Areas shown are approximate only

C1 Issaquah Creek Streambank Enhancement : Creek Play Area
C2 Issaquah Creek Streambank Enhancement : Creek Play Area
C3 Issaquah Creek Streambank Enhancement
C4* Greenwood Wetland and Stream Restoration
C5 Issaquah Creek Streambank Enhancement
C6 Issaquah Creek Streambank Enhancement
C7 Issaquah Creek Streambank Enhnacement
C8* East Lake Sammamish Parkway Wetland
C9 Tibbetts Creek Floodplain Extension
C10* Wetland Habitat Enhancement

* These wetlands were evaluated using the *Wetland and Buffer Funcations Semi-Quantitative Assessment Methodology* (Cooke Scientific Services, 2002). This information is presented on the individual project pages and the detailed worksheets are included in Appendix B.

Stream, Recreation ■
(X,Y) 408264.6822, 62365.67984 ■

Issaquah Creek Streambank Enhancement : Creek Play Area

Existing & Proposed Conditions:

Along the right streambank at the eastern park boundary is a vertical, eroding streambank 10-12 feet high and approximately 150 feet long. The area is grassy with little vegetation extending landward from the top-of-slope. The eroding, migrating streambank is encroaching upon a section of trail.

Implementation of this project would entail:

1) re-sloping the vertical bank to a slope of 2:1, H:V or flatter
2) placing numerous logs, possibly in the form of a root wad revetment, to stabilize the toe of the slope and provide fish and wildlife habitat functions
3) removing non-native vegetation around the periphery (blackberries) not eliminated by grading
4) revegetating with native plant species

An example or "demonstration" project already implemented for the purpose of addressing this sort of vertical eroding streambank is located just upstream of the park boundary on adjoining property. Variations can be made in terms of bank slope, log placement, and anchoring methods.

Existing streambank and gravel bar offer potential for recreational usage

Project location

This is one of two alternative locations for a possible "creek play" area (also see discussion of Project C2). This area is sandier than Project C2 and adjacent office buildings are better screened. An existing large log jam could include interpretive signage explaining stream dynamics. A new trail for access would be threaded through adjacent natural and invasive-vegetation areas.

Creek play areas are envisioned as places where people are allowed to get their toes wet, to actually get into the water and play. These have been proposed at gravel bar locations where impacts to existing native vegetation would be minimal and in somewhat out of the way areas where use is likely to be less intense. It is not necessary that the vertical stream banks at these sites be "fixed" for them to function as creek play areas. In fact, if the banks were left vertical, it would add to the secluded "natural amphitheatre" character of these areas and reduce cross-creek foot traffic.

Stream, Recreation ■
(X,Y) 408227.7776, 62512.10775 ■

Issaquah Creek Streambank Enhancement : Creek Play Area

Existing & Proposed Conditions:

Along the right streambank in view of business park buildings near the eastern park boundary is a vertical, eroding streambank 10-12 feet high and approximately 150 feet long. The area is grassy with little vegetation extending landward from the top-of-slope. The eroding, migrating streambank is encroaching upon a section of trail.

Implementation of this project would entail:

1) re-sloping the vertical bank to a slope of 2:1, H:V or flatter
2) placing numerous logs, possibly in the form of a root wad revetment, to stabilize the toe of the slope and provide fish and wildlife habitat functions
3) removing non-native vegetation around the periphery (blackberries) not eliminated by grading
4) revegetating with native plant species

An example or "demonstration" project already implemented for the purpose of addressing this sort of vertical eroding streambank is

Existing gravel bar provides recreational opportunities

● Project location

located just upstream of the park boundary on adjoining property. Variations can be made in terms of bank slope, log placement, and anchoring methods.

This is also one of two possible locations for a "creek play" area. Creek play areas are envisioned as places where people are allowed to get their toes wet, to actually get into the water and play. These have been proposed at gravel bar locations where impacts to existing native vegetation would be minimal and in somewhat out of the way areas where use is likely to be less intense. It is not necessary that the vertical stream banks at these sites be "fixed" for them to function as creek play areas. In fact, if the banks were left vertical, it would add to the secluded "natural amphitheatre" character of these areas and reduce cross-creek foot traffic. This location has a nice, fairly large gravel bar, southeast facing. The area needs to be cleared of invasive Japanese knotweed and reed canarygrass. A new trail would be threaded through adjacent natural and invasive-vegetation areas to provide access to creek. Also see discussion of Project C1.

Stream ■
(X,Y) 407899.2077, 62675.20225 ■

Issaquah Creek Streambank Enhancement

Existing & Proposed Conditions:

Along the left streambank just upstream of a prominent oxbow is a vertical, eroding streambank 10-12 feet high and approximately 300 feet long. The area is grassy with little vegetation extending landward from the top-of-slope. The eroding, migrating streambank has made it necessary to relocate a section of trail farther from the creek for safety reasons.

Implementation of this project would entail:

1) re-sloping the vertical bank to a slope of 2:1, H:V or flatter
2) placing numerous logs, possibly in the form of a root wad revetment, to stabilize the toe of the slope and provide fish and wildlife habitat functions
3) removing non-native vegetation around the periphery (blackberries) not eliminated by grading
4) revegetating with native plant species.

● Project location

An example or "demonstration" project already implemented for the purpose of addressing this sort of vertical eroding streambank is located just upstream of the park boundary on adjoining property. Variations can be made in terms of bank slope, log placement, and anchoring methods.

The migrating streambank

Lake Sammamish State Park

Project C4

Stream, Wetland, Lakeshore, Recreation ■
(X,Y) 406728.9749, 62383.5369 ■

Greenwood Wetland and Stream Restoration

Existing & Proposed Conditions:

The Greenwood property is approximately 14.8 acres, extending from Interstate 90 across the lower reaches of Tibbetts Creek, including the mouth of the creek at Lake Sammamish. This property, which is proposed for future acquisition by Washington State Parks, includes approximately 12 acres of abandoned pasture and hayfield. This large open field is primarily dominated by reed canarygrass surrounded by blackberry thickets with some trees along the edges. Schneider Creek flows from a culvert under the freeway along the western margin of the property to Lake Sammamish. The lakeshore is well vegetated with dense and diverse trees, shrubs, and emergent vegetation. There is abundant downed wood and complex habitat structure.

This property provides a tremendous opportunity to greatly improve fish and wildlife habitat, as well as aesthetics. Schneider Creek could be relocated to the east with a meandering stream channel, associated backwater depressions, log structures, and revegetation with a diverse assemblage of native riparian and wetland plants. Other wetland depressions created throughout the field could further increase the complexity and edge character of the habitat while altering microclimates to discourage invasive plants. Variable sizes, shapes, slopes, and orientation could be incorporated into these depressions to provide excellent amphibian habitat. Installation of snags and brush piles, comprehensive and diverse revegetation, and screening with trees planted along the freeway all would contribute to the overall restoration and value of this area. A trail from the baseball fields and parking lot could lead to an overlook and/or boardwalk through the restored wetland with interpretive signage.

Wetland and buffer functions can be characterized using the Wetland and Buffer Functions Semi-Quantitative Assessment Methodology (Cooke Scientific Services, 2002). The table above shows scores for each function in the existing condition and predicted improvement based on proposed habitat enhancements. The worksheet for this assessment is included in Appendix B.

● Project location

Wetland function	Existing score	Proposed score
Flood/Storm Water Control	6	11
Base Flow/Ground Water Support	6	11
Erosion/Shoreline Protection	7	7
Water Quality Improvement	12	12
Natural Biological Support	19	30
Overall Habitat Functions	5	8
Specific Habitat Functions	7	13
Cultural/Socioeconomic	8	14

The abandoned hayfield along Interstate 90

Stream ■
(X,Y) 407777.7797, 62739.48767 ■

Issaquah Creek Streambank Enhancement

Existing & Proposed Conditions:

Along the left streambank just upstream of the "orchard" is a vertical, eroding streambank 8-10 feet high and approximately 120 feet long. The vegetation extending landward from the top-of-slope is primarily reed canarygrass and Himalayan blackberry.

Implementation of this project would entail:

1) re-sloping the vertical bank to a slope of 2:1, H:V or flatter
2) placing numerous logs, possibly in the form of a root wad revetment, to stabilize the toe of the slope and provide fish and wildlife habitat functions
3) removing non-native vegetation around the periphery (blackberries) not eliminated by grading
4) revegetating with native plant species

● Project location

An example or "demonstration" project already implemented for the purpose of addressing this sort of vertical eroding streambank is located just upstream of the park boundary on adjoining property. Variations can be made in terms of bank slope, log placement, and anchoring methods.

Invasive species on existing streambank

Stream ■
(X,Y) 408071.826, 62541.86952 ■

Issaquah Creek Streambank Enhancement

Existing & Proposed Conditions:

Along the left streambank just upstream of a more stable section, including a possible bridge crossing location, is a vertical, eroding streambank 10-12 feet high and approximately 150 feet long. The area is grassy with little vegetation extending landward from the top-of-slope. The eroding, migrating streambank has made it necessary to relocate a section of trail farther from the creek for safety reasons.

Implementation of this project would entail:

1) re-sloping the vertical bank to a slope of 2:1, H:V or flatter
2) placing numerous logs, possibly in the form of a root wad revetment, to stabilize the toe of the slope and provide fish and wildlife habitat functions
3) removing non-native vegetation around the periphery (blackberries) not eliminated by grading
4) revegetating with native plant species

● Project location

An example or "demonstration" project already implemented for the purpose of addressing this sort of vertical eroding streambank is located just upstream of the park boundary on adjoining property. Variations can be made in terms of bank slope, log placement, and anchoring methods.

The eroding streambank

Stream ■
(X,Y) 407711.1133, 62769.24944 ■

Issaquah Creek Streambank Enhancement

Existing & Proposed Conditions:

Along the left streambank just downstream of the "orchard" is a vertical, eroding streambank 10-12 feet high and approximately 75 feet long. The vegetation extending landward from the top-of-slope is primarily reed canarygrass and Himalayan blackberry.

Implementation of this project would entail

1) re-sloping the vertical bank to a slope of 2:1, H:V or flatter
2) placing numerous logs, possibly in the form of a root wad revetment, to stabilize the toe of the slope and provide fish and wildlife habitat functions
3) removing non-native vegetation around the periphery (blackberries) not eliminated by grading
4) revegetating with native plant species

● Project location

An example or "demonstration" project already implemented for the purpose of addressing this sort of vertical eroding streambank is located just upstream of the park boundary on adjoining property. Variations can be made in terms of bank slope, log placement, and anchoring methods.

Streambank encroached by invasive species

Wetland, Lakeshore, Recreation ■
(X,Y) 408190.873, 63094.24796 ■

East Lake Sammamish Parkway Wetland

Existing & Proposed Conditions:

This large wetland, approximately 46 acres, is south of the boat launch between Lake Sammamish and East Lake Sammamish Parkway SE. The northern boundary of the wetland near the boat launch was delineated and identified as Wetland 4 in Wetlands Inventory for the Lake Sammamish State Park Property (The Coot Company, 2005). Dense, monotypic reed canarygrass dominates this abandoned hayfield and pasture. Blackberries are conspicuously absent from much of the area, as evidence of the wetter conditions found here compared to other wetlands in the park. Several ditches direct water westward into Lake Sammamish. There are small groves of trees and shrubs along the ditches, field edges, and scattered throughout the field.

There is tremendous opportunity to greatly improve wetland functions and wildlife habitat, as well as aesthetics at this site. The ditches could be plugged and/or meander flow pathways created to increase hydrologic diversity. Topography could be changed to create wetland depressions throughout the field to further increase the complexity and edge character of the habitat while altering microclimates to discourage invasive plants. Variable sizes, shapes, slopes, and orientation could be incorporated into these depressions to create excellent amphibian habitat. Installation of snags, logs and brush piles, along with comprehensive and diverse revegetation would contribute to the overall restoration and value of this area. A trail and boardwalk loop connecting from the East Lake Sammamish Trail could allow for public access, viewing, and interpretive opportunities. This large project could be built in phases.

● Project location

Wetland function	Existing score	Proposed score
Flood/Storm Water Control	9	11
Base Flow/Ground Water Support	9	11
Erosion/Shoreline Protection	7	7
Water Quality Improvement	11	11
Natural Biological Support	17	25
Overall Habitat Functions	5	8
Specific Habitat Functions	9	13
Cultural/Socioeconomic	11	15

Wetland and buffer functions can be characterized using the Wetland and Buffer Functions Semi-Quantitative Assessment Methodology (Cooke Scientific Services, 2002). The table above shows scores for each function in the existing condition and predicted improvement based on proposed habitat enhancements. The worksheet for this assessment is included in Appendix B.

Reed canarygrass dominates the existing open field

Wetland, Stream ■
(X,Y) 406751.5939, 62495.44116 ■

Tibbetts Creek Floodplain Extension

Existing & Proposed Conditions:

A previous stream restoration project along Tibbetts Creek was implemented by the Washington State Department of Transportation (WSDOT) along the park entrance road and extending westward from where the creek turns away from the road. The project provided floodplain widening along the left bank (facing downstream), in-stream log structure placement, streambed gravel placement, non-native vegetation removal, and revegetation with native plant species.

This project would extend this same type of in-stream and riparian restoration farther downstream along Tibbetts Creek according to the same template. This extension of the previous project would similarly entail grading to extend the floodplain along the left bank, in-stream log structure placement, blackberry removal, and native revegetation downstream beginning where the previous WSDOT project left off. Furthermore, right bank work along this stream section would include removal of the obsolete silt fencing remaining from already-completed invasive plant removal and revegetation work. This project could be combined with Project A1 and B5, which address other segments of the Tibbetts Creek corridor.

● Project location

The existing Tibbetts Creek channel

Lake Sammamish State Park

Project C10

Wetland, Upland ■
(X,Y) 407955.1598, 62582.34552 ■

Wetland Habitat Enhancement

Existing & Proposed Conditions:

There is an approximately 15.5-acre wetland and upland field south of Issaquah Creek near the southeast center of the park. This area has more vegetative diversity than many of the other existing fields with large patches of willows, small-fruited bulrush, cattail, and horsetail. Willow and blackberry thickets edge the field. A ditch through this area directs water northward to Issaquah Creek. This wetland was not specifically delineated in the Wetlands Inventory for the Lake Sammamish State Park Property (The Coot Company, 2005), but it is connected to areas identified as Wetlands 6A and 6B. This report also indicates that this ditch receives significant input from stormwater runoff from the City of Issaquah. Drier, upland conditions are present in the north end of this field closer to Issaquah Creek. This area was generally described and identified in the Wetland Inventory report as Issaquah Creek Uplands, a "combination of slightly higher ground built up from flood overflow deposition plus the drainage effects from the creek channel 'zone of influence' which has created mostly linear 'islands' of upland ground along both sides of the creek."

This fairly remote section of the park could be enhanced to increase habitat, food and cover values. The ditch could be plugged to increase wetland hydrology and accommodate more diverse plant communities. Logs and brush piles could be installed to provide additional habitat features. Upland plant communities could be planted to the north to create an overall complex of wetland and upland types.

Wetland and buffer functions can be characterized using the Wetland and Buffer Functions Semi-Quantitative Assessment Methodology (Cooke Scientific Services, 2002). The table above shows scores for each function in the existing condition and predicted improvement based on proposed habitat enhancements. The worksheet for this assessment is included in Appendix B.

● Project location

Wetland function	Existing score	Proposed score
Flood/Storm Water Control	7	10
Base Flow/Ground Water Support	7	9
Erosion/Shoreline Protection	NA	NA
Water Quality Improvement	12	12
Natural Biological Support	20	27
Overall Habitat Functions	7	8
Specific Habitat Functions	8	11
Cultural/Socioeconomic	11	13

Fairly diverse existing vegetation

9. REFERENCES

Booth, Derek. 1990. Surficial geology of the Skykomish and Snoqualmie Rivers area, Snohomish and King Counties, Washington.

Cooke Scientific Services. 2002. Wetland and Buffer Functions Semi-Quantitative Assessment Methodology.

The Coot Company. January 2005. Wetlands Inventory for the Lake Sammamish State Park Property.

Washington State Department of Transportation, Northwest Region Biology. April 2003. Final Wetland Mitigation Report, I-90 Sunset Way Interchange Violation.

Washington State Department of Transportation, Northwest Region Biology. April 2003. Final Wetland Mitigation Report, SR 900 Newport Way to I-90 Widening (MP 20.09 to MP 21.64).

Washington State Department of Transportation, Northwest Region Biology. December 2003. Final Wetland Mitigation Report, I-90 Sunset Way Interchange Retaining Wall 16.

Washington State Parks and Recreation Commission. August 2003. Lake Sammamish State Park Area Management Plan.

Washington State Parks and Recreation Commission. February 2005. Master Development Plan/Environmental Impact Statement (EIS) Proposal Overview.