan.	Potential site for mitigation of I-405 widening, by DOT.	Could be Tukwila wetland enhancement/creation site in future if not mitigated by DOT.
Crystal Springs Park Wetlands	Existing wetlands – potential for enhancement	Wetlands in reasonably good condition, potential for enhancement very limited.	Some enhancement could be carried out by volunteers – mainly removal of invasive plants

APPENDIX F. CONCEPTUAL MITIGATION PLAN - MACADAM SITE

