Appendix G

Existing Restoration Projects and Scoring Results

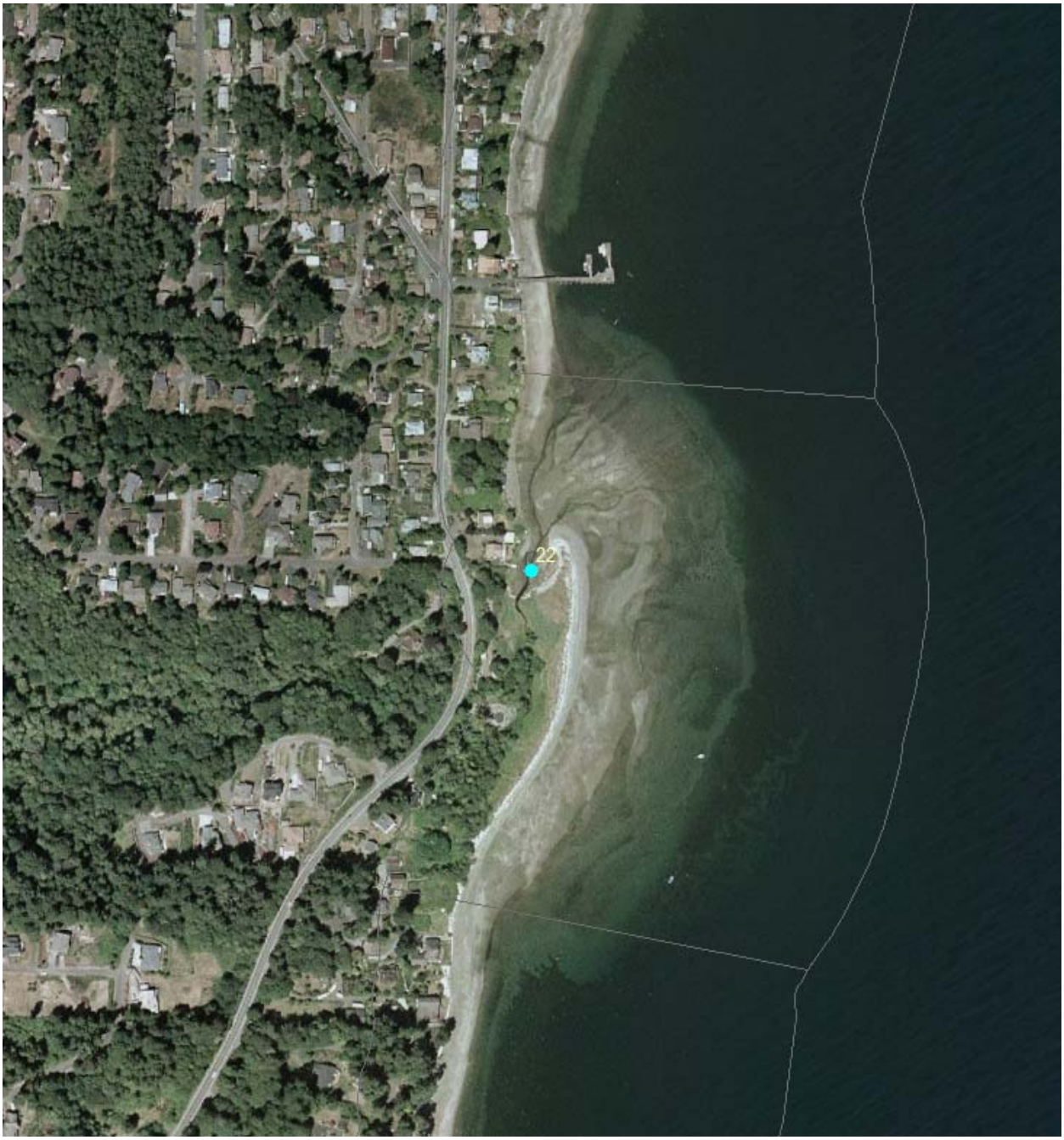
Restoration Projects and Scoring Results

The table below provides the scoring results from the stressor-based GIS model for 46 restoration projects in East Kitsap County. The project information was provided by the County. While the GIS model results were not intended to provide project-specific information, the data does provide information on the likelihood of success of various management strategies and provides information on the level and type of disturbance at the site scale. The results are discussed further in the six examples below the table and in the main body of the report.

Project ID	Location	Description	Type	ShoreZone Unit ID	Site ID	Drift Cell ID	Dominant Processes	CF Site Score	DP Site Score	Drift Cell Score	CF Site Rank	DP Site Rank	Drift Cell Rank	Management Action Updated	Comments
32	Styles Lagoon, Keyport*	Restore tidal regime, replace tide gate	Culvert	3397	261	114	Tidal Erosion, Wave Deposition	0.021	0.038	1.000	1	1	1	Protect & Conserve & Restore	Processes functional at site and landscape scale - high likelihood of restoration success; restoration will improve local conditions
31	Mud Bay*	Fill Removal, Restore Puget Sound Connectivity	Restoration	3587	396	48	Tidal Erosion	0.055	0.154	1.000	1	1	1	Protect & Conserve & Restore	Processes functional at site and landscape scale - high likelihood of restoration success; restoration will improve local conditions
14	Little Clam Bay, Manchester*	Replace tide gate with bridge and restore estuary	Culvert	3064	73	32	Tidal Erosion, Fluvial Deposion	0.010	0.000	1.333	1	1	1	Protect & Conserve & Restore	Processes functional at site and landscape scale - high likelihood of restoration success; restoration will improve local conditions
13	Carpenter Creek Estuary, Appletree Cove	Salt Marsh and Riparian Habitat Restoration	Restoration	3269	133	72	Tidal Erosion, Wave Deposition	0.025	0.038	1.333	1	1	1	Protect & Conserve & Restore	Processes functional at site and landscape scale - high likelihood of restoration success; restoration will improve local conditions
36	Carpenter Creek Estuary, Appletree Cove*	Replace culvert on West Kingston Rd with Bridge	Culvert	3269	133	72	Tidal Erosion, Wave Deposition	0.025	0.038	1.333	1	1	1	Protect & Conserve & Restore	Processes functional at site and landscape scale - high likelihood of restoration success; restoration will improve local conditions
37	Carpenter Creek Estuary, Appletree Cove*	Replace culvert on South Kingston Rd with Bridge	Culvert	3269	133	72	Tidal Erosion, Wave Deposition	0.025	0.038	1.333	1	1	1	Protect & Conserve & Restore	Processes functional at site and landscape scale - high likelihood of restoration success; restoration will improve local conditions
35	Virginia Point Rd NE	Protect Salt marsh and review tidal constriction	Protection	3418	282	111	Tidal Erosion, Wave Deposition	0.044	0.169	1.333	1	1	1	Protect & Conserve & Restore	Processes functional at site and landscape scale - high likelihood of restoration success; restoration will improve local conditions
26	Burley Creek Upper Lagoon	Protect functioning estuary habitat	Protection	1410	1	1	Fluvial Deposition, Wave Deposition	0.047	0.043	1.333	1	1	1	Protect & Conserve & Restore	Processes functional at site and landscape scale - high likelihood of restoration success; restoration will improve local conditions
27	Point Southworth	Protect habitat	Protection	3035	45	127	Wave Deposition	0.013	0.000	1.667	1	1	2	Protect & Conserve & Restore	Processes moderately functional at landscape scale - moderate likelihood of restoration success
61	Pilot Point	Pilot Point Aquisition	Aquisition	3288	152	77	Sediment Source/Transport	0.031	0.040	1.667	1	1	2	Protect & Conserve & Restore	Processes moderately functional at landscape scale - moderate likelihood of restoration success
16	Clear Cr. at Bucklin Rd*	Replace Culvert with Bridge	Culvert	3642	449	156	Tidal Erosion, Wave Deposition	0.068	0.038	1.667	1	1	2	Protect & Conserve & Restore	Processes moderately functional at landscape scale - moderate likelihood of restoration success
47	Clear Cr. at Bucklin Rd	Pursue aquisition to improve buffer, add 9.5 acres	Aquisition	3642	449	156	Tidal Erosion, Wave Deposition	0.068	0.038	1.667	1	1	2	Protect & Conserve & Restore	Processes moderately functional at landscape scale - moderate likelihood of restoration success
52	Waterman Point at Beach Drive	Evaluate culvert size, Protect estuary functions	Protection	3321	500	84	Wave & Tidal Erosion, Fluvial Deposition	0.090	0.179	2.000	1	1	2	Protect & Conserve & Restore	Processes moderately functional at landscape scale - moderate likelihood of restoration success
1	14070 Sandy Hook Road, Poulsbo	Remove concrete cylinders, tires, creosote pier.	Misc.	3474	338	70	Sediment Source/Transport	0.059	0.240	1.333	1	2	1	Protect & Conserve & Restore & Restore Site Processes	Processes functional at landscape scale - high likelihood of restoration success; restoring site process may further improve restoration success
18	Barker Creek, Dyes Inlet*	Replace Culvert with Bridge	Culvert	3653	457	137	Tidal Erosion, Wave Deposition	0.104	0.192	1.333	2	1	1	Conserve & Restore	Processes functional at landscape scale - high likelihood of restoration success
29	Miller Bay, Nooschkum Point	Protect 3 ac. spit and marsh	Protection	3234	99	110	Tidal Erosion, Wave Deposition	0.092	0.231	1.333	2	2	1	Conserve & Restore & Restore Site Processes	Processes functional at landscape scale - high likelihood of restoration success; restoring site process may further improve restoration success
42	Phinney Bay, City of Bremerton	Feasibility Study to identify restoration projects	Research Study	3558	368	38	Fluvial Deposition	0.106	0.280	1.333	2	2	1	Conserve & Restore & Restore Site Processes	Processes functional at landscape scale - high likelihood of restoration success; restoring site process may further improve restoration success
53	Waterman Dock and Beach Drive*	Possible undersized culvert, for mitigation	Culvert	3323	187	84	Fluvial Deposition	0.125	0.280	2.000	2	2	2	Conserve & Restore & Restore Site Processes	Processes moderately functional at landscape scale - moderate likelihood of restoration success; restoring site process may improve conditions at landscape
10	Beach Drive Sacco Drive*	Fix Culvert and Restore Estuary	Culvert	3683	486	84	Fluvial Deposition	0.125	0.200	2.000	2	2	2	Conserve & Restore & Restore Site Processes	Processes moderately functional at landscape scale - moderate likelihood of restoration success; restoring site process may improve conditions at landscape
6	Port of Waterman 2010 Juniper Ct. Port Orchard	Need to fix dock, mitigate shoreline	Misc.	3324	188	84	Wave Deposition	0.115	0.462	2.000	2	3	2	Conserve & Restore & Restore Site Processes	Processes moderately functional at landscape scale - moderate likelihood of restoration success; restoring site process may improve conditions at landscape
43	Mud Bay, City of Bremerton	Feasibility Study to identify restoration projects	Research Study	3577	386	86	Sediment Source/Transport	0.194	0.280	1.667	3	2	2	Restore & Restore Site Processes	Processes moderately functional at landscape scale - moderate likelihood of restoration success; restoring site process may improve conditions at landscape
41	Oyster Bay, City of Bremerton	Feasibility Study to identify restoration projects	Research Study	3598	407	49	Tidal Erosion	0.190	0.462	1.000	3	3	1	Restore & Restore Site Processes	Processes functional at landscape scale - high likelihood of restoration success; restoring site process may further improve restoration success
62	Hansville Waterfront Park	Waterfront Access and stream/wetland restoration	Aquisition	3293	157	98	Sediment Source/Transport	0.232	0.373	1.333	3	3	1	Restore & Restore Site Processes	Processes functional at landscape scale - high likelihood of restoration success; restoring site process may further improve restoration success
28	Doe-Keg-Wats Oil Spill Bay	Protect 35 ac. saltmarsh	Protection	3249	515	112	Wave Erosion, Fluvial Depostion	0.000	0.000	2.333	1	1	3	Enhance	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement may be successful to improve some habitat features
7	Chico Creek Estuary	Remove bulkhead and creosoted over-water structure	Bulkhead removal	3622	431	90	Tidal Erosion, Fluvial Depostion	0.054	0.175	2.333	1	1	3	Enhance	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement may be successful to improve some habitat features
38	Chico Creek Estuary Kitty Hawk Drive*	Abandon Road and remove culvert	Culvert	3622	431	90	Tidal Erosion, Fluvial Depostion	0.054	0.175	2.333	1	1	3	Enhance	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement may be successful to improve some habitat features
54	Chico Creek Estuary	Ron Ross Property Aquisition	Aquisition	3622	431	90	Tidal Erosion, Fluvial Depostion	0.054	0.175	2.333	1	1	3	Enhance	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement may be successful to improve some habitat features
55	Chico Creek Estuary	Multiple property aquisitions for Kitty Hawk, etc.	Aquisition	3622	431	90	Tidal Erosion, Fluvial Depostion	0.054	0.175	2.333	1	1	3	Enhance	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement may be successful to improve some habitat features
9	Harper Estuary*	Remove Olympiad Rd or fix culvert	Culvert	3043	52	81	Tidal Erosion, Wave Deposition	0.062	0.154	2.333	1	1	3	Enhance	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement may be successful to improve some habitat features
49	Harper Estuary	Remove old roadbed and restore estuary functions	Restoration	3043	52	81	Tidal Erosion, Wave Deposition	0.062	0.154	2.333	1	1	3	Enhance	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement may be successful to improve some habitat features
50	Harper Estuary	Remove or minimize unpermitted boat ramp	Restoration	3043	52	81	Tidal Erosion, Wave Deposition	0.062	0.154	2.333	1	1	3	Enhance	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement may be successful to improve some habitat features

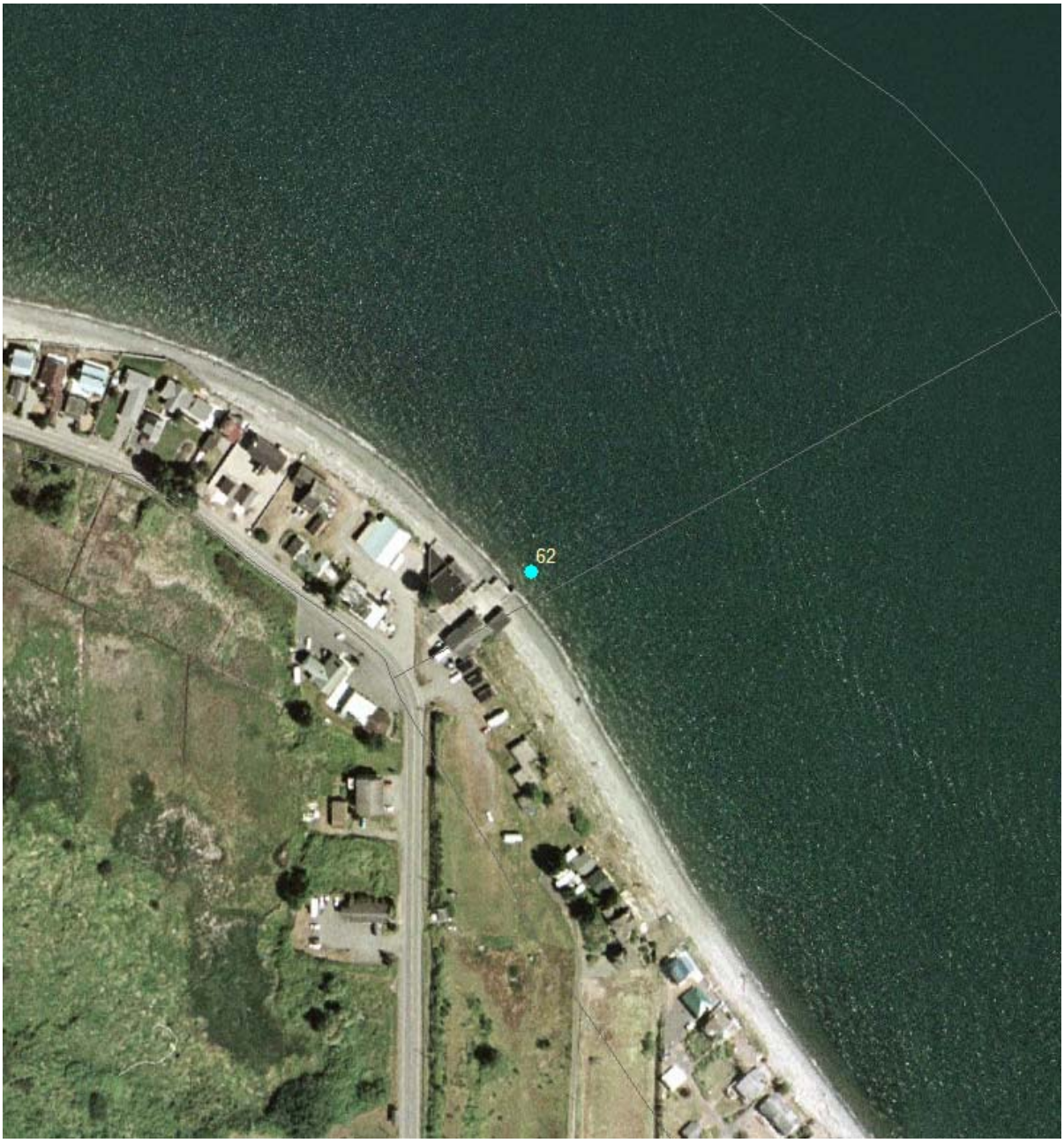
Project ID	Location	Description	Type	ShoreZone Unit ID	Site ID	Drift Cell ID	Dominant Processes	CF Site Score	DP Site Score	Drift Cell Score	CF Site Rank	DP Site Rank	Drift Cell Rank	Management Action Updated	Comments
22	Illahee Creek Estuary	Protect 0.73 ac. saltmarsh	Protection	3377	241	56	Fluvial Deposition, Wave Depostion	0.082	0.157	2.667	1	1	3	Enhance	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement may be successful to improve some habitat features
48	Gorst Creek Estuary	Remove bulkheads, armoring	Bulkhead Removal	3348	212	34	Tidal Erosion, Fluvial Depostion	0.069	0.142	3.000	1	1	3	Enhance	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement may be successful to improve some habitat features
12	Gorst Creek Estuary	Restore Estuarine functions through aquisitions	Aquisition	3347	211	34	Tidal Erosion, Fluvial Depostion	0.083	0.071	3.000	1	1	3	Enhance	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement may be successful to improve some habitat features
17	Mosher Creek Estuary, Dyes Inlet*	Replace Culvert, Protect Estuary	Culvert	3662	466	137	Fluvial Deposition	0.091	0.140	3.000	1	1	3	Enhance	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement may be successful to improve some habitat features
44	Port Washington Narrows, City of Bremerton	Feasibility Study to identify restoration projects	Research/ Study	3678	482	107	Sediment Source/Transport	0.179	0.080	2.333	2	1	3	Enhance & Create	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement or creation may be successful to improve some habitat features
40	Ostrich Bay, City of Bremerton	Feasibility Study to identify restoration projects	Research/ Study	3604	413	50	Sediment Source/Transport	0.183	0.187	2.333	2	1	3	Enhance & Create	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement or creation may be successful to improve some habitat features
19	Dee - Enetai Creek Estuary	Investigate soft bank alternatives to bulkheads	Bulkhead removal	3369	507	56	Fluvial Deposition, Wave Depostion	0.227	0.180	2.667	3	1	3	Enhance & Create	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; enhancement or creation may be successful to improve some habitat features
2	Anna Smith Park, 7601 Tracyton Blvd	Bulkhead Removal	Bulkhead removal	3654	458	137	Sediment Source/Transport	0.107	0.200	3.000	2	2	3	Enhance & Create & Restore Site Processes	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; restoring site process may improve conditions at landscape
11	Ross Creek At Hwy 166*	Upgrade culvert, restore estuary functions	Culvert	3341	205	34	Tidal Erosion, Fluvial Depostion	0.127	0.233	3.000	2	2	3	Enhance & Create & Restore Site Processes	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; restoring site process may improve conditions at landscape
34	Lindvig Way, Poulsbo*	Replace Culvert and remove rock weir	Culvert	3442	306	67	Tidal Erosion, Fluvial Depostion	0.152	0.498	2.667	2	3	3	Enhance & Create & Restore Site Processes	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; restoring site process may improve conditions at landscape
21	Karcher Creek*	Replace culvert at Beach Dr.	Culvert	3333	197	34	Fluvial Deposition	0.192	0.280	3.000	3	2	3	Enhance & Create & Restore Site Processes	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; restoring site process may improve conditions at landscape
46	Karcher Creek at Beach Drive Port Orchard	Remove Invasive Vegetation	Misc.	3333	197	34	Fluvial Deposition	0.192	0.280	3.000	3	2	3	Enhance & Create & Restore Site Processes	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; restoring site process may improve conditions at landscape
20	Annapolis Creek*	Replace undersized restrictive culvert	Culvert	3335	199	34	Fluvial Deposition	0.384	0.200	3.000	3	2	3	Enhance & Create & Restore Site Processes	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; restoring site process may improve conditions at landscape
4	Port of Silverdale	Beach Restoration	Restoration	3634	443	152	Wave Deposition	0.271	0.508	3.000	3	3	3	Enhance & Create & Restore Site Processes	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; restoring site process may improve conditions at landscape
51	Annapolis Boat Ramp, Beach Drive	Remove boat ramp and restore natural shoreline	Restoration	3334	198	34	Wave Deposition	0.299	0.508	3.000	3	3	3	Enhance & Create & Restore Site Processes	Processes at landscape scale have been altered - likelihood of restoration success lower unless landscape processes restored; restoring site process may improve conditions at landscape

*Some of the potential restoration projects listed here involve restoration of hydrologic connectivity. Disturbances to hydrologic connectivity (e.g., tide gates, culverts, etc.) were not included in the assessment and therefore not included in the disturbance score. Inclusion of hydrologic connectivity is recommended for future versions of this and/or other nearshore assessments.

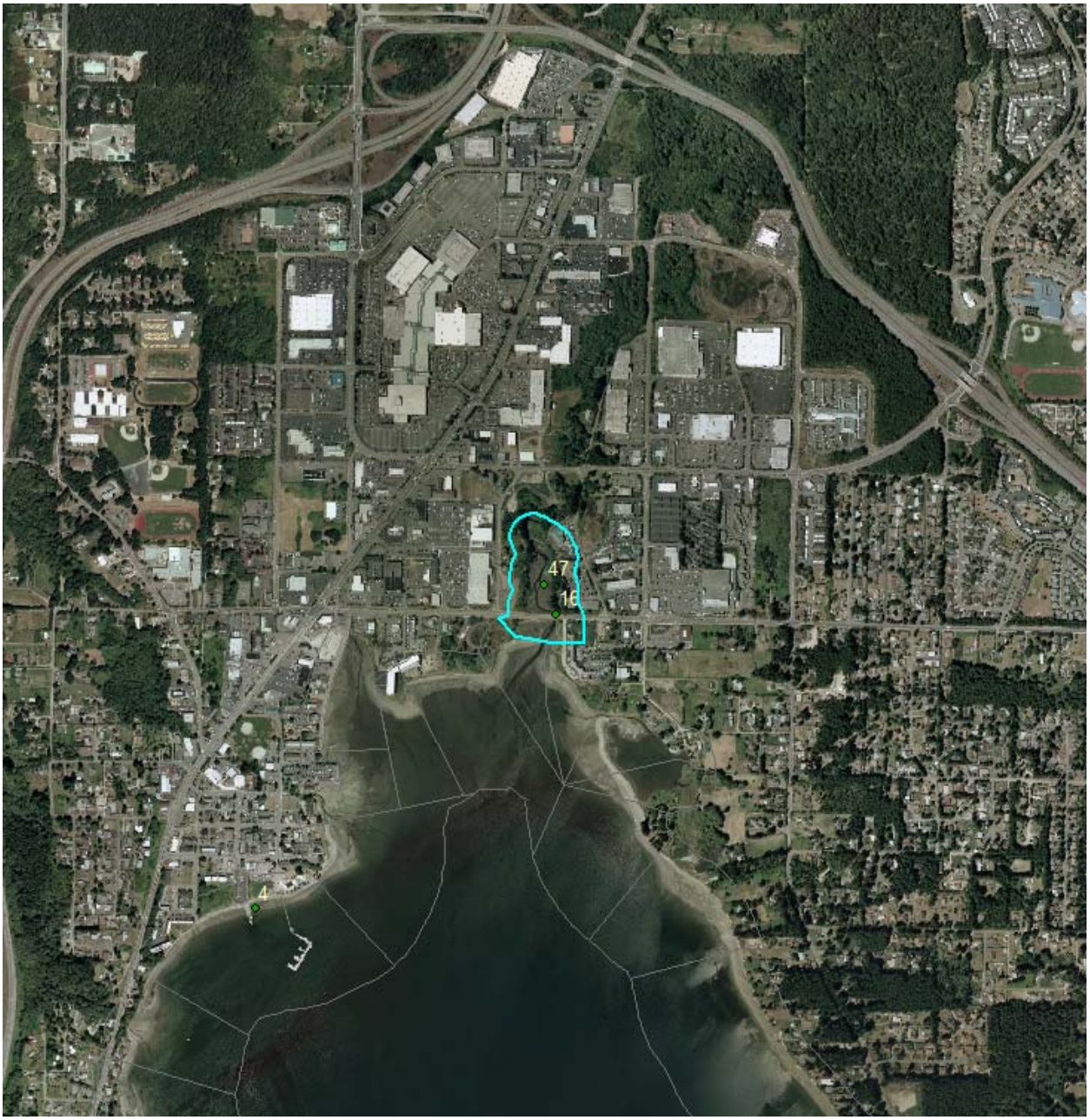


Illahee Creek Estuary (Project No. 22) has highly disturbed landscape processes, but the site itself shows little disturbance. A recommended management action would be enhancement of existing habitats. Protection may be a viable alternative, but in order for protection to result in a sustainable marsh, it would be important to assure that landscape level processes that support the salt marsh (such as sediment accretion from fluvial deposition) are adequate. If not adequate, then through time the marsh, even if protected, will deteriorate.

Karcher Creek Culvert Replacement and Invasive Species Removal (Projects 21 and 46). Management strategies include enhancement, creation, and the restoration of site and drift cell processes, because these sites are generally highly disturbed on both the site and landscape scales. Culvert replacement and invasive species removal should work as enhancement actions. However, concerns about reinvasion by undesirable species would be high unless the species was eliminated in source areas in the broader landscape. Also, maintenance of the culvert opening for fish access through the new culvert would depend on adequate flow from the landscape.



Hansville Waterfront Park (Project No. 62). Proposed actions include acquisition for waterfront access and stream/wetland restoration. There is a high score for site disturbance to the controlling factors and the processes, with a low landscape disturbance score. In this case, efforts to restore the stream and associated wetland should be possible with long-term sustainability. However, restoration of the physical process at the site-scale should also be considered as a management strategy to improve the likelihood of success of restoration actions.



Clear Creek at Bucklin Road (Projects No. 16 and 47). Actions include replacement of the culvert with a bridge, and acquisition of land and improvement of the buffer. The most probable successful management strategies include protection, conservation, and restoration, based on low site disturbance and moderate landscape disturbance scores. The proposed actions appear to be appropriate which actually are enhancements rather than restoration actions. The culvert replacement should enhance or restore near historical tidal flows. Protecting and enhancing the buffer area should result in an overall better function when coupled with the enhanced flows and functions of the adjacent nearshore habitats.