SPRINGWATER INTERCHANGE MANAGEMENT AREA
APPENDIX A

MEMORANDUM

Natural Resources Program, Watershed Division
Gresham Department of Environmental Services

To: **Springwater US 26 IAMP Project Management Team**

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Date: **August 31, 2010**

Subject: **Technical Memorandum:**
Environmental Criteria Review of IAMP Scenarios

The Oregon Department of Transportation (ODOT), the City of Gresham, the City of Damascus, Multnomah County and Clackamas County are working in conjunction to develop plans for an interchange along Route 26 within the Springwater Community. The first step in designing this new interchange and improving the local street network is the Springwater Interchange Area Management Plan (IAMP). As part of the Springwater IAMP, the City of Gresham Department of Environmental Services Watershed Management Division has conducted an environmental review of the design alternatives. The results of this review are present in this memo.

Background

In 2002, Metro added the Springwater area to the region's Urban Growth Boundary (UGB). Approximately 1,100 acres of the Springwater area have been designated a Regionally Significant Industrial Area, which will allow growth to the local employment base by protecting the area from non-industrial development.[1] The planned development for the Springwater area will increase travel demand in the project area and will further compromise the already poor traffic conditions at the SE 267th Avenue and Stone Road at-grade intersections. The Springwater area requires improved access to US 26 and improvements to the surrounding transportation

[1] In Title 4 (Metro Code Sections 3.-07.410 - 3.07.440) of Metro's code, a Regionally Significant Industrial Area has the following restrictions on non-industrial uses: (1) Retail uses less than 20,000 square feet and amounting to only 5 percent of the contiguous Regionally Significant Industrial Area; (2) Commercial office uses that are not accessory to the industrial uses with the exception of large corporate headquarters, and; (3) Uses necessary to serve the needs of businesses and employees of the Regionally Significant Industrial Area.

network.

The proposed Springwater Interchange will be located in proximity to the SE 267th Avenue intersection. Its transportation function will be to provide statewide and regional access to new industrial land uses in Springwater. The Interchange will be a service interchange, providing connections from US 26 onto city arterials.

The objective for the Springwater Interchange Area Management Plan (IAMP) is to address existing and future safety needs, improve the access to the existing transportation system, and provide for a future transportation network that will efficiently accommodate the planned development in the Springwater area, while preserving the function of US 26. With respect to land use and development, the function of the Springwater IAMP will be to serve the existing and planned land uses in the interchange management area. It is not the function of the interchange to facilitate further urbanization of resource lands or land that is not otherwise identified for future development in existing comprehensive plans.

As part of the Springwater IAMP, ODOT has developed 3 main scenarios, and 3 derivatives of those scenarios for comparative evaluation. All of these alternatives, as well as the No-Build Alternative, are being evaluated to select a preferred alternative that meets the transportation objectives of the project while minimizing environmental impacts and construction costs. Criteria considered in the evaluation of the alternatives include those related to transportation design, consistency with goals of existing plans, safety, bicycle/pedestrian concerns, transportation and land use objectives, cost, and impacts to natural resources.

Criteria Selection

The City of Gresham Department of Environmental Services Watershed Division, in conjunction with environmental scientists from Pacific Habitat Services, Inc. (PHS) and Parametrix, evaluated the potential environmental impacts of each of the six alternatives for the proposed Springwater Interchange. The environmental review team developed two criteria in each of five natural resource categories, for a total of ten criteria, to use in the evaluation of potential environmental impacts. Criteria were chosen to reflect the spectrum of environmental resources likely to be affected by the project, and only criteria that could be quantified using available resources were chosen so that the evaluation would be transparent and understandable to all project stakeholders. Criteria were vetted by Gresham's water quality staff, the Johnson Creek Watershed Council, Portland Audubon, and Multnomah County's Water Quality Program, prior to evaluation of the alternatives.

The criteria used to evaluate the alternatives were:

1. Wetland Resources
    a. Wetland area impacted
    b. Wetland functions impacted

2. Stream Resources
    a. Number of new and extended crossings
    b. Length of new and extended crossings

3. Riparian Resources
    a. Riparian area impacted
    b. Riparian composition impacted

4. Water Quality Resources
    a. Temperature TMDL Buffer impacted
    b. New impervious surface

5. Fish and Wildlife Habitat Resources
    a. Federally designated “critical habitat” for salmonids impacted
    b. Comparative disruption of habitat connectivity

Evaluation Methodology and Results

Each of the criteria listed above were evaluated based on review of the City’s existing GIS resources. Each of the seven alternatives were digitized and compared to the City’s GIS data to determine the potential environmental impacts of each alternative. The potential impacts of each alternative were compared against each other and assigned an impact rank of 1, 2, or 3, with “3” assigned to the lowest level of impact and “1” assigned to the highest level of impact. Descriptions of each of the evaluated criteria are provided below, and Table 1 summarizes the results of the environmental evaluation.

The “No Build” alternative was given scores of 3 for the above criteria as it was recognized that existing conditions would not realize any additional degradation from highway impacts if a highway interchange wasn’t constructed. Simultaneously, it was recognized that this interchange project was the lynchpin project for the Springwater area, needed before the City could reasonably expect annexation and development to occur. With development, the City will collect stormwater System Development Charges that are partly slated for improvements to the stream, riparian, wetland, and floodplain resources in the area. In addition to that anticipated $23.5M investment, the annexation and development process would result in significantly more protective regulatory buffer protections for the area’s natural resources. Because of that trade off with the No Build scenario (no new impacts, but no anticipated large-scale restoration investment or more protective buffers), the team opted to score the No Build Scenario as equivalent to the least impactful build scenarios for each criteria. Then, the least impactful alternative would represent an equivalent trade off (no new negative impacts, but no catalyst for development and annexation that would bring large-scale restoration funds and buffer protections).

This trade-off was discussed among the Project Management Team after the ten (above-listed) environmental criteria were scored. To call out the trade-off between between no new impacts vs. no large-scale restoration funding for the area, an additional measure was added to the overall project evaluation matrix. That measure was worded, “Provide a mechanism for the City of Gresham to enhance the area’s natural environment,” and was scored with the No Build scenario receiving a 1, and the build scenarios scoring 2s. As none of the build scenario was better than the others in terms of jump starting the development needed to realize the funding, no 3s were given.

Scoring of the 10 environmental impact criteria was completed as follows:

Wetland Area

Using maps from a draft Springwater Local Wetland Inventory and City records of National Wetland Inventory resources in the area, total impacts to mapped wetlands were calculated for each scenario, by means of a GIS analysis. Impacts to mapped wetlands for the seven alternatives ranged from 0.84 acres for Alternative C2 and Alternative C2, Elevated Trail to 2.09 acres for Alternative A.

Wetland Function

Parametrix and PHS conducted a functional assessment of the mapped wetlands affected by the proposed build alternatives using the Oregon Rapid Wetland Assessment Protocol (ORWAP). For each wetland impacted, the group function scores were averaged, and the average of the functional scores was multiplied by the proportion of the existing wetland that would be impacted by the proposed alternative. The resulting scores for impacted wetlands under each scenario were totaled, resulting in a numeric value for total loss of wetland function under each scenario. Based on this analysis, impacts to wetland functions were determined to be lowest for

Alternative C2 and Alternative C2, Elevated Trail and highest for Alternative A, Elevated Trail, as shown in Table 1.

Number and Length of New and Extended Stream Crossings

The number and lengths of new and extended stream crossings resulting from each of the proposed alternatives were determined through GIS analysis, using the City's LiDAR-derived stream layer. The number of new and extended stream crossings for the proposed alternatives ranged from 6 for Alternative A to 10 for Alternative A, Elevated Trail. The total lengths of new impacts from new or extended crossings ranged from 2,472 feet for Alternative C2 to 3,659 feet for Alternative B, Modified Ramp.

Riparian Area

Riparian areas provide buffers that provide water quality enhancement, habitat for terrestrial and aquatic organisms, streambank stabilization, and healthy stream ecosystems. To quantify riparian impacts from the proposed build alternatives, the City evaluated impacts as total area of structures or fill that would be placed within City-mapped Habitat Conservation Area buffer areas. Based on this analysis, impacts to riparian areas were determined to be lowest for Alternative C2 and Alternative C2, Elevated Trail and highest for Alternative B, Modified Ramp, as shown in Table 1.

Riparian Composition

To further evaluate potential impacts to the existing ecosystem benefits provided by the current state of riparian resources within the project area, the City evaluated assessed the composition of riparian plant communities. Impacts to well-vegetated, mature forest riparian areas were assumed to be more significant than impacts to riparian areas that contain structures, development, active resource extraction uses, or otherwise lack a dense riparian forest community. To evaluate this criterion, the City compared impacts to existing forested areas, as assessed for the City's Natural Resources Master Plan via analysis of 2009 aerial photos. Based on this analysis, impacts to higher value riparian areas were determined to be lowest for Alternative B, Modified Ramp and highest for Alternative A, Elevated Trail, as shown in Table 1.

Temperature TMDL Buffer

As part of the City's response to Clean Water Act regulations, staff had previously mapped "Temperature TMDL buffers" along all streams within the City and the new community areas, demonstrating where the City is required to increase shade for protection of water quality and aquatic species. Within these "shade buffers," existing vegetation has been categorized as a 3 (areas where minimal restoration is needed to meet the shade target), 2 (moderate restoration is needed to meet the shade target), or 1(extensive restoration is needed to meet the shade target). As shown in Table 1, Alternative B results in the least impact to Category 3 Temperature TMDL Buffer, while the variations of Alternative A result in the greatest impact to this resource.

Impervious Surface

Because runoff from impervious surfaces is a major contributor of pollutants to surface waters, the amount of impervious surfaces associated with each of the alternatives were compared as a surrogate measure of potential impacts to water quality. Because the estimated area of impervious surfaces resulting from each of the alternatives are similar, all alternatives were determined to have the same general relative impact to water quality, as shown in Table 1.

Critical Habitat for salmonids

Johnson Creek's main stem is mapped as critical habitat for salmon and trout listed as "threatened" under the federal Endangered Species Act. Potential impacts to federally listed salmonid species were compared by looking at the total length and area of impacts to Johnson Creek as a result of each of the alternatives. Impacts

to Johnson Creek for the six alternatives ranged from 958 linear feet for Alternative C2 and Alternative C2 to 1,979 linear feet for Alternative B, Modified Ramp.

Habitat Connectivity

Impacts to habitat connectivity were not quantified as part of this analysis. Rather, impacts to habitat connectivity were determined based on qualitative assessment of how the proposed alternatives cross blocks of existing contiguous blocks of forested and riparian habitats through aerial photography review of existing conditions. Because all of the alternatives cross existing habitats in much the same manner, the relative impacts of all of the alternatives were determined to be similar.

Evaluation Summary

As discussed above, impacts in each of the criteria were assigned scores of 1, 2, or 3 based on the relative extent of the impact, with a score of “3” representing the least negative impact to natural resources and “1” the most negative impact to natural resources. The resulting scores for all of the criteria were summed for each of the alternatives to give a total environmental impact score so that each of the alternatives could be compared. Based on this analysis, it is the City’s opinion that Alternative A, Elevated Trail will likely result in the greatest overall environmental impact, while Alternative C2 will result in the lowest level of impact to natural resources.

Table 1. Summary of Potential Environmental Impacts for each of the Proposed Springwater Interchange Build Alternatives.

Criteria	Alternative A		Alternative A Elevated Trail		Alternative A New (C2) Arterial		Alternative B Modified Ramp		Alternative C2		Alternative C2 Elevated Trail	
	Impact	Score	Impact	Score	Impact	Score	Impact	Score	Impact	Score	Impact	Score
Wetland Area	2.09 ac.	1	1.27 ac.	2	2.07 ac.	1	1.98 ac.	1	0.84 ac.	3	0.84 ac.	3
Wetland Function*	6.24	1	7.39	1	6.24	1	3.25	2	2.09	3	2.09	3
Stream Crossings – Number	6	3	10	1	7	3	8	2	7	3	9	1
Stream Crossings – Length	3,008 ft.	2	3,322 ft.	2	2,729 ft.	3	3,659 ft.	1	2,472 ft.	3	2,598 ft.	3
Riparian Area	6.43 ac.	2	7.71 ac.	1	6.51 ac.	2	8.31 ac.	1	5.48 ac.	3	5.82 ac.	3
Riparian Composition	5.58 ac.	2	6.14 ac.	1	5.58 ac.	2	5.10 ac.	3	5.56 ac.	2	5.60 ac.	2
Temperature TMDL Buffer	2.44 ac.	1	2.90 ac.	1	2.53 ac.	1	1.61 ac.	3	2.18 ac.	2	2.15 ac.	2
Additional Impervious Surface	21.12 ac.	1	21.12 ac.	1	21.12 ac.	1	20.94 ac.	1	21.12 ac.	1	21.12 ac.	1
Critical Salmonid Habitat	1,536 ft.	2	1,568 ft.	2	1,536 ft.	2	1,979 ft.	1	958 ft.	3	1,058 ft.	3
Habitat Connectivity**	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1
Total Evaluation Score		**16**		**13**		**17**		**16**		**24**		**22**

Notes: * Wetland function impacts are represented as the average of the functional group assessment scores, as determined by ORWAP analysis multiplied by the percentage of the existing mapped wetland area affected by the proposed project.

** Impacts to habitat connectivity were not quantified as part of this analysis. Impacts to habitat connectivity were determined based on review of aerial photography, and the relative impacts of all of the alternatives were determined to be similar based on this review.

Recommended Design Alternatives

Given the "concept" level schematics that were available for this environmental impact review, a number of design factors were unknown at the time of this ranking. It is recognized by the environmental review team, the Project Management Team, and Johnson Creek stakeholders that final design criteria will be selected with a priority on minimizing the short-term and long-term impacts of this interchange project on the Johnson Creek watershed. The evaluation reviewed in this memo provides a ranking only of the relative environmental impact of the alternatives' alignments; as design work is conducted once a preferred alternative is identified, details were not available at the time of this review to address impacts from possible variations of the interchange design elements. As the design of the selected alternative is carried forward, it will be possible to refine this impact assessment based on field review of structure and fill placement, as well as proposed design elements.

To minimize the final design's impacts to natural resources, the City, with input from PHS, Parametrix, the Johnson Creek Watershed Council and the Audubon Society of Portland, makes the following recommendations for minimizing impacts to natural resources:

- Where possible, incorporate into the preferred alternative those elements in other scenarios that would further reduce environmental impacts. For instance, Alternative C2 had the least environmental impact; additional reduction of C2's impacts appears possible if the project design engineer could alter the west end of the arterial to be more similar in width and placement to the west end of Alternative A's final arterial alignment. This would eliminate a small portion of stream, riparian, and floodplain area impacts in favor of additional impacts to an adjacent, poorly functioning wetland to the east.
- Use retaining walls and/or steepened side slopes where their use can eliminate fill placed within resource areas or their associated buffers.
- Avoid the placement of fill within floodplains.
- Avoid impacts to stream confluences.
- Keep design consistent with the restoration goals set forth for the Springwater Community.
- Mitigation of impacts should occur, as opportunities exist, within the Springwater area to ensure there is no loss of function within the plan area.
- If mitigation of wetlands has to be done outside of Springwater plan area, then mitigation must stay within Johnson Creek Watershed (no use of Foster Creek mitigation bank).
- Mitigation of impacts should be consistent with City's Natural Resources Master Plan.
- Mitigation of impacts must consider Metro's on-going investment in land acquisition and restoration. In addition to compensating Metro for the lands they have worked to acquire, mitigation for this project should build upon the restoration work that Metro has initiated with regional funds. If mitigation for this project can be done contiguous to existing Metro restoration projects, that will increase the success and benefits of both the existing restoration projects as well as the mitigation project.
- Keep design and associated stormwater treatment elements consistent with the Low Impact Development goals of Springwater (e.g., use of pervious pavement, pervious concrete, vegetated water quality treatment, etc.).