INTERSTATE 405 Corridor Program
Congestion Relief & Bus Rapid Transit Projects

APPENDIX W2

Wetlands Mitigation Plan

I-405, SR520 to SR522 Stage 1 (Kirkland Stage 1)

Request For Proposal
July 15, 2005
Revised, Addendum 5
August 22, 2005

Washington State Department of Transportation

I-405, SR522 to SR520
Kirkland Nickel Project

Wetland Mitigation Plan Addendum 1

Washington State
Department of Transportation

August 2005

This Addendum to the I-405, SR 522 to SR 520 Project – Kirkland Nickel Wetland Mitigation Plan, dated August 17, 2005, supercedes the June 2005 Wetland Mitigation Plan. This document contains wetland impact tables, originally presented in the June 2005 Wetland Mitigation Plan, which have been revised to incorporate data on the new wetlands identified within the project area. Wetland descriptions have also been included in this addendum, to ensure that consistent information on all wetlands is provided to Ecology.

Other than the wetland descriptions, no portions of text that originally appeared in the Wetland Mitigation Plan have been revised and included in this Addendum. Relevant qualitative and quantitative data is provided in the impact tables. The Addendum consists of the following:

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Table 2-1: Filled or Disturbed Wetlands, I-405 Kirkland Nickel Project

Wetland Identifier	Area (acres)	Permanent Impact Area (acres)	Temporary Impact Area (acres)	Local Jurisdiction and Rating	Wetland Category	Avoidance and Minimization
16.2R	0.847	0	0	Kirkland - 2	II	Moved detention pond to avoid impacts.
16.3L	0.031	0.031	0	Kirkland - 3	IV	Unavoidable due to roadway design standards.
16.5L	0.064	0.064	0	Kirkland – 3	IV	Unavoidable due to roadway design standards.
17.1R	0.021	0	0	Kirkland – 3	IV	Direct impacts avoided. Temporary impacts to buffer unavoidable during construction.
17.3R	0.048	0	0	Kirkland - 3	IV	Avoided
17.7R	0.096	0	0	Kirkland - 3	IV	Avoided
18.05R	0.134	0	0	Kirkland - 3	IV	Avoided
18.06L	0.047	0	0	Kirkland - 3	IV	Avoided
18.0R	0.102	0	0	Kirkland - 3	IV	Avoided
18.15R	0.05	0	0	Kirkland - 3	IV	Avoided
18.1R	1.309	0	0	Kirkland - 3	IV	Avoided
18.2R	0.068	0	0	Kirkland - 3	IV	Avoided
18.3R	0.028	0	0	Kirkland - 3	IV	Avoided
18.4R	0.037	0.037	0	Kirkland - 3	IV	Unavoidable due to roadway design standards.
19.06L	0.135	0.063	0	Kirkland - 3	IV	Unavoidable due to roadway design standards. Moved detention pond to reduce impacts.
19.14L	0.019	0.019	0	Kirkland - 3	IV	Unavoidable due to roadway design standards.
19.27R	0.105	0.079	0.023	Kirkland - 3	IV	Unavoidable due to roadway design standards.
19.3R	0.249	0.248	0	Kirkland – 2	III	Unavoidable due to roadway design standards.
19.5L	0.574	0.574	0	Kirkland - 3	IV	Unavoidable due to roadway design standards. Retaining wall added to limit impacts.
19.6L	0.011	0.011	0	Kirkland - 3	IV	Unavoidable due to roadway design standards.
19.6R	0.051	0.051	0	Kirkland - 3	IV	Unavoidable due to roadway design standards.
19.7R	0.252	0.064	0.028	Kirkland - 3	III	Unavoidable due to roadway design standards.
19.8L	0.341	0	0	Kirkland - 3	IV	Direct impacts avoided. Temporary impacts to buffer unavoidable during construction.
19.9L	0.443	0	0	Kirkland - 3	III	Avoided
19.9R	0.088	0.069	0	Kirkland - 3	IV	Unavoidable due to drainage requirements.

Wetland Identifier	Area (acres)	Permanent Impact Area (acres)	Temporary Impact Area (acres)	Local Jurisdiction and Rating	Wetland Category	Avoidance and Minimization
20.0L	0.08	0	0	Kirkland – 3	IV	Avoided
20.34L	0.279	0	0	Kirkland – 3	III	Avoided
20.35L	0.165	0	0	Kirkland – 3	IV	Direct impacts avoided. Temporary impacts to buffer unavoidable during construction.
20.4L	2.759	0	0	Kirkland - 2	II	Avoided
21.6L	0.093	0.043	0.011	King County - 4	IV	Unavoidable due to existing noise mitigation facilities. Footprint adjusted to minimize impacts.
21.7L	0.242	0.138	0.031	King County - 4	IV	Unavoidable due to existing noise mitigation facilities. Footprint adjusted to minimize impacts.
21.8L	0.054	0.054	0	King County - 4	IV	Unavoidable due to existing noise mitigation facilities. Footprint adjusted to minimize impacts.
22.5L	0.025	0	0	King County - 3	III	Direct impacts avoided. Retaining wall added to limit impacts to buffer.
22.8L	1.156	0.136	0.099	Bothell - 3	III	Unavoidable due to roadway design standards. Retaining wall added to limit impacts.
23.2L	0.307	0	0	Bothell - 2	III	Direct impacts avoided. Footprint adjusted to avoid impacts.
TOTAL	**10.310**	**1.681**	**0.192**			

Table 2-2: Impacts to Buffer Areas, I-405 Kirkland Nickel Project

Wetland Identifier	Local Rating	Local Buffer Required (feet)	Temporary Buffer Impact (acre)	Permanent Buffer Impact (acre)	Avoidance and Minimization
17.1R	Kirkland - 3	25	0.001	0	Temporary impacts unavoidable during construction.
18.0R	Kirkland - 3	25	0.018	0.001	Unavoidable due to noise mitigation facilities.
19.06L	Kirkland - 3	50	0	0.18	Unavoidable due to roadway design standards. Footprint adjusted to minimize impacts.
19.27R	Kirkland - 3	50	0.028	0.495	Unavoidable due to roadway design standards.
19.3R	Kirkland - 2	75	0	0.556	Unavoidable due to roadway design standards.
19.7R	Kirkland - 3	50	0.065	0.296	Unavoidable due to roadway design standards. Bridge Wingwall added to limit impacts.
19.8L	Kirkland - 3	50	0.038	0	Temporary impacts unavoidable during construction.
19.9R	Kirkland - 3	50	0.069	0.358	Unavoidable due to drainage requirements.
20.35L	Kirkland - 3	50	0.021	0	Temporary impacts unavoidable during construction.
21.6L	King County - 4	50	0.024	0.141	Unavoidable due to existing noise mitigation facilities. Footprint adjusted to minimize impacts.
21.7L	King County - 4	50	0.024	0.167	Unavoidable due to existing noise mitigation facilities. Footprint adjusted to minimize impacts.
22.5L	King County - 3	75	0.058	0.308	Unavoidable due to roadway design standards. Retaining wall added to limit impacts.
22.8L	Bothell - 3	50	0.036	0.14	Unavoidable due to roadway design standards. Retaining wall added to limit impacts.
23.2L	Bothell - 2	75	0.026	0.27	Unavoidable due to drainage requirements. Footprint adjusted to minimize impacts.
TOTAL			**0.408**	**2.912**	

Table 2-3: Summary of Kirkland Nickel Wetlands

Wetland ID	Cowardin Classification[1]	Wetland Size in Right-of-Way (Square feet)	Local Jurisdiction and Rating	Wetland Category
16.2R	PFO	36,887	Kirkland - 2	II
16.3L	PEM	1,360	Kirkland - 3	IV
16.5L	PEM	2,802	Kirkland – 3	IV
17.1R	PEM	929	Kirkland – 3	IV
17.3R	PEM	2,077	Kirkland - 3	IV
17.7R	PEM	4,168	Kirkland - 3	IV
18.0R	PEM	4,420	Kirkland - 3	IV
18.05R	PFO	5,833	Kirkland - 3	IV
18.06L	PEM	2,060	Kirkland - 3	IV
18.1R	PFO	2,193	Kirkland - 3	IV
18.15R	PEM	57,023	Kirkland - 3	IV
18.2R	PFO	2,976	Kirkland - 3	IV
18.3R	PFO	1,211	Kirkland - 3	IV
18.4R	PEM	1,622	Kirkland - 3	IV
19.06L	PEM	5,871	Kirkland - 3	IV
19.14L	PFO	840	Kirkland - 3	IV
19.27R	PEM	4,590	Kirkland - 3	IV
19.3R	PFO	10,823	Kirkland – 2	III
19.5L	PEM	24,999	Kirkland - 3	IV
19.6R	PEM	2,216	Kirkland - 3	IV
19.6L	PEM	481	Kirkland - 3	IV
19.7R	PSS	10,976	Kirkland - 3	III
19.8L	PEM	14,840	Kirkland - 3	IV
19.9L	PFO	19,310	Kirkland - 3	III
19.9R	PEM	3,811	Kirkland - 3	IV
20.0L	PEM	3,486	Kirkland – 3	IV
20.34L	PEM	12,140	Kirkland – 3	III
20.35L	PEM	7,197	Kirkland – 3	IV
20.4L	PSS	120,199	Kirkland - 2	II
21.6L	PFO	4,039	King County - 3	IV
21.7L	PFO	10,557	King County - 3	IV
21.8L	PEM	2,358	King County - 3	IV
22.5L	PFO	1,084	King County - 2	III
22.8L	PFO	50,352	Bothell - 3	III
23.2L	PFO	13,382	Bothell - 2	III
TOTAL		**449,112**	**(10.310 Acres)**	

[1] PEM – Palustrine Emergent; PFO – Palustrine Forested; PSS – Palustrine Scrub-Shrub

Table 2-4: Summary of Kirkland Nickel Impacted Wetlands (in Square Feet)[1]

Wetland Name/ID	Wetland Size in Right-of-Way	Temporary Wetland	Direct Wetland	Indirect Wetland	Local Jurisdiction and Rating	2004 Ecology Rating
16.3L	1,360	0	1,360	0	Kirkland - 3	IV
16.5L	2,802	0	2,802	0	Kirkland - 3	IV
18.4R	1,622	0	1,622	0	Kirkland - 3	IV
19.06L	5,871	0	2,750	0	Kirkland - 3	IV
19.14L	840	0	840	0	Kirkland - 3	IV
19.27R	4,590	984	3,418	0	Kirkland - 3	IV
19.3R	10,823	0	10,823	0	Kirkland - 2	III
19.5L	24,999	0	24,999	0	Kirkland - 3	IV
19.6R	2,216	0	2,216	0	Kirkland - 3	IV
19.6L	481	0	481	0	Kirkland - 3	IV
19.7R	10,976	1,210	2,778	0	Kirkland - 3	III
19.9R	3,811	0	3,021	790	Kirkland - 3	IV
21.6L	4,039	479	1,850	0	King County - 3	IV
21.7L	10,557	1,334	6,016	0	King County - 3	IV
21.8L	2,358	0	2,358	0	King County - 3	IV
22.8L	50,352	4,317	5,905	0	Bothell - 3	III
Total		**8,324**	**73,239**	**790**		
Acres		**0.191**	**1.681**	**0.018**		

[1] Table includes information for impacted wetlands only. An additional 19 wetlands were delineated within the study area, but will not be affected by the project.

Table 2-5: Summary of Impacted Wetlands and Buffers per Local Jurisdiction

Local Jurisdiction	Direct Impacts to Category III Wetlands (acre)	Direct Impacts to Category IV Wetlands	Total Direct Wetland Impacts (acre)	Total Permanent Buffer Impacts (acre)
Kirkland	0.312	0.998	1.310	1.886
King County	-	0.235	0.235	0.616
Bothell	0.136	-	0.136	0.410
Totals	0.448	1.233	1.681	2.912

Table 2-6: Summaries of Functions and Values for Impacted Wetlands [1]

Wetland Identifier	Cowardin Classification	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage
16.3L	PEM		✓		✓	✓									
16.5L	PEM		✓		✓	✓									
18.4R	PEM	✓	✓	✓											
19.06L	PEM		✓			✓									
19.14L	PFO	✓	✓	✓											
19.27R	PEM	✓	✓	✓	✓	✓	✓								
19.3R	PFO		✓	✓	✓	✓	✓						✓		
19.5L	PEM	✓	✓	✓		✓		✓							
19.6L	PEM		✓	✓											
19.6R	PEM		✓	✓		✓									
19.7R	PSS	✓	✓	✓		✓		✓							
19.9R	PEM	✓	✓	✓		✓									
21.6L	PFO				✓	✓	✓	✓							
21.7L	PFO	✓	✓	✓		✓	✓								
21.8L	PEM		✓			✓									
22.8L	PFO	✓	✓	✓	✓	✓	✓	✓		✓		✓			

[1] A check mark (✓) indicates that the wetland is likely to provide that function or benefit per Null et al. (2000)

Table 3-1: Kirkland Nickel Wetland Direct Impacts and Proposed Mitigation Summary

Wetland Name	Wetland Impact (acre)	Impacted Wetland Category	Mitigation Wetland Category	Mitigation Ratio per IA[1]	Creation Need per IA[1] (acre)	Creation Provided (acre)	Difference (acre)	Location (site)
16.3L	0.031	IV	II	1.25:1	0.039	0.041	0.002	Forbes Lake East
16.5L	0.064	IV	II	1.25:1	0.080	0.084	0.004	Forbes Lake East
18.4R	0.037	IV	II	1.25:1	0.046	0.049	0.003	Forbes Lake East
19.06L	0.063	IV	II	1.25:1	0.079	0.083	0.004	Forbes Lake East
19.14L	0.019	IV	II	1.25:1	0.024	0.025	0.001	Forbes Lake East
19.27R	0.079	IV	II	1.25:1	0.099	0.104	0.005	Forbes Lake East
19.3R	0.248	III	II	1.5:1	0.372	0.384	0.012	Forbes Lake West
19.5L	0.574	IV	II	1.25:1	0.718	0.749	0.031	Forbes Lake East
19.6L	0.011	IV	II	1.25:1	0.014	0.014	0	Forbes Lake East
19.6R	0.051	IV	II	1.25:1	0.064	0.067	0.003	Forbes Lake East
19.7R	0.064	III	II	1.5:1	0.096	0.109	0.013	Forbes Lake West
19.9R	0.069	IV	II	1.25:1	0.086	0.09	0.004	Forbes Lake East
21.6L	0.043	IV	II	1.25:1	0.054	0.057	0.003	Forbes Lake East
21.7L	0.138	IV	II	1.25:1	0.173	0.182	0.009	Forbes Lake East
21.8L	0.054	IV	II	1.25:1	0.068	0.071	0.003	Forbes Lake East
22.8L	0.136	III	II	1.5:1	0.204	0.204	0	Varies[2]
I-405 Total	***1.681***				***2.216***	***2.313***	***0.097***	
Sound Transit [3]	0.009	IV	II	1.25:1	0.012	0.012	0	Forbes Lake West
124th to SR 522 [4]	To be determined	To be determined	To be determined	To be determined	0.074	0.074	0	Thrasher's Corner
Total	**1.690**				**2.302**	**2.399**	**0.097**	

[1] Based on the maximum range identified in Appendix E of the 1993 Implementing Agreement

[2] Thrashers Corner (0.136 acre - Creation) - Forbes Lake West (.068 acre - Creation)

[3] WSDOT is providing mitigation at Forbes Lake West for previously unknown wetland impacts occurring as a result of the Sound Transit Kirkland Direct Access Ramp Project. This project was permitted separately from the Kirkland Nickel Project.

[4] WSDOT is creating an additional 0.074 acre of wetland creation at the Thrasher's Corner site for future, and as yet uncategorized wetland impacts, as a result of the 124th to SR 522 Northbound Lane Braid project. This project will be permitted separately from the Kirkland Nickel Project.

Table 3-2: Summary of Required and Proposed Additional Wetland Mitigation

Mitigation Site	Mitigation Type	Mitigation Required (acre)	Mitigation Provided[1] (acre)
Forbes Lake West	Creation – Category 2[1]	0.536	0.561
	Enhancement – Category 2[2]		0.864
	Preservation – Category 1[2]		0.744
	Upland Habitat Enhancement		0.051
Forbes Lake East	Creation – Category 2	1.556	1.628
	Enhancement – Category 2[2]		0.572
	Upland Habitat Enhancement		1.486
Thrasher's Corner	Creation – Category 2	0.136	0.136
	Creation - 124th to SR 522 Northbound Braid	0.074	0.074
	Enhancement – Category 2[2]		0.717
	Preservation – Category 2[2]		3.224
	Upland Habitat Enhancement		none available
Totals	**Creation**	**2.302**	**2.399**
	Enhancement		**2.153**
	Preservation		**3.968**
	Upland Habitat Enhancement		**1.537**

[1] *WSDOT is providing mitigation at Forbes Lake West for previously unknown wetland impacts occurring as a result of the Sound Transit Kirkland Direct Access Ramp Project. The total mitigation required reflects 0.536 acre for I-405 and 0.012 for Sound Transit.*

[2] *Wetland enhancement and preservation proposed in addition to wetland creation in addition to compensatory wetland creation ratios stated in the 1993 Implementing Agreement.*

Wetland Descriptions

Wetland 19.06L

Size and location: 0.135-acre wetland adjacent to I-405 southbound lanes, just north of Milepost 19. The wetland is a broad swale that receives runoff from I-405 and adjacent slopes, and drains to a seasonal stream to the north.

Vegetation: Dominated by velvet grass, bent grass, reed canary grass, and small-fruited bulrush.

Soils: An A layer of black (10YR 2/1) sandy loam extending to 14 inches.

Hydrology: Soils moist, but not saturated in data plot. In the bottom of the swale, saturated soil observed within 10 inches of the surface.

Wetland Classification: Wetland 19.06L is a PEM wetland that is seasonally saturated. It is a Category IV under Ecology's rating system, and a Type 3 under the City of Kirkland's sensitive area regulations.

Wetland Functional Assessment: Principal functions of Wetland 19.06L are sediment removal and production and export of organic matter. The wetland receives road runoff, contains dense herbaceous vegetation, and is connected to a seasonal stream.

Wetland Determination: The boundary of Wetland 19.06L was flagged where indicators of wetland vegetation, hydric soil, and wetland hydrology were present. These corresponded to the base of fill for adjacent roads and topographic changes. Adjacent uplands were distinguished from the wetland by the lack of hydric soils or indicators of wetland hydrology, and the presence of upland plant species.

Wetland 19.14L

Size and location: 0.019-acre wetland located in a forested area adjacent to I-405 southbound lanes, and south of Forbes Creek. The wetland is a small depressional area that receives runoff from I-405, and surrounding land.

Vegetation: Dominated by slough sedge and salmonberry.

Soils: An A layer of black (10YR 2/1) sandy loam extending to below 16 inches.

Hydrology: Soils dry in data plot. Wetland hydrology is inferred by the presence of sediment deposits and an obligate plant specie. Wetland hydrology is expected to return during the early portion of the growing season.

Wetland Classification: Wetland 19.14L is a PFO wetland that is seasonally saturated/inundated. It is a Category IV under Ecology's rating system, and a Type 3 under the City of Kirkland's sensitive area regulations.

Wetland Functional Assessment: The principal function of Wetland 19.14L is sediment removal. The wetland is located in a depression, and receives runoff from I-405 and development to the west.

Wetland Determination: The boundary of Wetland 19.14L was flagged where indicators of wetland vegetation, hydric soil, and wetland hydrology were present. These corresponded primarily to topographic changes. Adjacent uplands were distinguished from the wetland by the lack of hydric soils or indicators of wetland hydrology, and the presence of upland plant species.