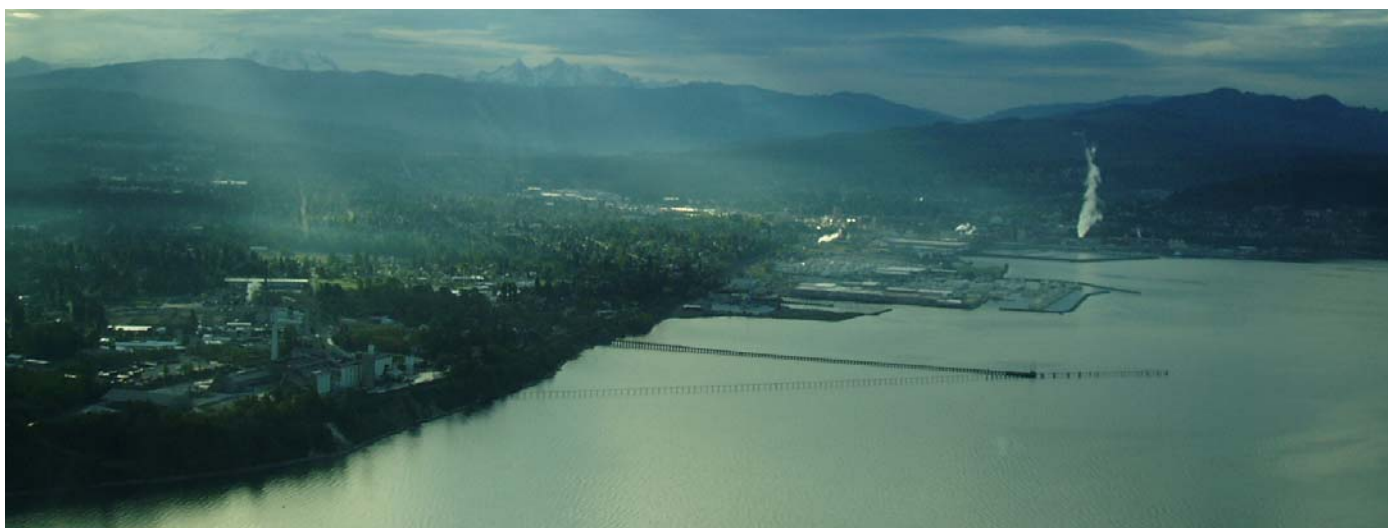


WRIA 1 Nearshore & Estuarine Assessment and Restoration Prioritization – Addendum 1



Prepared for: The City of Bellingham
with funding from the Washington State Dept of Ecology
and The City of Bellingham



Prepared by: Andrea MacLennan, Stephanie Williams, and Jim Johannessen



Coastal Geologic Services
December 2013

WRIA 1 Nearshore and Estuarine Assessment and Restoration Prioritization

December 2013 – Addendum 1

Seven new projects were integrated into the on-the-ground project geodatabase for WRIA 1, at the request of the City of Bellingham. Each project was scored using this region-wide prioritization approach described in the project report (MacLennan et al. 2013). Several other projects were updated with new status and ownership data, both of which affected whether a project was a 3 or 10-year priority. A small number of previously identified errors were corrected and the final prioritizations were reapplied with many new results. All high ranking opportunities were added to the updated priority tables, some of which were not included in the original results summary, which has resulted in a longer more expansive list of potential projects.

As projects are numbered sequentially from north to south, new projects have decimals to be consistent with the spatial structure of the data. The updated results are summarized in this Addendum to the original report. Only the projects that ranked as Top or High priorities are included in this addendum. The lower ranking projects are maintained in the project geodatabase and are less likely to compete well for funding compared to the higher ranking projects. The revised results are shown in the following updated tables and maps (Tables 24A-29A and Maps 16A-22A).

3-year Protection Priorities

Three-year protection priorities primarily occur on land that is not in private residential ownership, such as County or Tribal land (Table 24A). This decision was based on the assumption that resource protection would be achievable in a shorter time-frame on non-residential property. Protection opportunities that occur within private, commercial or residential property are found in the list of 10-year opportunities (Table 25A). Users should be mindful that project rankings (Top, High) are equally valuable across the two (3-year and 10-year) lists. Therefore a top ranking 3-year opportunity is equally valuable to a top ranking 10-year opportunity. Some protection opportunities entail acquisition, or outreach, while others may aim to protect specific habitats (such as forage fish spawning areas).

Table 24A. Top and high-ranking 3-year protection priorities. Projects are ordered north to south. See Map 17A.

ID	3-year Protection Priorities	Area	Status	Ownership	Rank
72	Portage Island Protection Area	Portage Island	Unknown	Lummi Nation	Top
74	Protect wetland and marsh habitat, sand lance spawning down-drift, undeveloped parcels.	Portage Bay	Unknown	Lummi Nation	Top
75	Protect sand lance spawning beach, undeveloped parcels.	Portage Bay	Unknown	Lummi Nation	Top
81	Nooksack Delta Protection Area	Nooksack River Delta	Unknown	Lummi Nation	Top
20	Protect sand lance spawning beach	Lilly Point	Unknown	Whatcom County	High
41	Protect sand lance spawning habitat within Semiahmoo County Park boundary.	Drayton Shore	Unknown	City of Blaine	High
76	Protect sand lance spawning beach, undeveloped parcels.	Portage Bay	Unknown	Lummi Nation	High
115	Protect surf smelt spawning in Larrabee State Park, provide education to public users, and encourage BMPs.	Chuckanut	Unknown	WA State Parks	High

10-year Protection Priorities

Ten year protection priorities are focused on protecting public access and recreation, undeveloped and unarmored parcels, and parcels that encompass forage fish spawning areas and sediment sources that maintain down-drift habitats (Table 25A). Protection of these resources would likely entail various strategies from conservation easements to acquisition.

Table 25A. Top and high-ranking 10-year protection priorities. Projects are ordered north to south. See Map 18A.

ID	10-year Protection Priorities	Area	Status	Ownership	Rank
7	Protect unarmored parcel along south shore of Pt Roberts west of marina.	Lighthouse	Unknown	Private-undeveloped	Top
12	Protect unarmored parcel along south shore of Pt Roberts east of marina.	Lilly Point	Unknown	Private-undeveloped	Top
109	Post Point to Chuckanut - Protection Area.	Edgemoor	Unknown	Unknown	Top
127	Protect sand lance spawning beach and no apparent armor on Lummi Island.	Hale Pass	Unknown	Private	Top
38	Protect valuable habitats along shoreline of undeveloped parcels.	Drayton Shore	Unknown	Private	High
56	Protect intact, high-volume feeder bluffs along shoreline that delivers large amounts of sediment down-drift, undeveloped parcel.	Cherry Point	Unknown	Private-undeveloped	High
58	Protect intact, high-volume feeder bluffs along shoreline that delivers large amounts of sediment down-drift, undeveloped parcel.	Cherry Point	Unknown	Private	High
61	Protect surf smelt spawning beach.	Cherry Point	Unknown	Private-commercial	High
67	Protect undeveloped coastal wetland and surf smelt spawning beach.	Sandy Point	Unknown	Private-undeveloped	High
77	Protect shoreline and limit any new armoring due to spawning areas; consider realigning southern end of Lummi Shore Road further inland.	Lummi Shore	Unknown	Private	High
83	Protect shoreline (forage fish spawning habitat), and provide education to public users of "Locust Beach".	Fort Bellingham	Unknown	Private	High

3-year Restoration Priorities

Restoration priorities for the 3-year plan include 12 potential projects, several of which have some level of design in progress or completed. Most opportunities are found along the shores of Birch Bay and between downtown Bellingham and Chuckanut Bay. Some of the highest ranked restoration opportunities (86, 107, 108, and 111) could ameliorate nearshore process degradation and habitats across a broad reach of shoreline that is considerably degraded. All highly ranked projects will restore nearshore processes typically by removing tidal barriers or shoreline armor.

Table 26A. Top and high-ranking 3-year restoration priorities. Projects are ordered north to south. See Map 19A.

ID	3-year Restoration Priorities	Area	Status	Ownership	Rank
51	Remove or modify shoreline armoring, old boat ramp.	Birch Bay	Design in progress	Unknown	Top
52	Remove groins and bulkheads and nourish upper beach along Birch Bay Drive to restore upper beach and backshore habitats.	Birch Bay	Design in progress	Private	Top
52.1	Reconnection of coastal wetland area and removal of tide gate at Lora Lane.	Birch Bay	Unknown	Whatcom County	Top
53	Remove or modify shore armoring.	Birch Bay	Design in progress	Whatcom County	Top
54	Remove or modify shore armoring.	Birch Bay State Park	Unknown	Whatcom County	Top
86	Enhancement of estuary, remove culvert and create tidal channel and pocket estuary at Little Squalicum Creek for juvenile salmonid forage, refuge, and rearing.	Fort Bellingham	Design	City of Bellingham	Top
107	Remove fill and replace Harris Ave culvert with bridge to remove partial fish barrier to different parts of Padden estuary and creek.	Bellingham	Unknown	City of Bellingham	Top
108	Modify existing structure under railroad crossing to open up tidal channel and remove toppled rock from intertidal at Post Point lagoon shore, up-drift of surf smelt spawning.	Edgemoor	Unknown	City of Bellingham	Top
111	Create or expand tide channel (if currently culverted) under railroad to lagoon located northeast of Chuckanut Bay.	Edgemoor	Unknown	Whatcom Land Trust	Top

10-year Restoration Priorities

There are forty-nine different restoration opportunities in the 10-year plan, 12 of which are ranked as Top priorities. Top ranking projects should be considered a higher priority than those ranked as High a priority. Similar to protection opportunities, the sorting of projects between the two (3-year and 10-year) lists largely reflects the parcel ownership and project status.

Table 27A. Top and high-ranking 10-year restoration priorities. Projects are ordered north to south. See Map 20A.

ID	10-year Restoration Priorities	Area	Status	Ownership	Rank
33	Remove or modify bulkheads that protrude into the intertidal in Drayton Harbor north of Dakota Creek.	Drayton Shore	Unknown	Private	Top
34	Remove or modify bulkheads that protrude into the intertidal in Drayton Harbor.	Drayton Shore	Unknown	Private	Top
50	Reconnect coastal wetland processes in Rogers Slough.	Birch Bay	Unknown	Private-Community	Top
55	Remove or modify shore armoring along these bluffs, many of these bulkheads appear to be unpermitted.	Cherry Point	Unknown	Private	Top
57	Remove or modify bulkheads along Pt Whitehorn bluffs, which are the sole sediment source for the miles of accretion shoreform and valuable habitat in Birch Bay.	Cherry Point	Unknown	Private	Top
59	Expand and restore wetland to historic extent and remove/reduce road footprint at Gulf Rd coastal wetland (salmonids observed in tidal channel).	Cherry Point	Unknown	Private-Commercial	Top
110	Modify existing structure under railroad crossing to open up tidal channel and intertidal nourishment to add complexity around tidal channel south of Post Point.	Edgemoor	Unknown	Railroad	Top
113	Modify or replace existing causeway to allow greater tidal exchange between Mud Bay and Chuckanut Bay.	Edgemoor	10% Design	Railroad	Top
120	Reconnect tidal channel at Colony Creek.	Skagit County	Unknown	PSE	Top
123	Remove dikes in Samish Delta - would entail acquiring farmland parcels.	Skagit County	Unknown	Private	Top
133	Reconnect coastal wetland leeward of Legoe Bay Road through restored tide channel or installation of larger box culvert.	N Lummi Island	Unknown	Private	Top
1	Remove or modify rock bulkheads along west shore of Pt Roberts.	Boundary Bluff	Unknown	Private	High
2	Remove or modify rock bulkhead.	Boundary Bluff	Unknown	Private	High
4	Remove or modify bulkhead and rock debris, structure being protected appears vacant.	Lighthouse	Unknown	Private	High
5	Remove or modify bulkhead and rock debris.	Lighthouse	Unknown	Private-undeveloped	High
6	Remove or modify bulkhead and rock debris.	Lighthouse	Unknown	Private-undeveloped	High

Table 27A Cont. Top and high-ranking 10-year restoration priorities. Projects ordered north to south. See Map 20A.

ID	10-year Restoration Priorities	Area	Status	Ownership	Rank
8	Remove groin between jetty and armored shore at Pt Roberts marina.	Lighthouse	Unknown	Private-Pt Roberts Resort	High
9	Reconnect coastal wetland at Pt Roberts marina.	Lighthouse	Unknown	Private-Pt Roberts Resort	High
10	Reconnect coastal wetland, remove shore armor, outfall also acts as groin.	Lighthouse	Unknown	Private-Commercial	High
11	Remove or modify rock bulkhead, where erosion does not appear to be substantial.	Lighthouse	Unknown	Private	High
13	Remove or modify bulkhead/gabion basket, large setback distance*	Lilly Point	Unknown	Reserve	High
14	Remove groin in intertidal.	Lilly Point	Unknown	Private	High
15	Remove groin in intertidal.	Lilly Point	Unknown	Private	High
16	Remove or modify revetments in front of houses/cabins west of Lilly Point, restore marine riparian vegetation.	Lilly Point	Unknown	Private	High
17	Remove or modify bulkhead-gabion basket.	Lilly Point	Unknown	Private	High
28	Remove or modify bulkheads; replace with alternative actions in Drayton Harbor	City of Blaine	Unknown	City of Blaine	High
29	Remove debris used for shore armoring and derelict pilings in Drayton Harbor.	City of Blaine	Unknown	Private	High
30	Remove or modify bulkheads; replace with alternative actions and area-wide beach nourishment in Drayton Harbor.	City of Blaine	Unknown	Private	High
32	Remove debris from the intertidal including the large platform and foundation to restore the beach and fringing marsh.	Drayton Shore	Unknown	Private-Commercial	High
39	Remove or partially remove shore armor in Drayton Harbor.	Drayton Shore	Unknown	Private	High
40	Remove or modify bulkhead, consider land acquisition.	Drayton Shore	Unknown	Private	High
43	Remove revetment and creosoted timber wall.	Birch Point	Unknown	Private	High
44	Remove 6 rock groins and 2 concrete groins.	Birch Point	Unknown	Private	High
45	Remove rock groin.	Birch Point	Unknown	Private	High
46	Remove or modify shore armoring, failing creosoted wood wall.	Birch Point	Unknown	Private	High
47	Remove or modify shore armoring, failing creosoted wood wall, and enhance setback of structure at top of bluff.	Birch Point	Unknown	Private	High
48	Remove concrete bulkhead 20-25 ft high and 15 ft waterward of bank.	Birch Point	Unknown	Private	High

Table 27A Cont. Top and high-ranking 10-year restoration priorities. Projects ordered north to south. See Map 20A.

ID	10-year Restoration Priorities	Area	Status	Ownership	Rank
49	Remove or modify shore armoring, undeveloped parcel.	Birch Bay	Unknown	Private-Community	High
60	Remove failed gravel loading pier.	Cherry Point	Unknown	Private-Commercial	High
62	By-pass sediment from artificially accreted backshore north of fill to down-drift (south) side of pier facility, as down-drift beach is depleted of sediment.	Cherry Point	Unknown	Private-Commercial	High
63	Remove culvert (with groin-like effects) from intertidal, daylight surface water connection, treat with bio-swale if necessary.	Cherry Point	Unknown	Private-Commercial	High
66	Excavate sediment from the up-drift (north) side of the pier and bypass to the down-drift (south) side of the pier fill area in stages, could also create coastal wetland in backshore.	Cherry Point	Unknown	Private-Commercial	High
68	Remove shoreline modification – concrete wall waterward of undeveloped property (parcel layer may be off by 50 ft to the north).	Sandy Point	Unknown	Private	High
69	Reduce intertidal slope, impervious surfaces and create riparian buffer/dune habitat to aid with flood control issues. Portions of fill area could be restored to marsh where possible.	Sandy Point	Unknown	Private	High
71	Remove broken concrete bulkhead sections, primarily north of Gooseberry Point and near the tip and south shore of the point.	Gooseberry Point	Unknown	Lummi Nation	High
73	Remove dike or drainage channel from barrier lagoon.	Portage Bay	Unknown	Lummi Nation	High
85	Remove creosoted wood piles at Cement Co. Pier.	City of Bellingham	Unknown	Private-Commercial	High
130	Remove or modify shore and road protection; this seawall is continually undermined and a maintenance issue for Whatcom County. Consider land acquisition, road realignment or road closure as alternatives.	N. Lummi Island	Unknown	Private	High
131	Removed failed solid filled pier, large rock groin, concrete debris, and derelict piles in the western portion of Legoe Bay.	N. Lummi Island	Unknown	Private	High

3-year Enhancement Priorities

There are many 3-year enhancement opportunities, most of which are found along the publically-owned shores of the Cities of Bellingham and Blaine. Public ownership, urban shores and the long history of industry have resulted in considerable process degradation and many opportunities to enhance nearshore ecosystem structure. Due to the somewhat homogenous conditions (degraded urban shores) and constraints and limited benefit of enhancement projects, there was a narrow range of project scores and scores were markedly lower than restoration projects. The feasibility of project #99 is in question and should be explored before this project is advanced further.

Table 28A. Top and high-ranking 3-year enhancement priorities. Projects are ordered north to south. See Map 21A.

ID	3-year Enhancement Priorities	Area	Status	Ownership	Rank
22	Remove or partially remove of the outfall structure, short groin, and the old pilings (likely creosoted) could be at least partially removed to free up beach area and remove the foreign material.	Maple Beach	Unknown	Whatcom County Parks	Top
79	Nourishment of beach substrate suitable for forage fish and continued monitoring, as begun under USACE-constructed revetment.	Lummi Shore	Repeat	Lummi Nation	Top
88	Remove large boulders and rocks, renourish naturalized beach at Mt Baker Plywood (west).	Fort Bellingham	Design	Port of Bellingham	Top
89	Remove or modify fill at Mt Baker Plywood (northwest), regrade for marine buffer and possible salt marsh.	Fort Bellingham	Design	Port of Bellingham	Top
90	Remove fill and regrade for potential salt marsh and marine riparian enhancement at Mt Baker Plywood (south).	Fort Bellingham	Unknown	Port of Bellingham	Top
97	Remove contaminants, replace with clean sediment, and create habitat features at GP – ASB.	Bellingham	Unknown	Port of Bellingham	Top
105	Remove treated wooden pier, fill, and possibly expand eelgrass beds at Padden Creek North.	Bellingham	Design in progress	Port of Bellingham	Top
112	Remove jetty/boat basin at barrier estuary in Mud Bay.	Edgemoor	Unknown	City of Bellingham	Top
21	Beach nourishment along Maple Beach seawall.	Maple Beach	Unknown	Whatcom County	High
23	Naturalize channel, enhance fish habitat and revegetate marine riparian near Cain Creek.	City of Blaine	Unknown	City of Blaine	High
24	Beach nourishment along a portion of the shoreline for erosion control.	Blaine	Unknown	City of Blaine	High

Table 28A Cont. Top and high-ranking 3-year enhancement priorities. Projects ordered north to south. See Map 21A.

ID	3-year Enhancement Priorities	Area	Status	Ownership	Rank
25	Beach nourishment along a portion of the shoreline for erosion control.	Blaine	Unknown	City of Blaine	High
26	Enhance and expand salt marsh, remove fill, create marine riparian ecotone/buffer particularly adjacent to parking lots.	City of Blaine	Unknown	Port of Bellingham	High
91	Raise elevations within estuary to provide intertidal and shallow water habitat for eelgrass and salt marsh with marine riparian enhancement at Squalicum Creek Waterway.	Fort Bellingham	Unknown	Port of Bellingham	High
92	Remove fill and regrade to provide estuary habitat including intertidal, salt marsh, and marine riparian at Bellingham Cold Storage.	Bellingham	Unknown	Port of Bellingham	High
92.1	Create beach waterward of armor along south shore of Zuanich Park and extending west.	Bellingham	Unknown	Port of Bellingham, DNR	High
93	Remove or modify shore armor and enhance with beach sediment at Squalicum Marina.	Bellingham	Unknown	Port of Bellingham	High
94	Enhance naturalized marsh habitat areas in I and J waterway.	Bellingham	Unknown	Port of Bellingham	High
95	Enhance naturalized pocket beach with surf smelt spawning.	Bellingham	Unknown	Port of Bellingham	High
96	Raise elevations to create shallow water habitat, establish marine riparian and potentially eelgrass habitat at Port - Hilton Harbor.	Bellingham	Unknown	Port of Bellingham	High
98	Rise elevations to expand existing eelgrass habitat at the G-P ASB – South.	Bellingham	Unknown	Port of Bellingham	High
99*	Raise elevations to expand existing eelgrass habitat at the G-P ASB – East.	Bellingham	Unknown	Port of Bellingham	High
99.1	Enhance outfall area and naturalized pocket beach at the south end of C Street.	Bellingham	Unknown	Port of Bellingham	High
99.2	Remove wooden structures and derelict floats on the west side of Whatcom Waterway.	Bellingham	Unknown	Port of Bellingham	High
100	Modify elevations and substrates to establish estuarine riparian, beach, mudflat, and salt marsh at head of Whatcom Waterway.	Bellingham	Design	Port of Bellingham	High
100.1	Enhance naturalized beach area at the south end of Central Avenue similar to Holly St. landfill.	Bellingham	Design	Port of Bellingham	High
100.2	Enhance area, remove debris and treated wood, regrade tidal elevations, to expand existing beaches and create salt marsh habitat.	Bellingham	Design	Port of Bellingham	High

*Indicates feasibility of this project is questionable.

Table 28A Cont. Top and high-ranking 3-year enhancement priorities. Projects ordered north to south. Map 21A.

ID	3-year Enhancement Priorities	Area	Status	Ownership	Rank
101	Remove wood debris, modify elevations to provide shallow subtidal and intertidal habitats, potentially enhance eelgrass at Port log raft.	Bellingham	Master Plan in progress	Port of Bellingham	High
102	Remove debris and regrade to create intertidal and possibly salt marsh with and eelgrass habitat at Cornwall Avenue Landfill.	Bellingham	Master Plan in progress	City of Bellingham	High
103	Remove or modify shore armor and remove excess concrete debris and potentially restore eelgrass at Boulevard Park.	Bellingham	Partially complete	City of Bellingham	High
104	Remove debris and enhance habitat along north shore of Padden Creek.	Bellingham	Unknown	Port of Bellingham	High
106	Remove fill and debris and modify elevations to provide estuarine and riparian vegetation, mudflat and marsh at East shore Padden Creek.	Bellingham	Unknown	City of Bellingham	High

10-year Enhancement Priorities

Table 29A. Top and high-ranking 10-year enhancement priorities. Projects are ordered north to south. Map 22 A.

ID	10-year Enhancement Priorities	Area	Status	Ownership	Rank
116	Enhancement of beach sediment, removal of debris - derelict pilings and rail structure at forage fish spawning beach.	Chuckanut	Unknown	PSE	Top
118	Removal of tidal barrier or related enhancement actions to increase tidal exchange in barrier estuary and emergent marsh.	Skagit County	Unknown	Private	Top
27	Enhance disturbed wetland near Blaine Marina, expand buffer adjacent to parking lot.	City of Blaine	Unknown	Railroad ROW	High
78	Nourish beach substrate for forage fish spawning.	Lummi Shore	Unknown	Lummi Nation	High
84	Protect forage fish spawning, enhance beach substrate and remove intertidal debris.	Fort Bellingham	Unknown	Private-Commercial	High

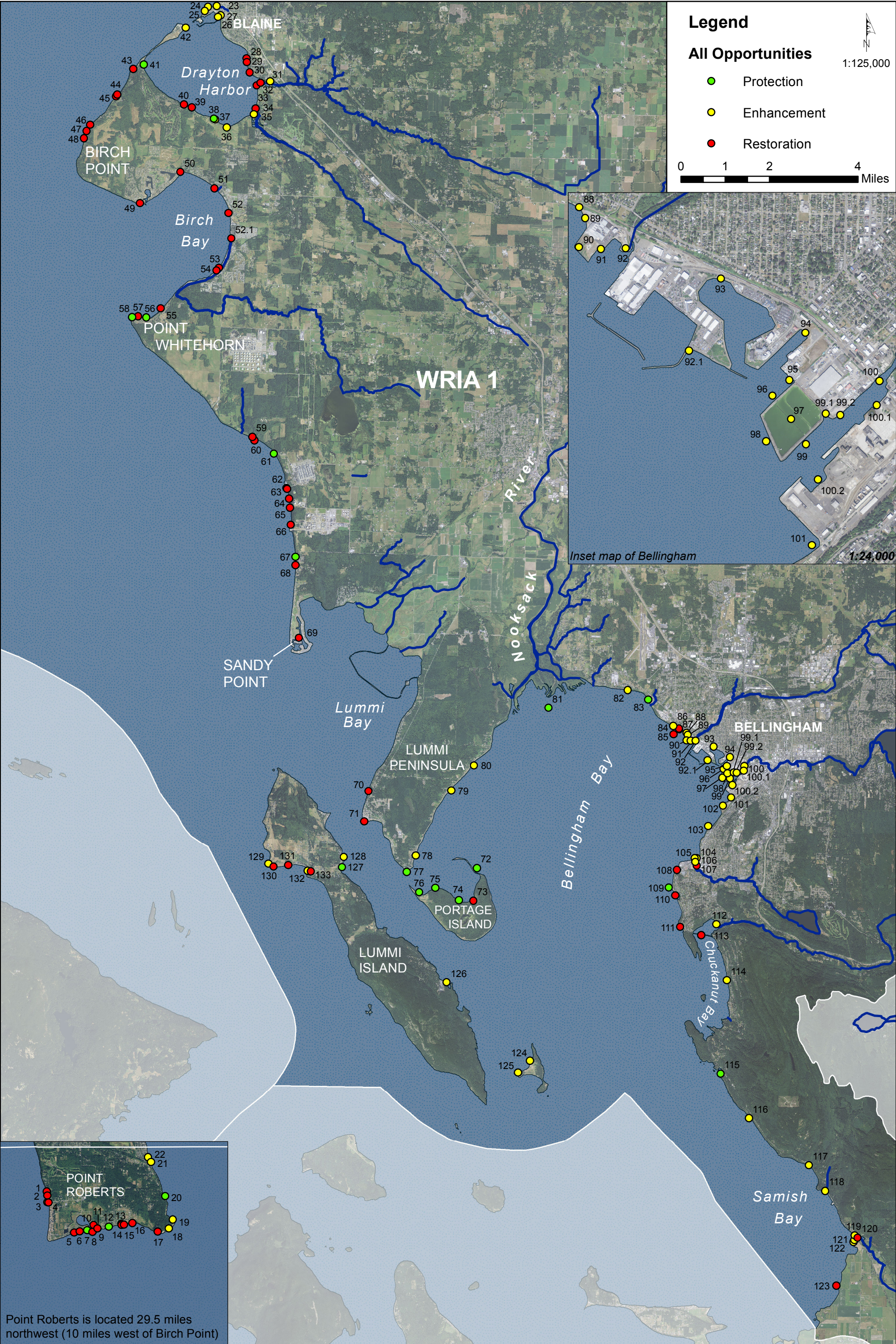
References

MacLennan, A., P. Schlenger, S. Williams, J. Johannessen, and H. Wilkinson. 2013. WRIA 1 Nearshore and Estuarine Restoration Prioritization. Prepared for the City of Bellingham.

Attached:

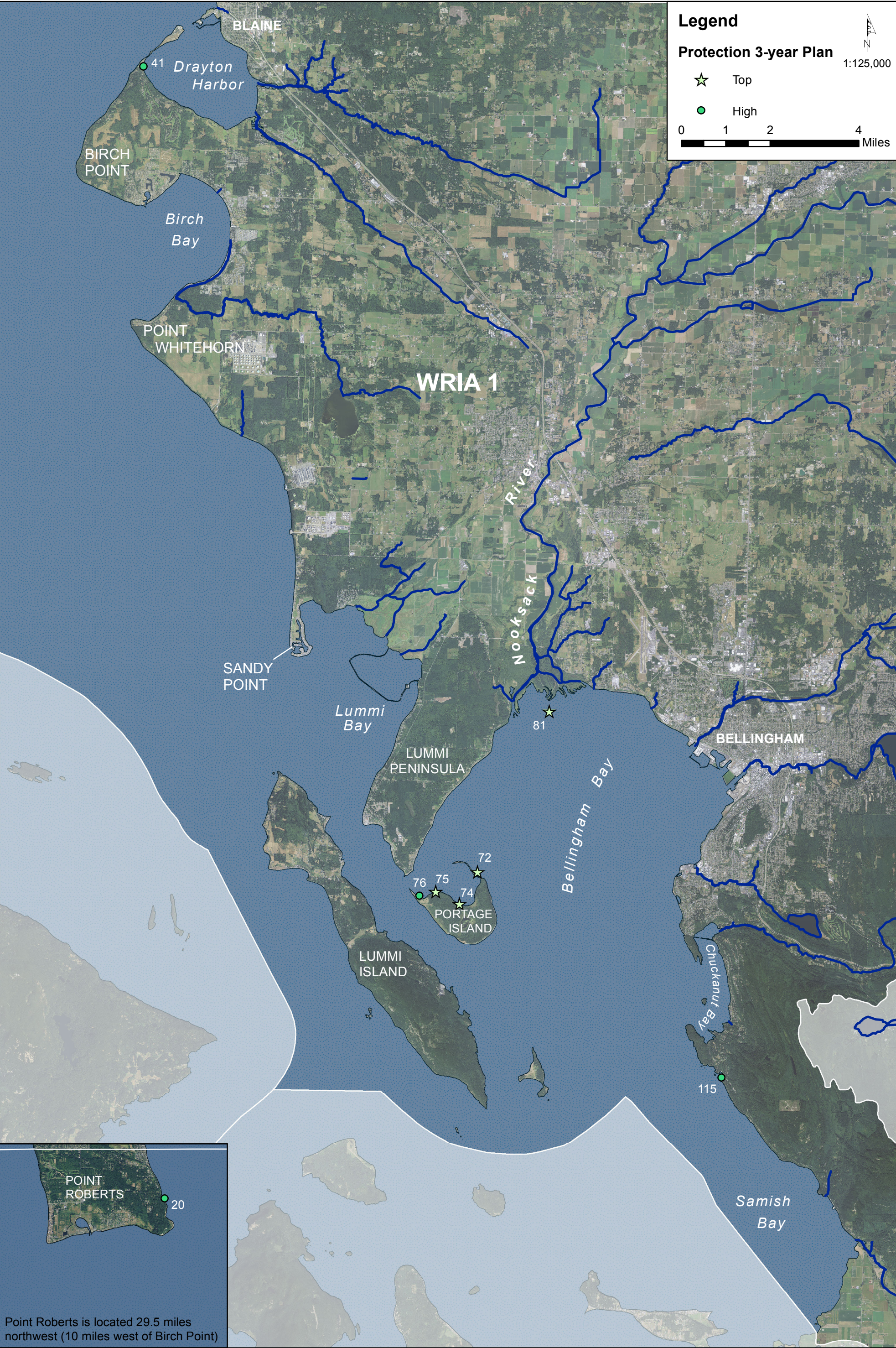
Revised Maps 16A-22A.

Revised Appendix C: On-the-ground projects attribute table.



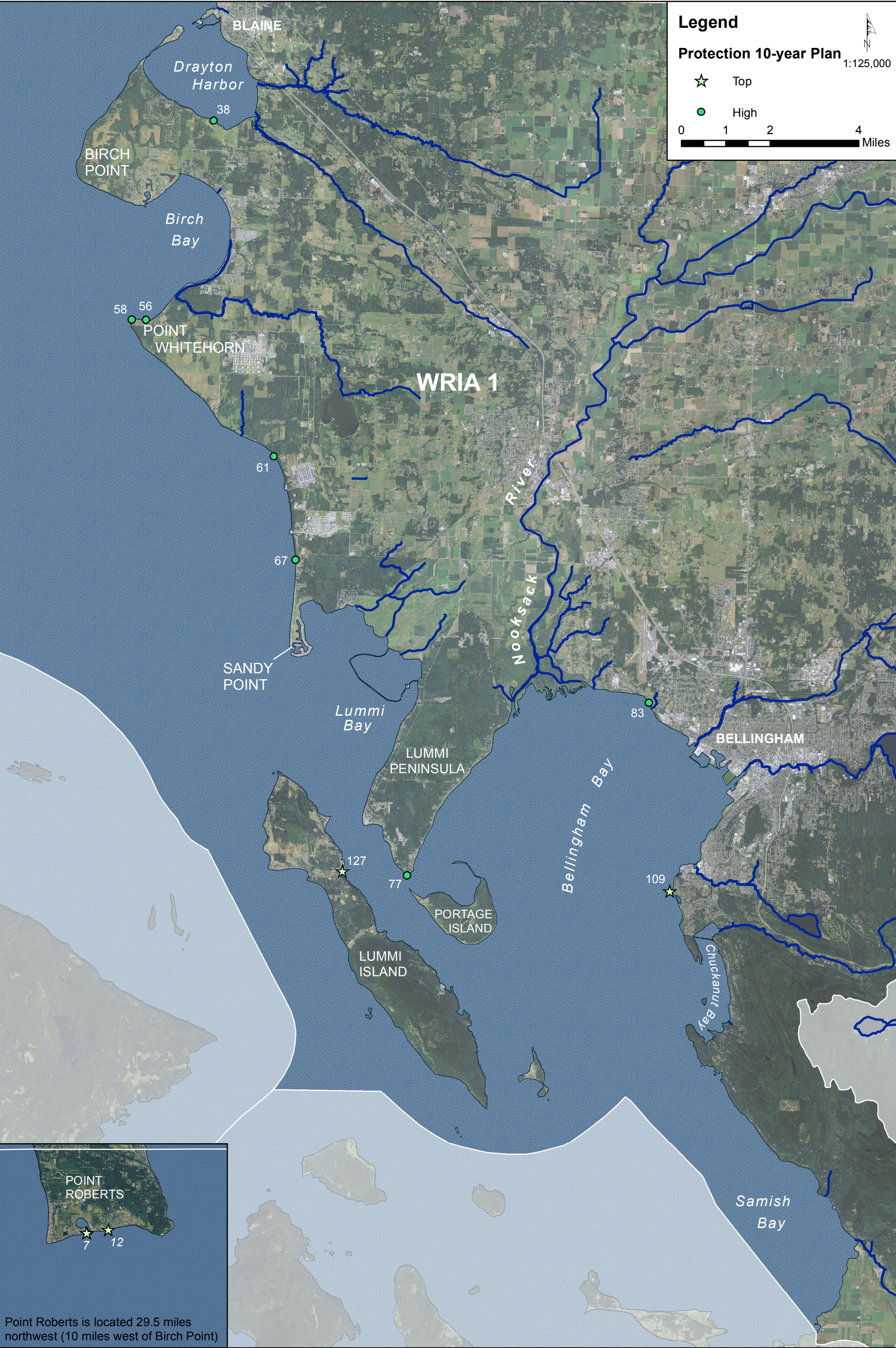
Map 16A. All protection, enhancement, and restoration projects identified in WRIA 1.

WRIA 1 Nearshore Assessment and Estuarine Restoration Prioritization - Addendum



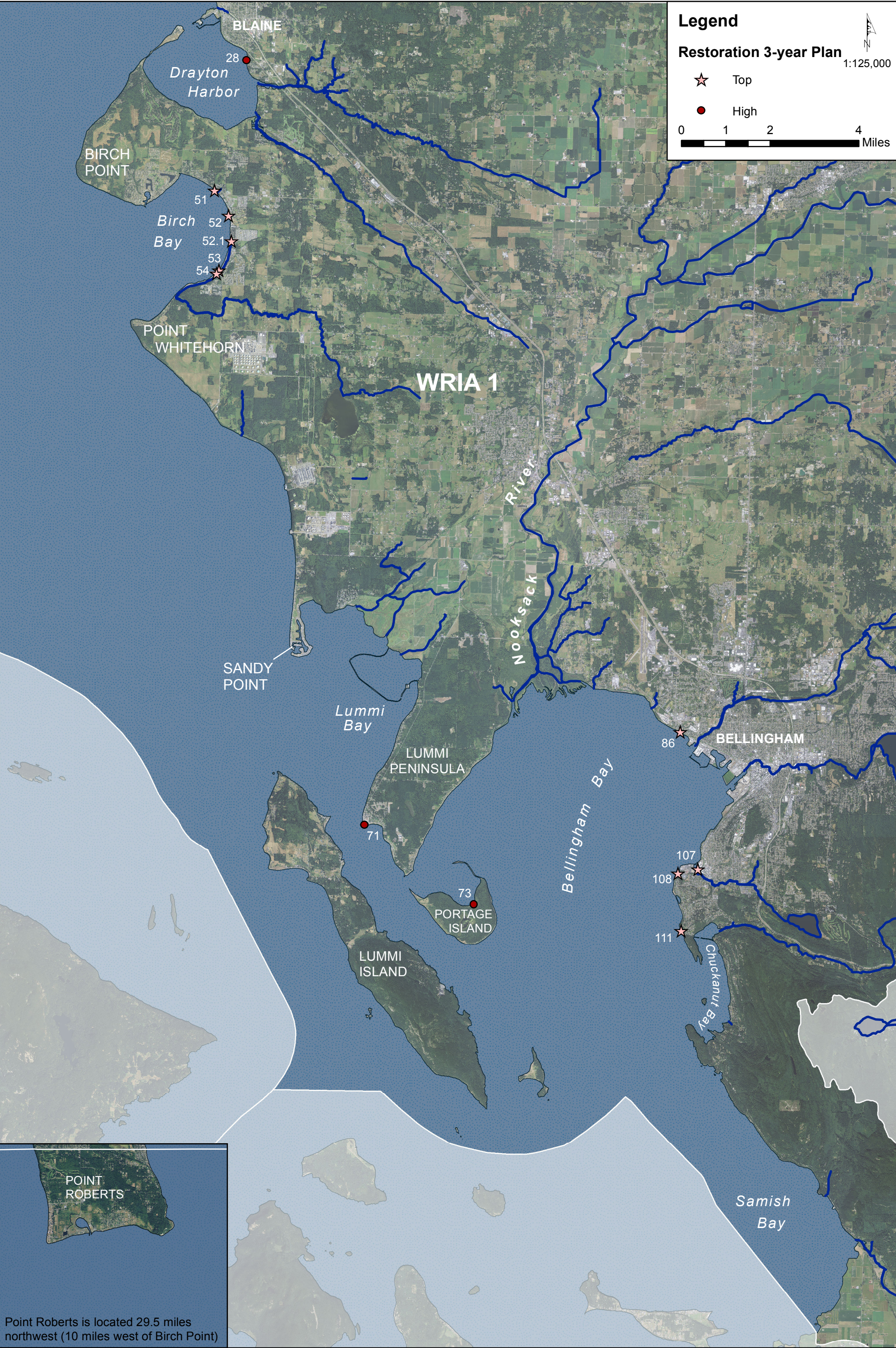
Map 17A. WRIA 1 Top and High Protection Priorities for 3-year plan.

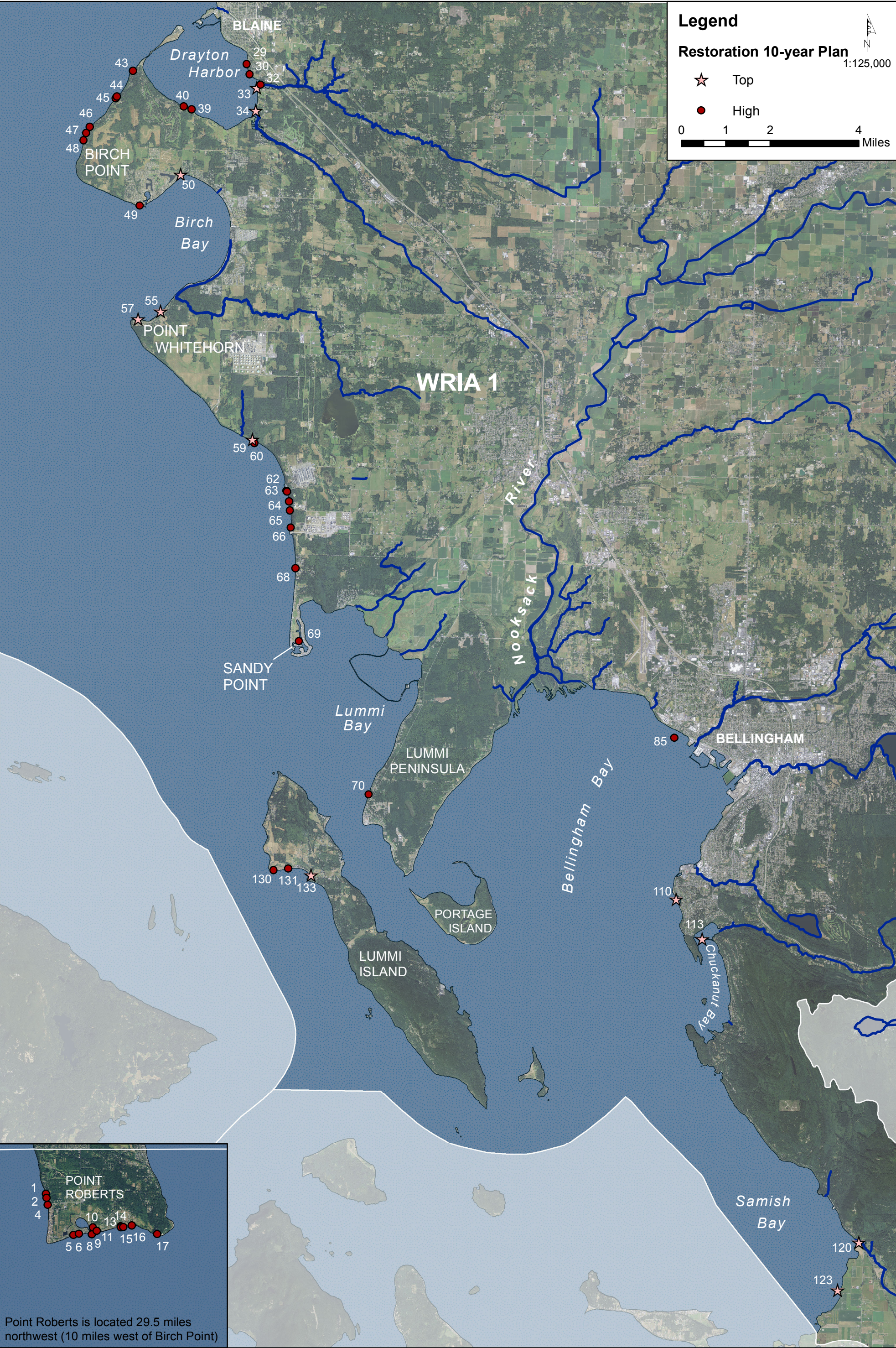
WRIA 1 Nearshore Assessment and Estuarine Restoration Prioritization - Addendum



Map 18A. WRIA 1 Top and High Protection Priorities for 10-year plan.

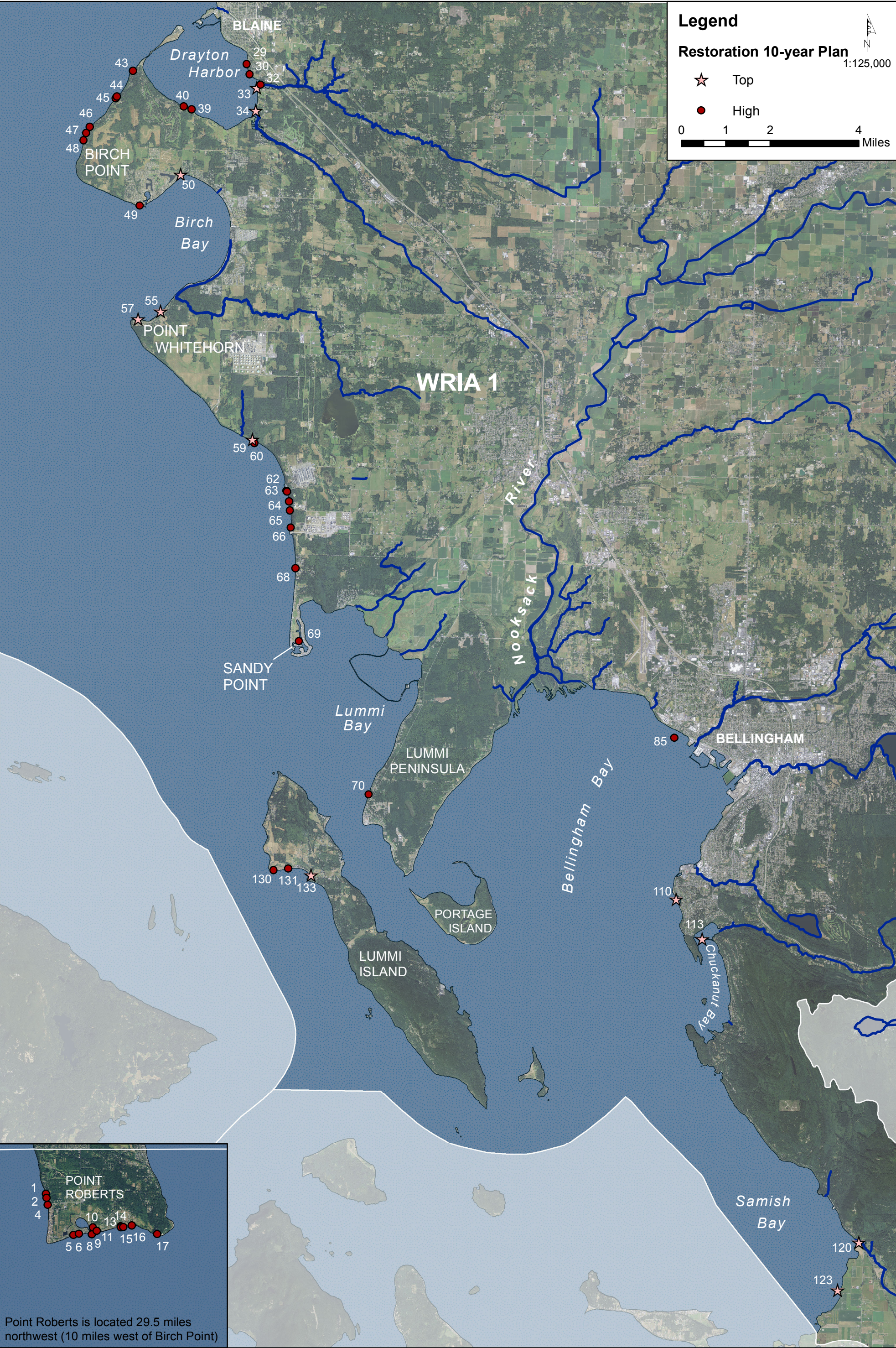
WRIA 1 Nearshore Assessment and Estuarine Restoration Prioritization - Addendum





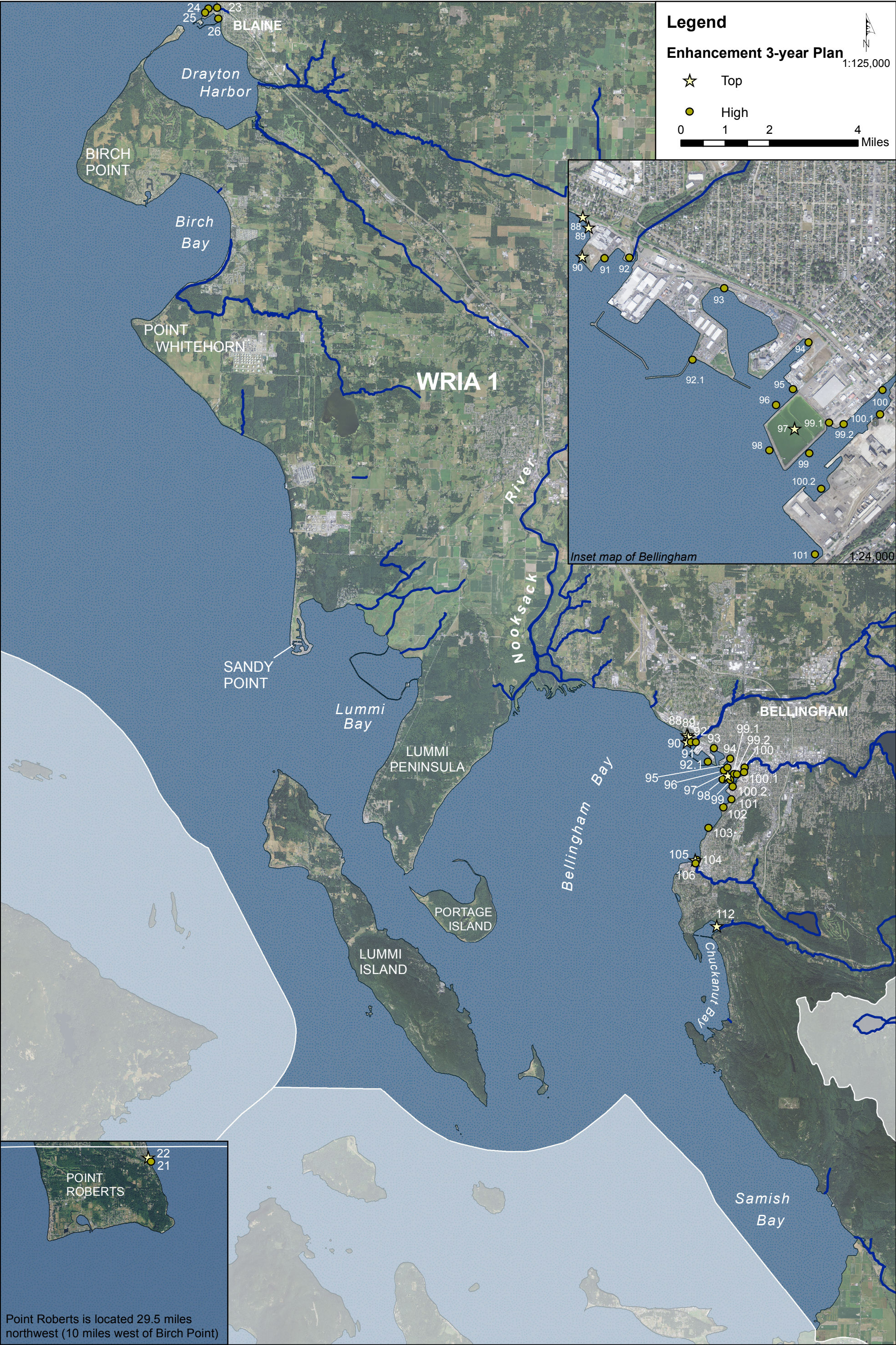
Map 20A. WRIA 1 Top and High Restoration Priorities for 10-year plan.

WRIA 1 Nearshore Assessment and Estuarine Restoration Prioritization - Addendum



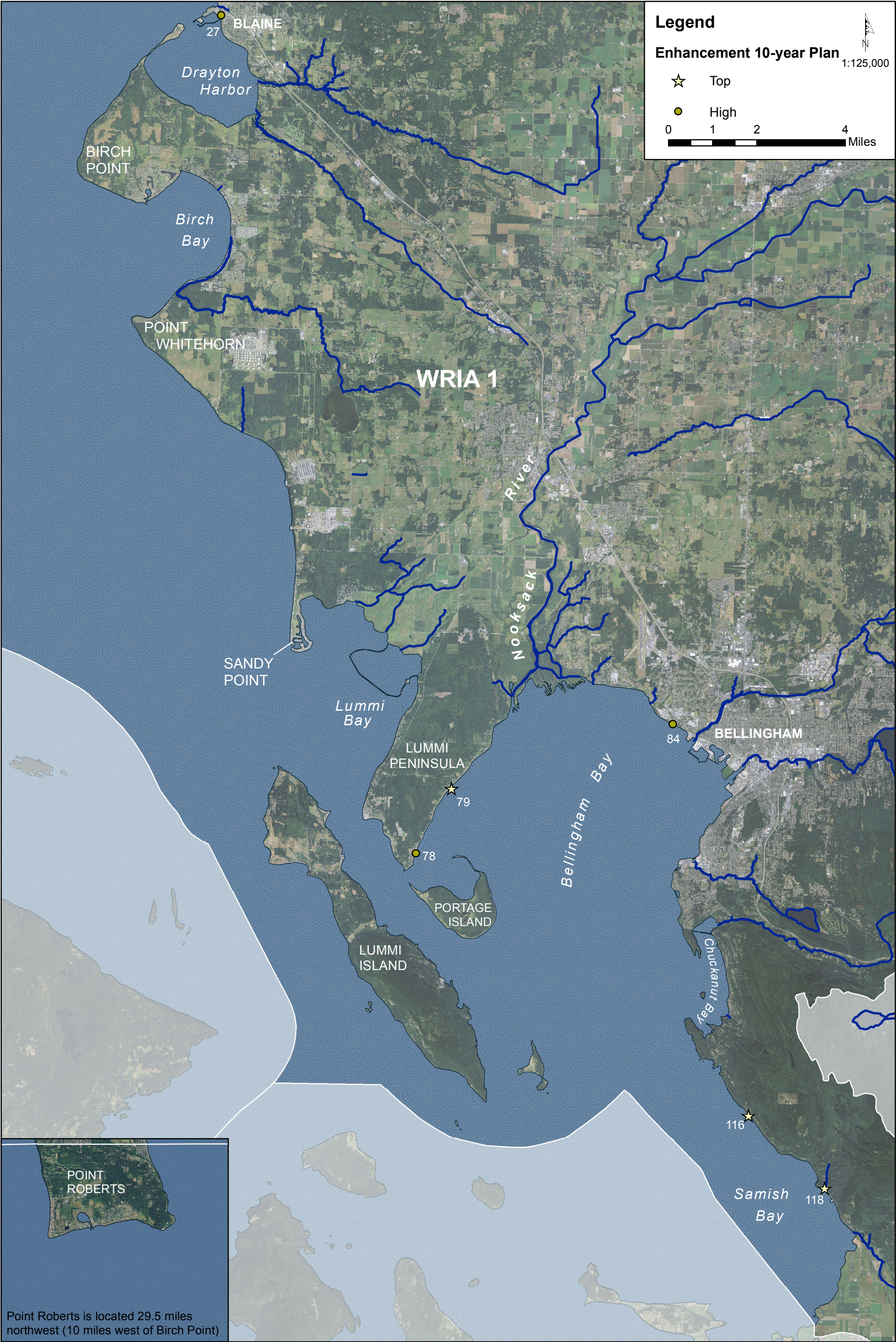
Map 20A. WRIA 1 Top and High Restoration Priorities for 10-year plan.

WRIA 1 Nearshore Assessment and Estuarine Restoration Prioritization - Addendum



Map 21A. WRIA 1 Top and High Enhancement Priorities for 3-year plan.

WRIA 1 Nearshore Assessment and Estuarine Restoration Prioritization - Addendum



Map 22A. WRIA 1 Top and High Enhancement Priorities for 10-year plan.
WRIA 1 Nearshore Assessment and Estuarine Restoration Prioritization - Addendum

WRIA 1 Nearshore and Estuarine Restoration Prioritization - Appendix C Nearshore Restoration On-the-ground Projects Attribute Table.
Addendum. December 2013.

ID_spatial	ProcessRes	Source	Shoreform Number	Description	Benefit Area	Limiting Factors Addressed	Opportunity	Status	Mgmt_Meas	Justificat	Strategy	Mn_Reach	WCAGCODE	Ownership	Strat Match	Proc Match	LTF Match	Proj Strat	Opprtnty	CGS_DC_Pri	Benft_Scr	Proj_Scr	3yr_Scrn	3Yr_Priority	10Yr_Priority	Proj_Cat	Feasible
1	sediment	Whatcom County SMP	10	Remove or modify rock bulkheads along west shore of Pt Roberts.	down-drift	shoreline modification	no	Unknown	Armor removal or modification	N/A	Protect	Boundary Bluff	4.05304E+11	Private	2	1	1	Restoration	No	3	2	6	0	0	High	High	
2	sediment	CGS_WRIA1_NAARP	8	Remove or modify rock bulkhead.	down-drift	shoreline modification	no	Unknown	Armor removal or modification	armored BAB, surf smelt spawning	Protect	Boundary Bluff	4.05304E+11	Private	2	1	1	Restoration	No	3	2	6	0	0	High	High	
3		Whatcom County SMP	8	Remove abandoned (creosote) pilings near the west end of Gulf Road.	footprint	contaminants	no	Unknown	Armor removal or modification, debris removal	N/A	Protect	Lighthouse	4.05304E+11	Private	1	0	1	Enhancement	No	3	1	3	0	0	0	0	
4	sediment	CGS_RestoPrio	8	Remove or modify bulkhead and rock debris, structure being protected appears vacant.	down-drift	shoreline modification	no	Unknown	Armor removal or modification	N/A	Protect	Lighthouse	4.05304E+11	Private	2	1	1	Restoration	No	3	2	6	0	0	High	High	
5	sediment	CGS_WRIA1_NAARP	8	Remove or modify bulkhead and rock debris.	down-drift	shoreline modification	ltd	Unknown	Armor removal or modification, debris removal	armored BAB, up-drift of BAB, undeveloped lot	Protect	Lighthouse	4.0531E+11	Private-undeveloped	2	1	1	Restoration	No	3	2	6	0	0	High	High	
6	sediment	CGS_WRIA1_NAARP	8	Remove or modify bulkhead and rock debris.	down-drift	shoreline modification	ltd	Unknown	Armor removal or modification, debris removal	armored BAB, up-drift of BAB, undeveloped lot	Protect	Lighthouse	4.0531E+11	Private-undeveloped	2	1	1	Restoration	No	3	2	6	0	0	High	High	
7		CGS_WRIA1_NAARP	8	Protect unarmored parcel along south shore of Pt Roberts west of marina.	down-drift	NA	ltd	Unknown	Aquisition and Conservation	BAB, undeveloped lots	Protect	Lighthouse	4.0531E+11	Private-undeveloped	3	0	0	Protection	No	3	2	5	0	0	Top	Top	
8	sediment	CGS_RestoPrio	9	Remove groin between jetty and armored shore at Pt Roberts marina.	down-drift	shoreline modification	no	Unknown	Groin removal or modification	N/A	Protect	Lighthouse	4.0531E+11	Private-Pt Roberts Resort	2	1	1	Restoration	No	3	2	6	0	0	High	High	
9	tidal	CGS_RestoPrio	8	Reconnect coastal wetland at Pt Roberts marina (tidegate 1).	in-stream/wetland	wetland loss	no	Unknown	Hydraulic modification	N/A	Protect	Lighthouse	4.0531E+11	Private-Pt Roberts Resort	2	0	1	Restoration	No	3	3	6	0	0	High	High	
10	tidal/sediment	CGS_RestoPrio	8	Reconnect coastal wetland, remove shore armor, outfall also acts as groin (tidegate 2).	in-stream/wetland	wetland loss	no	Unknown	Hydraulic modification, groin removal	N/A	Protect	Lighthouse	4.0531E+11	Private-Pt Roberts Resort	2	1	1	Restoration	No	3	3	7	0	0	High	High	
11	sediment	CGS_WRIA1_NAARP	8	Remove or modify rock bulkhead, where erosion does not appear to be substantial.	down-drift	shoreline modification	no	Unknown	Armor removal or modification	armored BAB, surf smelt spawning	Protect	Lighthouse	4.0531E+11	Private	2	1	1	Restoration	No	3	2	6	0	0	High	High	
12		CGS_WRIA1_NAARP	8	Protect unarmored parcel along south shore of Pt Roberts east of marina.	down-drift	NA	ltd	Unknown	Aquisition and Conservation	BAB, undeveloped lots	Protect	Lilly Point	4.05311E+11	Private-undeveloped	3	0	0	Protection	No	3	2	5	0	Top	0	Top	
13	sediment	CGS_RestoPrio	7	Remove or modify bulkhead/gabion basket, large setback distance (gabion 3). Double check ownership	down-drift	shoreline modification	yes	Unknown	Armor removal or modification	N/A	Protect	Lilly Point		RESERVE - Private	2	1	1	Restoration	No	3	2	6	0	0	High	High	
14	sediment	CGS_RestoPrio	7	Remove groin in intertidal.	down-drift	shoreline modification	no	Unknown	Groin removal or modification	N/A	Protect	Lilly Point	4.05311E+11	Private	2	1	1	Restoration	No	3	2	6	0	0	High	High	
15	sediment	CGS_RestoPrio	7	Remove groin in intertidal.	down-drift	shoreline modification	no	Unknown	Groin removal or modification	N/A	Protect	Lilly Point	4.05311E+11	Private	2	1	1	Restoration	No	3	2	6	0	0	High	High	
16	sediment	Whatcom County SMP	7	Remove or modify revetments in front of houses/cabins west of Lilly Point, restore marine riparian vegetation.	down-drift	shoreline modification	no	Unknown	Armor removal or modification	N/A	Protect	Lilly Point	4.05311E+11	Private	2	1	1	Restoration	No	3	2	6	0	0	High	High	
17	sediment	CGS_RestoPrio	7	Remove or modify bulkhead-gabion basket.	down-drift	shoreline modification	unknown	Unknown	Armor removal or modification	N/A	Protect	Lilly Point	4.05312E+11	Private	2	1	1	Restoration	No	3	2	6	0	0	High	High	
18		CGS_RestoPrio	6	Remove debris in intertidal including derelict car parts at Lily Point.	footprint	NA	yes	Unknown	Debris removal	N/A	Protect	Lilly Point	4.05312E+11	Whatcom County	1	0	0	Enhancement	Yes	4	1	2	1	0	0	0	
19		Whatcom County SMP	5	Remove debris in the intertidal from the old cannery including pilings, slag piles, and various debris such as concrete pieces from the intertidal and backshore.	footprint	contaminants	yes	Unknown	Debris removal	N/A	Protect	Lilly Point	4.05312E+11	Whatcom County	1	0	1	Enhancement	Yes	4	1	3	1	0	0	0	
20		CGS_WRIA1_NAARP	3	Protect sand lance spawning beach.	footprint	NA	yes	Unknown	Aquisition or Conservation	sand lance spawning, WC land	Protect	Lilly Point	4.05301E+11	Whatcom County	3	0	0	Protection	Yes	4	1	4	1	High	0	High	
21		CGS_RestoPrio	1	Beach nourishment waterward of Maple Beach seawall.	down-drift embayment	shoreline modification	yes	Unknown	Beach nourishment	surf smelt spawning, long-term erosion	Protect	Maple Beach		Whatcom County	1	0	1	Enhancement	Yes	4	3	5	1	High	0	High	
22	sediment	Whatcom County SMP	1	Remove or partially remove of the outfall structure, short groin, and the old pilings (likely creosoted).	down-drift	shoreline modification/contaminants	yes	Unknown	Hydraulic modification, contaminant removal	N/A	Protect	Maple Beach	4.15336E+11	Whatcom County Parks	2	1	2	Enhancement	Yes	4	2	7	1	Top	0	Top	
23		City of Blaine SMP	12	Naturalize channel, enhance fish habitat and revegetate marine riparian near Cain Creek.	in-stream/wetland	NA	yes	Unknown	Revegetation	N/A	Enhance	City of Blaine	4.15136E+11	City of Blaine	3	0	0	Enhancement	Yes	4	3	6	1	High	0	High	
24		City of Blaine SMP	12	Beach nourishment along a portion of the shoreline for erosion control.	footprint	shoreline modification	yes	Enhance	Beach nourishment		Enhance	Blaine		Port of Blaine	3	0	1	Enhancement	Yes	4	1	5	1	High	0	High	
25		City of Blaine SMP	12	Beach nourishment along a portion of the shoreline for erosion control.	footprint	shoreline modification	yes	Enhance	Beach nourishment, topography restoration		Enhance	Blaine		Port of Blaine	3	0	1	Enhancement	Yes	4	1	5	1	High	0	High	
26		City of Blaine SMP	12	Enhance and expand salt marsh, remove fill, create marine riparian ecotone/buffer particularly adjacent to parking lots.	footprint	wetland loss	ltd	Unknown	Channel rehabilitation	N/A	Enhance	City of Blaine	4.05101E+11	Port of Bellingham	3	0	1	Enhancement	Yes	4	1	5	1	High	0	High	
27		City of Blaine SMP	12	Enhance disturbed wetland near Blaine Marina, expand buffer adjacent to parking lot.	footprint	wetland loss	unknown	Unknown	Channel rehabilitation	N/A	Enhance	City of Blaine		Railroad ROW	3	0	1	Enhancement	Unknown	4	1	5	0	0	High	High	
28	sediment	City of Blaine SMP	14	Remove or modify bulkheads; replace with alternative actions in Drayton Harbor.	footprint	shoreline modification	yes	Unknown	Armor removal or modification	N/A	Restore	City of Blaine		Whatcom County	3	0	1	Restoration	Yes	1	1	5	1	High	0	High	
29	sediment	City of Blaine SMP	14	Remove debris used for shore armoring and derelict pilings in Drayton Harbor.	footprint	shoreline modification	no	Unknown	Debris removal	N/A	Restore	City of Blaine	4.00107E+11	Private	3	3	1	Restoration	No	1	1	8	0	0	High	High	
30	sediment	City of Blaine SMP	14	Remove or modify bulkheads; replace with alternative actions and area-wide beach nourishment in Drayton Harbor.	down-drift	shoreline modification	no	Unknown	Armor removal or modification, beach nourishment	N/A	Restore	City of Blaine	4.00107E+11	Private-Homestead	3	0	1	Restoration	No	1	2	6	0	0	High	High	
31		City of Blaine SMP	14	Increase width of marine riparian buffer at Dakota Creek.	footprint	NA	ltd	Unknown	Revegetation	N/A	Restore	Drayton Shore	4.00108E+11	Private-undeveloped	2	0	0	Enhancement	No	1	1	3	0	0	0	0	
32	tidal	Whatcom County SMP	14	Remove debris from the intertidal including the large platform and foundation to restore the beach and fringing marsh.	footprint	NA	no	Unknown	Debris removal	N/A	Restore	Drayton Shore	4.00107E+11	Private-commercial	3	1	0	Restoration	No	1	1	5	0	0	High	High	
33	sediment	Whatcom County SMP	14	Remove or modify bulkheads that protrude into the intertidal in Daryton Harbor north of Dakota Creek.	down-drift	shoreline modification	no	Unknown	Armor removal or modification	N/A	Restore	Drayton Shore	4.00107E+11	Private	3	3	1	Restoration	No	1	2	9	0	0	Top	Top	
34	sediment	Whatcom County SMP	14	Remove or modify bulkheads that protrude into the intertidal in Drayton Harbor.	down-drift	shoreline modification	no	Unknown	Armor removal or modification	N/A	Restore	Drayton Shore	4.00118E+11	Private	3	3	1	Restoration	No	1	2	9	0	0	Top	Top	
35		CGS_WRIA1_NAARP	14	Enhance tidal exchange at historic marsh.	footprint	wetland loss	no	Unknown	Channel rehabilitation	tidal barrier, shore armor, historic marsh,	Restore	Drayton Shore	4.00118E+11	Private	2	0	1	Enhancement	No	1	1	4	0	0	0	0	
36		CGS_WRIA1_NAARP	14	Enhance tidal exchange at culvert by replacing with larger culvert.	footprint	wetland loss	no	Unknown	Hydraulic modification	tidal barrier	Restore	Drayton Shore	4.05114E+11	Private	2	0	1	Enhancement	No	1	1	4	0	0	0	0	

WRIA 1 Nearshore and Estuarine Restoration Prioritization - Appendix C Nearshore Restoration On-the-ground Projects Attribute Table.
Addendum. December 2013.

ID_spatial	ProcessRes	Source	Shoreform Number	Description	Benefit Area	Limiting Factors Addressed	Opportunity	Status	Mgmt_Meas	Justificat	Strategy	Mn_Reach	WCAGCODE	Ownership	Strat Match	Proc Match	LTF Match	Proj Strat	Opprtnty	CGS_DC_Pri	Benft_Scr	Proj_Scr	3yr_Scrn	3Yr_Priority	10Yr_Priority	Proj_Cat	Feasible
37		Whatcom County SMP	14	Remove dilapidated dock from salt marsh habitat.	footprint	shoreline modification	no	Unknown	Overwater structure removal, debris removal	N/A	Restore	Drayton Shore	4.05113E+11	Private	2	0	1	Enhancement	No	1	1	4	0	0	0	0	
38		CGS_WRIA1_NAARP	14	Protect shoreline, especially along undeveloped parcels.	down-drift	NA	no	Unknown	Aquisition or Conservation	high scoring	Restore	Drayton Shore	4.05113E+11	Private	2	0	0	Protection	No	1	2	4	0	0	High	High	
39	sediment	City of Blaine SMP	15	Remove or partially remove shore armor in Drayton Harbor.	down-drift	shoreline modification	no	Unknown	Armor removal or modification	N/A	Restore	Drayton Shore	4.05113E+11	Private	3	1	1	Restoration	No	1	2	7	0	0	High	High	
40	sediment	CGS_WRIA1_NAARP	15	Remove or modify bulkhead, consider land acquisition.	down-drift embayment	shoreline modification	no	Unknown	Armor removal or modification	armored BLB, FB, surf smelt spawning	Protect	Drayton Shore	4.05111E+11	Private	2	1	1	Restoration	No	1	3	7	0	0	High	High	
41		CGS_WRIA1_NAARP	16	Protect sand lance spawning habitat within Semiahmoo County Park boundary.	footprint	NA	yes	Unknown	Aquisition or Conservation	forage fish spawning, park land	Protect	Drayton Shore	4.05111E+11	City of Blaine	3	0	0	Protection	Yes	1	1	4	1	High	0	High	
42		City of Blaine SMP	16	Replace creosoted piles with non-toxic piles at Semiahmoo Spit.	footprint	contaminants	no	Unknown	Contaminant removal	N/A	Protect	Drayton Shore	4.05103E+11	Private-DBW Whatcom LLC	1	0	1	Enhancement	No	1	1	3	0	0	0	0	
43	sediment	CGS FB Mapping	18	Remove revetment and creosoted timber wall.	footprint	shoreline modification/contaminants	no	Unknown	Armor removal or modification, contaminant removal	N/A	Protect	Birch Point	4.0511E+11	Private	2	1	2	Restoration	No	2	1	6	0	0	High	High	
44	sediment	CGS FB Mapping	18	Remove 6 rock groins and 2 concrete groins.	down-drift embayment	shoreline modification	no	Unknown	Groin removal	N/A	Protect	Birch Point	4.0511E+11	Private	2	1	1	Restoration	No	2	3	7	0	0	High	High	
45	sediment	CGS FB Mapping	18	Remove rock groin.	down-drift embayment	shoreline modification	no	Unknown	Groin removal	N/A	Protect	Birch Point	4.0511E+11	Private	2	1	1	Restoration	No	2	3	7	0	0	High	High	
46	sediment	CGS FB Mapping	18	Remove or modify of shore armoring, failing creosoted wood wall.	down-drift embayment	shoreline modification/contaminants	no	Unknown	Armor removal or modification, contaminant removal	N/A	Protect	Birch Point	4.05117E+11	Private	2	1	2	Restoration	No	2	3	8	0	0	High	High	
47	sediment	CGS_WRIA1_NAARP	18	Remove or modify shore armoring, failing creosoted wood wall, and adequate setback of structure at top of bluff.	down-drift embayment	shoreline modification/contaminance	no	Unknown	Armor removal or modification, contaminant removal	armored BLB, FB, surf smelt spawning	Protect	Birch Point	4.05117E+11	Private	2	1	2	Restoration	No	2	3	8	0	0	High	High	
48	sediment	CGS FB Mapping	18	Remove concrete bulkhead 20-25 ft high and 15 ft waterward of bank.	down-drift embayment	shoreline modification	no	Unknown	Armor removal or modification	N/A	Protect	Birch Point	4.05116E+11	Private	2	1	1	Restoration	No	2	3	7	0	0	High	High	
49	sediment	CGS_RestoPrio	20	Remove or modify shore armoring, undeveloped parcel.	down-drift embayment	shoreline modification	no	Unknown	Armor removal or modification	N/A	Restore	Birch Bay	4.05126E+11	Private-BBV Comm Club	3	1	1	Restoration	No	2	3	8	0	0	High	High	
50	tidal	CGS_RestoPrio	20	Reconnect coastal wetland processes in Rogers Slough.	in-stream/wetland	wetland loss	no	Unknown	Dike removal, hydraulic modification	N/A	Restore	Birch Bay	4.05124E+11	Private-BBV Comm Club	3	3	1	Restoration	No	2	3	10	0	0	Top	Top	
51	sediment	CGS_RestoPrio	22	Remove or modify shoreline armoring, old boat ramp.	down-drift embayment	shoreline modification	yes	Design in progress	Armor removal or modification, groin removal	N/A	Restore	Birch Bay		Unknown	3	2	1	Restoration	Yes	2	3	9	1	Top	0	Top	
52	sediment	Whatcom County SMP	22	Remove groins and bulkheads and nourish upper beach along Birch Bay Drive to restore upper beach and backshore habitats.	down-drift embayment	shoreline modification	no	Design in progress	Armor removal or modification, groin removal	N/A	Restore	Birch Bay	4.0013E+11	Private	3	2	1	Restoration	Yes	2	3	9	1	Top	0	Top	
52.1	tidal	CGS_RestoPrio	23	Reconnection of coastal wetland, restore stream channel, and removal of tide gate at Lora Lane.	in-stream/wetland	wetland loss, shoreline modification, fish passage	yes	Unknown	Hydraulic modification, channel rehabilitation	tidal barrier, wetland restoration, fish passage	Restore	Birch Bay	RESERVE	Unknown	3	3	3	Restoration	Yes	2	3	12	1	Top	0	Top	
53	sediment	CGS_WRIA1_NAARP	23	Remove or modify shore armoring.	down-drift embayment	shoreline modification	yes	Unknown	Armor removal or modification	armored BAB, surf smelt spawning	Restore	Birch Bay		Whatcom County	3	2	1	Restoration	Yes	2	3	9	1	Top	0	Top	
54	sediment	CGS_WRIA1_NAARP	23	Removal or modification of shore armoring.	down-drift embayment	shoreline modification	yes	Unknown	Armor removal or modification	armored BAB, surf smelt spawning	Restore	Birch Bay State Park		Whatcom County	3	2	1	Restoration	Yes	2	3	9	1	Top	0	Top	
55	sediment	CGS_WRIA1_NAARP	25	Remove or modify shore armoring along bluffs.	down-drift embayment	shoreline modification	no	Unknown	Armor removal or modification	armored BLBs, FB, surf smelt spawning	Restore	Cherry Point	3.95102E+11	Private	3	2	1	Restoration	No	2	3	9	0	0	Top	Top	
56		CGS_WRIA1_NAARP	25	Protect shoreline that delivers large amounts of sediment down-drift, undeveloped parcel.	down-drift	NA	ltd	Unknown	Aquisition and Conservation	undeveloped parcel, no armor	Restore	Cherry Point	3.95102E+11	Private-undeveloped	2	0	0	Protection	No	2	2	4	0	0	High	High	
57	sediment	Whatcom County SMP	25	Remove or modify bulkheads along Pt Whitehorn bluffs, which are the sole sediment source for the miles of accretionary shoreform and valuable habitat in Birch Bay.	down-drift embayment	shoreline modification	no	Unknown	Armor removal or modification	N/A	Restore	Cherry Point	3.95102E+11	Private	3	2	1	Restoration	No	2	3	9	0	0	Top	Top	
58		CGS_WRIA1_NAARP	25	Protect shoreline that delivers large amounts of sediment down-drift, undeveloped parcel.	down-drift	NA	no	Unknown	Aquisition or Conservation	undeveloped parcel, no armor	Restore	Cherry Point	3.95102E+11	Private	2	0	0	Protection	No	2	2	4	0	0	High	High	
59	tidal	CGS_WRIA1_NAARP	28	Expand and restore wetland to historic extent and remove/reduce road footprint at Gulf Rd coastal wetland (salmonids observed in tidal channel).	in-stream/wetland	wetland loss	no	Unknown	Channel rehabilitation	tidal barrier, historic wetland	Restore	Cherry Point	3.90119E+11	Private-Pac Int Terminals	3	3	1	Restoration	No	2	3	10	0	0	Top	Top	
60	solar	CGS FB Mapping	27	Remove failed gravel loading pier.	footprint	shading	no	Unknown	Overwater structure removal, debris removal	N/A	Restore	Cherry Point	3.90119E+11	Private-Pac Int Terminals	3	0	1	Restoration	No	2	1	5	0	0	High	High	
61		CGS_WRIA1_NAARP	29	Protect surf smelt spawning beach, undeveloped parcels owned by Intalco.	down-drift	NA	no	Unknown	Aquisition or Conservation	undeveloped parcel, surf smelt spawning, no armor	Restore	Cherry Point	3.9012E+11	Private-Intalco	2	0	0	Protection	No	2	2	4	0	0	High	High	
62	sediment	CGS_WRIA1_NAARP	31	Sediment by-pass at down-drift (south) end of pier facility, as down-drift beach appears to be depleted.	down-drift embayment	shoreline modification	no	Unknown	Beach nourishment	armored BLB, surf smelt spawning	Restore	Cherry Point	3.90129E+11	Private-Intalco	3	1	1	Restoration	No	2	3	8	0	0	High	High	
63	sediment	CGS_WRIA1_NAARP	31	Remove culvert (with groin-like effects) from intertidal, daylight surface water connection, treat with bioswale if necessary.	down-drift	shoreline modification/contaminance	no	Unknown	Hydraulic modification	surf smelt spawning, debris removal	Restore	Cherry Point	3.90129E+11	Private-Intalco	3	1	2	Restoration	No	2	2	8	0	0	High	High	
64	sediment	CGS_WRIA1_NAARP	31	Remove or modify shore armoring-large rock along toe of bluff.	down-drift embayment	shoreline modification	no	Unknown	Armor removal or modification	armored BLB, surf smelt spawning	Restore	Cherry Point	3.90129E+11	Private-Intalco	3	1	1	Restoration	No	2	3	8	0	0	High	High	
65	sediment	CGS_WRIA1_NAARP	31	Remove or modify shore armoring-large rock along toe of bluff, no apparent structures on uplands.	down-drift embayment	shoreline modification	no	Unknown	Armor removal or modification	armored BLB, surf smelt spawning	Restore	Cherry Point	3.90132E+11	Private-Conoco Phillips	3	1	1	Restoration	No	2	3	8	0	0	High	High	
66	sediment	Whatcom County SMP	31	Excavate sediment from the up-drift (north) side of the pier and bypassed to the down-drift (south) side of the pier fill area in stages, which could also create coastal wetlands in the backshore.	down-drift	shoreline modification	no	Unknown	Beach nourishment	N/A	Restore	Cherry Point	3.90132E+11	Private-Conoco Phillips	3	1	1	Restoration	No	2	2	7	0	0	High	High	
67		CGS_WRIA1_NAARP	34	Protect undeveloped coastal wetland and surf smelt spawning beach.	down-drift	NA	ltd	Unknown	Aquisition or Conservation	surf smelt spawning, undeveloped land	Restore	Sandy Point	3.80105E+11	Private-undeveloped	2	0	0	Protection	No	2	2	4	0	0	High	High	
68	sediment	CGS_WRIA1_NAARP	34	Remove shoreline modification - concrete wall, undeveloped property.	down-drift embayment	shoreline modification	ltd	Unknown	Aquisition or Conservation	surf smelt spawning, undeveloped land	Restore	Sandy Point	3.80105E+11	Private-undeveloped	3	1	1	Restoration	No	2	3	8	0	0	High	High	
69		Whatcom County SMP	35	Reduce intertidal slope, reduce impervious surfaces and create riparian buffer/dune habitat to aid with flood control issues. Portions of the undeveloped (filled) uplands could be restored to marsh where possible.	footprint	wetland loss/shoreline modification	no	Unknown	Topography restoration, revegetation	N/A	Enhance	Sandy Point Basin	3.80109E+11	Private-Sandy Pt Marina	2	3	2	Restoration	No	2	1	8	0	0	High	High	

ID_spatial	ProcessRes	Source	Shoreform Number	Description	Benefit Area	Limiting Factors Addressed	Opportunity	Status	Mgmt_Meas	Justificat	Strategy	Mn_Reach	WCAGCODE	Ownership	Strat Match	Proc Match	LTF Match	Proj Strat	Opprtny	CGS_DC_Pri	Benft_Scr	Proj_Scr	3yr_Scrn	3Yr_Priority	10Yr_Priority	Proj_Cat	Feasible
70	sediment	Whatcom County SMP	46	Remove sediment impoundments and alongshore drift impediments such as the failed concrete bulkhead owned by Lummi Tribal Realty Office.	down-drift	shoreline modification	no	Unknown	Armor removal or modification	N/A	Protect	Gooseberry Point	3.80134E+11	Private-Lummi Realty	2	1	1	Restoration	No	4	2	6	0	0	High	High	
71	sediment	Whatcom County SMP	47	Remove broken concrete bulkhead sections, primarily north of Gooseberry Point and near the tip and south shore of the point	down-drift	shoreline modification	ltd	Unknown	Armor removal or modification	N/A	Restore	Gooseberry Point	3.80134E+11	Lummi Nation	3	2	1	Restoration	Ltd	4	2	8	1	High	0	High	
72		City of Bellingham	224	Portage Island Protection Area.	down-drift	NA	unknown	Unknown	Aquisition or Conservation	N/A	Protect	Portage Island	3.70112E+11	Lummi Nation	3	0	0	Protection	Unknown	2	2	5	1	Top	0	Top	
73	tidal	CGS_WRIA1_NAARP	237	Remove dike or drainage channel from barrier lagoon	in-stream/wetland	wetland loss	ltd	Unknown	Channel rehabilitation	tidal barrier, historic wetland	Protect	Portage Bay	3.70207E+11	Lummi Nation	2	1	1	Restoration	Ltd	1	3	7	1	High	0	High	
74		CGS_WRIA1_NAARP	234	Protect wetland and marsh habitat, sand lance spawning down-drift, undeveloped parcels.	down-drift	NA	ltd	Unknown	Aquisition or Conservation	marsh, sand lance spawning down-drift	Protect	Portage Bay	3.70112E+11	Lummi Nation	3	0	0	Protection	Ltd	1	2	5	1	Top	0	Top	
75		CGS_WRIA1_NAARP	232	Protect sand lance spawning beach, undeveloped parcels.	down-drift	NA	ltd	Unknown	Aquisition or Conservation	undeveloped parcel, sand lance spawning, no armor	Protect	Portage Bay	3.70112E+11	Lummi Nation	3	0	0	Protection	Ltd	1	2	5	1	Top	0	Top	
76		CGS_WRIA1_NAARP	239	Protect sand lance spawning beach, undeveloped parcels.	down-drift	NA	ltd	Unknown	Aquisition or Conservation	undeveloped parcel, sand lance spawning, no armor	Restore	Portage Bay	3.70111E+11	Lummi Nation	2	0	0	Protection	Ltd	2	2	4	1	High	0	High	
77		CGS_WRIA1_NAARP	53	Protect shoreline and limit any new armoring related to the road, consider moving the road inland.	down-drift	NA	no	Unknown	Aquisition or Conservation	sand lance spawning, BAB, high scoring	Restore	Lummi Shore	3.70111E+11	Private	2	0	0	Protection	No	2	2	4	0	0	High	High	
78		CGS_WRIA1_NAARP	54	Nourish beach substrate for forage fish spawning	down-drift	shoreline modification	ltd	Unknown	Beach nourishment	forage fish spawning	Restore	Lummi Shore		Lummi Nation	2	0	1	Enhancement	Ltd	2	2	5	0	0	High	High	
79		Whatcom County SMP	55	Nourishment of beach substrate suitable for forage fish and continued monitoring, as begun under USACE-constructed revetment	down-drift	shoreline modification	ltd	Designs	Beach nourish, Species habitat enhancement		Enhance	Lummi Shore		Lummi Nation	3	0	1	Enhancement	Ltd	1	2	6	1	Top	0	Top	
80		Whatcom County SMP	55	Remove derelict drift nets, debris, and other foreign material from the beaches along Lummi Shore Road.	footprint	NA	no	Unknown	Debris removal	N/A	Enhance	Lummi Shore	3.80126E+11	Private	3	0	0	Enhancement	No	1	1	4	0	0	0	0	
81		City of Bellingham	56	Nooksack Delta Protection Area.	in-stream/wetland	NA	unknown	Unknown	Aquisition or Conservation	N/A	Restore	Nooksack River Delta		Lummi Nation	2	0	0	Protection	Unknown	3	3	5	1	Top	0	Top	
82		Whatcom County SMP	57	Remove abundant fine wood debris smothering nearshore sediments along the Cliffside Community beach.	down-drift	NA	unknown	Assessed	Debris removal	N/A	Restore	Fort Bellingham		DNR	2	0	0	Enhancement	Yes	1	2	4	1	0	0	0	
83		CGS_WRIA1_NAARP	57	Protect shoreline and provide education to public users of "Locust Beach".	down-drift	NA	no	Unknown	Aquisition or Conservation	surf smelt spawning, BLB, high scoring	Restore	Fort Bellingham	3.80222E+11	Private	2	0	0	Protection	No	1	2	4	0	0	High	High	
84		CGS_WRIA1_NAARP	57	Protect forage fish spawning, enhance beach substrate and remove intertidal debris.	down-drift	shoreline modification	no	Unknown	Beach nourish, aquisition, debris removal	forage fish spawning, armor and debris	Enhance	Fort Bellingham	3.80223E+11	Private-commercial	2	0	1	Enhancement	No	1	2	5	0	0	High	High	
85	solar	City of Bellingham	58	Remove creosoted wood piles at Cement Co. pier.	footprint	shading/contaminants	no	Unknown	Overwater structure removal, contaminant removal	N/A	Enhance	Fort Bellingham	3.80223E+11	Private-commercial	3	0	2	Restoration	No	2	1	6	0	0	High	High	
86	tidal	CGS_WRIA1_NAARP	58	Enhancement of estuary, remove culvert and create tide channel and pocket estuary at Little Squalicum Creek for juvenile salmonid forage and refuge/rearing.	in-stream/wetland	fish passage/wetland loss	no	Designs	Channel rehabilitation	forage fish spawning, fish barrier	Enhance	Fort Bellingham	3.80223E+11	Private-commercial-COB	4	3	2	Restoration	Yes	2	3	12	1	Top	0	Top	
87		Whatcom County SMP	58	Remove debris and exotic species and revegetate with native plants at Little Squalicum Creek mouth/estuary.	footprint	NA	no	Unknown	Debris removal	N/A	Enhance	Fort Bellingham	3.80223E+11	City of Bellingham	3	0	0	Enhancement	Yes	2	1	4	1	0	0	0	
88		City of Bellingham	58	Remove large boulders and rocks, renourish naturalized beach at Mt Baker Plywood - West.	footprint	shoreline modification	no	Designs	Beach nourishment, debris removal	N/A	Enhance	Fort Bellingham	3.80223E+11	Private-commercial-POB	3	3	1	Enhancement	Yes	2	1	8	1	Top	0	Top	
89		City of Bellingham	58	Remove or modify fill at Mt. Baker Plywood - Northwest, regrade for marine buffer and possible salt marsh.	footprint	shoreline modification/fish passage	no	Designs	Topographic restoration	N/A	Enhance	Fort Bellingham	3.80223E+11	Private-commercial-POB	3	0	2	Enhancement	Yes	2	1	6	1	Top	0	Top	
90		City of Bellingham	59	Remove fill and regrade for potential salt marsh and marine riparian enhancement at Mt Baker Plywood - South	in-stream/wetland	shoreline modification/fish passage	unknown	Designs	Topographic restoration	N/A	Enhance	Fort Bellingham	3.80223E+11	Port of Bellingham	3	0	2	Enhancement	Yes	6	3	8	1	Top	0	Top	
91		City of Bellingham	59	Raise elevations within estuary to provide intertidal and shallow water habitat for eelgrass and salt marsh with marine riparian enhancement at Squalicum Creek Waterway.	footprint	shoreline modification/fish passage	unknown	Designs	Substrate modification	N/A	Enhance	Fort Bellingham		Port of Bellingham	3	0	2	Enhancement	Yes	6	1	6	1	High	0	High	
92		City of Bellingham	59	Remove fill and regrade to provide estuary habitat including intertidal, salt marsh, and marine riparian at Bellingham Cold Storage.	footprint	shoreline modification/fish passage	unknown	Designs	Topographic restoration	N/A	Enhance	Bellingham		Port of Bellingham	3	0	2	Enhancement	Yes	6	1	6	1	High	0	High	
92.1		City of Bellingham	61	Create beach waterward of armor along south shore of Zuanich Park and extending west.	footprint	shoreline modification	yes	Unkown	Beach nourishment, armor modification or removal	naturalize beach, improve fish migratory habitat	Enhance	Bellingham	3.80225E+11	Port of Bellingham, DNR	3	0	1	Enhancement	Yes	4	1	5	1	High	0	High	
93		City of Bellingham	61	Remove or modify shore armor and enhance with beach sediment at Squalicum Marina.	footprint	shoreline modification/fish passage	ltd	Unknown	Substrate modification	N/A	Enhance	Bellingham	3.80225E+11	Port of Bellingham	3	0	2	Enhancement	Yes	4	1	6	1	High	0	High	
94		CGS_WRIA1_NAARP	61	Enhance naturalized marsh habitat area in I and J waterway.	footprint	shoreline modification	ltd	Unknown	Species habitat enhancement	naturalized marsh	Enhance	Bellingham	3.80225E+11	Port of Bellingham	3	0	1	Enhancement	Yes	4	1	5	1	High	0	High	
95		CGS_WRIA1_NAARP	61	Enhance naturalized pocket beach with surf smelt spawning.	footprint	shoreline modification	ltd	Unknown	Species habitat enhancement	surf smelt spawning, naturalized pocket beach	Enhance	Bellingham	3.80225E+11	Port of Bellingham	3	0	1	Enhancement	Yes	4	1	5	1	High	0	High	
96		City of Bellingham	62	Raise elevations to create shallow water habitat, establish marine riparian and potentially eelgrass habitat at Port - Hilton Harbor.	footprint	shoreline modification/fish passage	ltd	Unknown	Substrate modification	N/A	Enhance	Bellingham	3.80225E+11	Port of Bellingham	3	0	2	Enhancement	Yes	4	1	6	1	High	0	High	
97		City of Bellingham	62	Remove contaminants, replace with clean sediment, and create habitat features at GP - ASB.	footprint	shoreline modification/fish passage/contaminants	ltd	Unknown	Contaminant removal, substrate modification	N/A	Enhance	Bellingham	3.80225E+11	Port of Bellingham	3	0	3	Enhancement	Yes	4	1	7	1	Top	0	Top	
98		City of Bellingham	62	Raise elevations to expand existing eelgrass habitat at G-P ASB - SOUTH.	footprint	shoreline modification/fish passage	ltd	Unknown	Substrate modification	N/A	Enhance	Bellingham	3.80226E+11	Port of Bellingham	3	0	2	Enhancement	Yes	4	1	6	1	High	0	High	
99		City of Bellingham	62	Raise elevations to establish shallow water habitat, marine riparian enhancement at G-P ASB - EAST.	footprint	shoreline modification/fish passage	ltd	Unknown	Substrate modification	N/A	Enhance	Bellingham	3.80226E+11	Port of Bellingham	3	0	2	Enhancement	Yes	4	1	6	1	High	0	High	No
99.1		City of Bellingham	62	Enhance outfall area and naturalized pocket beach at the south end of C Street.	footprint	shoreline modification	yes	Unknown	Beach nourishment, debris removal	imprv fish migratory habitat, debris removal	Enhance	Bellingham	3.80226E+11	Port of Bellingham	3	0	1	Enhancement	Yes	4	1	5	1	High	0	High	
99.2		City of Bellingham	62	Remove wooden structures and derelict floats on the west side of Whatcom Waterway.	footprint	shoreline modification	yes	Unknown	Beach nourishment, debris removal	imprv fish migratory habitat, debris removal	Enhance	Bellingham	3.80225E+11	Port of Bellingham	3	0	1	Enhancement	Yes	4	1	5	1	High	0	High	
100		City of Bellingham	62	Modify elevations and substrates to establish estuarine riparian, beach, mudflat, and salt marsh at head of Whatcom Waterway.	footprint	shoreline modification/fish passage	ltd	Unknown	Substrate modification	N/A	Enhance	Bellingham	3.80226E+11	Port of Bellingham	3	0	2	Enhancement	Yes	4	1	6	1	High	0	High	

ID_spatial	ProcessRes	Source	Shoreform Number	Description	Benefit Area	Limiting Factors Addressed	Opportunity	Status	Mgmt_Meas	Justificat	Strategy	Mn_Reach	WCAGCODE	Ownership	Strat Match	Proc Match	LTF Match	Proj Strat	Opprtny	CGS_DC_Pri	Benft_Scr	Proj_Scr	3yr_Scrn	3Yr_Priority	10Yr_Priority	Proj_Cat	Feasible
100.1		City of Bellingham/CGS	65	Enhance naturalized beach area at the south end of Central Avenue similar to Holly St. Landfill.	footprint	shoreline modification	yes	Unknown	Beach nourishment, debris removal	imprv fish migratory habitat, debris removal	Enhance	Bellingham	3.80226E+11	Port of Bellingham	3	0	1	Enhancement	Yes	5	1	5	1	High	0	High	
100.2		City of Bellingham	65	Enhance area, remove debris and treated wood, regrade tidal elevations to expand existing beaches and create salt marsh habitat.	footprint	shoreline modification, wetland loss	yes	Unknown	Debris removal, topograpy restoration	imprv fish migratory habitat, debris removal	Enhance	Bellingham	3.80225E+11	Port of Bellingham	3	0	2	Enhancement	Yes	5	1	6	1	High	0	High	
101		City of Bellingham	65	Remove wood debris, modify elevations to provide shallow subtidal and intertidal habitats, potentially enhance eelgrass at Port log raft.	footprint	shoreline modification/fish passage	ltd	Master plan in progress	Debris removal, substrate modification	N/A	Enhance	Bellingham	3.80236E+11	Port of Bellingham	3	0	2	Enhancement	Yes	5	1	6	1	High	0	High	
102		City of Bellingham	66	Remove debris and regrade to create intertidal and eelgrass habitat at Cornwall Ave Landfill.	footprint	shoreline modification/fish passage	yes	Master plan in progress	Debris removal, topographic restoration	N/A	Enhance	Bellingham	3.80236E+11	City of Bellingham	3	0	2	Enhancement	Yes	5	1	6	1	High	0	High	
103		City of Bellingham	69	Remove or modify shore armor and remove excess concrete debris and potentially restore eelgrass at Boulevard Park.	footprint	shoreline modification	yes	Designs	Armor removal or modification, debris removal	N/A	Enhance	Bellingham	3.70201E+11	City of Bellingham	3	0	1	Enhancement	Yes	5	1	5	1	High	0	High	
104		City of Bellingham	76	Remove debris and enhance habitat - Padden Creek, north shoreline.	footprint	shoreline modification/fish passage	ltd	Designs	Debris removal, species habitat enhancement	N/A	Enhance	Bellingham	3.70201E+11	Port of Bellingham	3	0	2	Enhancement	Yes	6	1	6	1	High	0	High	
105		City of Bellingham	76	Remove treated wooden pier, creosote, and fill and possibly expand eelgrass beds at Padden Creek, north - in-water work.	footprint	shoreline modification/fish passage/contaminants	unknown	Designs	Contaminant removal, substrate modification	N/A	Enhance	Bellingham		Port of Bellingham	3	0	3	Enhancement	Yes	6	1	7	1	Top	0	Top	
106		City of Bellingham	77	Remove fill and debris and modify elevations to provide estuarine and riparian vegetation, mudflat and marsh along east shore of Padden Creek/lagoon.	footprint	shoreline modification/fish passage	yes	Designs	Topographic restoration	N/A	Enhance	Bellingham	3.70203E+11	City of Bellingham	3	0	2	Enhancement	Yes	5	1	6	1	High	0	High	
107	tidal	City of Bellingham	77	Remove fill and expand of Harris Ave bridge to reconnect tidally influenced brackish marsh with marine riparian enhancement at Padden estuary and creek.	in-stream/wetland	wetland loss	yes	Unknown	Channel rehabilitation	N/A	Enhance	Bellingham	3.70201E+11	City of Bellingham	4	3	1	Restoration	Yes	5	3	11	1	Top	0	Top	
108	tidal	City of Bellingham	81	Modify existing structure under railroad crossing to open up tidal channel and replace concrete shore armor with rock at Post Point, up-drift of surf smelt spawning.	in-stream/wetland	wetland loss	yes	Unknown	Channel rehabilitation	N/A	Enhance	Edgemoor	3.70211E+11	City of Bellingham	4	3	1	Restoration	Yes	6	3	11	1	Top	0	Top	
109		City of Bellingham	83	Post Point to Chuckanut Protection Area.	down-drift	NA	unknown	Unknown	Aquisition or Conservation	N/A	Protect	Edgemoor	3.70211E+11	Private-undeveloped	3	0	0	Protection	Unknown	4	2	5	0	0	Top	Top	
110	tidal	City of Bellingham	85	Modify existing structure under railroad crossing to open up tidal channel and intertidal nourishment to add complexity around tidal channel at Post Point - South.	in-stream/wetland	wetland loss	unknown	Unknown	Hydraulic modification, substrate modification	N/A	Enhance	Edgemoor		Railroad	4	3	1	Restoration	Unknown	6	3	11	0	0	Top	Top	
111	tidal	City of Bellingham	90	Replace or modify existing culvert (appears closed) under railroad to open up tidal channel into lagoon north of Chuckanut Bay (Chuckanut Spit).	in-stream/wetland	wetland loss/fish passage	yes	Unknown	Hydraulic modification	N/A	Enhance	Edgemoor	3.70214E+11	Whatcom Land Trust	4	3	2	Restoration	Yes	8	3	12	1	Top	0	Top	
112	sediment	CGS_WRIA1_NAARP	98	Remove jetty/boat basin at barrier estuary in Mud Bay.	footprint	shoreline modification	yes	Unknown	Channel rehabilitation	shore modification/jetty	Restore	Edgemoor	3.70213E+11	City of Bellingham	3	3	1	Enhancement	Yes	3	1	8	1	Top	0	Top	
113	tidal	City of Bellingham	99	Modify or replace existing causeway to allow greater tidal exchange between Mud Bay and Chuckanut Bay.	in-stream/wetland	wetland loss	unknown	Unknown	Berm or dike removal	N/A	Restore	Edgemoor		Railroad	4	3	1	Restoration	Unknown	3	3	11	0	0	Top	Top	
114		CGS_RestoPrio	100	Remove old debris from Chuckanut Cannery.	footprint	NA	no	Unknown	Debris removal	N/A	Enhance	Chuckanut	3.07224E+11	Private	3	0	0	Enhancement	No	6	1	4	0	0	0	0	
115		CGS_WRIA1_NAARP	130	Protect surf smelt spawning in Larrabee State Park, provide education to public users, and encourage BMPs.	footprint	NA	yes	Unknown	Aquisition or Conservation	surf smelt spawning, publicly owned land	Protect	Chuckanut	3.70236E+11	Wa State Parks	3	0	0	Protection	Yes	3	1	4	1	High	0	High	
116		CGS_WRIA1_NAARP	133	Enhancement of beach sediment, removal of debris - derelict pilings and rail structure at forage fish spawning beach.	down-drift	shoreline modification	Ltd	Unknown	Beach nourishment, debris removal	forage fish spawning	Enhance	Chuckanut		PSE	3	0	1	Enhancement	No	3	2	6	0	0	Top	Top	
117		CGS_WRIA1_NAARP	138	Enhancement of emergent marsh habitat area, remove toppled armor.	footprint	wetland loss	no	Unknown	Species habitat enhancement	tidal barrier, emergent marsh	Restore	Skagit County	47935	Private-commercial	2	0	1	Enhancement	No	2	1	4	0	0	0	0	
118		CGS_WRIA1_NAARP	139	Removal of tidal barrier or related enhancement actions to increase tidal exchange in barrier estuary and emergent marsh.	in-stream/wetland	wetland loss	no	Unknown	Channel rehabilitation	tidal barrier, emergent marsh	Restore	Skagit County	47914	Private	2	0	1	Enhancement	No	2	3	6	0	0	Top	Top	
119		CGS_WRIA1_NAARP	143	Removal of derelict debris - apparent creosoted soldier pile wall into intertidal.	footprint	contaminants	unknown	Unknown	Contaminant removal	debris and contaminants in intertidal	Restore	Skagit County		BLANK	2	0	1	Enhancement	Unknown	2	1	4	0	0	0	0	
120	tidal	CGS_WRIA1_NAARP	143	Reconnection of tidal channel at Colony Creek.	in-stream/wetland	wetland loss	ltd	Unknown	Channel rehabilitation	tidal barrier	Restore	Skagit County		PSE	3	2	1	Restoration	No	2	3	9	0	0	Top	Top	
121		CGS_WRIA1_NAARP	143	Removal of derelict debris - apparent creosoted soldier pile wall into intertidal.	footprint	contaminants	unknown	Unknown	Armor removal or modification	debris and contaminants in intertidal	Restore	Skagit County		Unknown	2	0	1	Enhancement	Unknown	2	1	4	0	0	0	0	
122		CGS_WRIA1_NAARP	143	Removal of derelict debris - boat in intertidal Samish Bay.	footprint	NA	no	Unknown	Debris removal	debris in intertidal	Restore	Skagit County	47970	Private	2	0	0	Enhancement	No	2	1	3	0	0	0	0	
123	tidal	CGS_WRIA1_NAARP	143	Removal of dikes in Samish Delta - would entail acquiring farmland parcels.	in-stream/wetland	wetland loss	no	Unknown	Berm or dike removal, acquisition or conservation	tidal barrier, farmland	Restore	Skagit County	48448	Private	3	2	1	Restoration	No	2	3	9	0	0	Top	Top	
124		Whatcom County SMP	251	Remove derelict piles (likely creosoted) Eliza Island.	footprint	contaminants	no	Unknown	Contaminant removal	N/A	Protect	Eliza Island	3.70232E+11	Private-Eliza Island Club	1	0	1	Enhancement	No	4	1	3	0	0	0	0	
125		Whatcom County SMP	251	Remove derelict piles (likely creosoted) Eliza Island.	footprint	contaminants	no	Unknown	Contaminant removal	N/A	Protect	Eliza Island	3.70232E+11	Private-Eliza Island Club	1	0	1	Enhancement	No	4	1	3	0	0	0	0	
126		Whatcom County SMP	169	Enhance shoreline not being used by commercial/industry by removing fill and enhancing marine riparian to resemble the rocky shore prior to site development.	footprint	shoreline modification	no	Unknown	Species habitat enhancement	N/A	Protect	S Lummi Island	3.70124E+11	Private-commercial	1	0	1	Enhancement	No	5	1	3	0	0	0	0	
127		CGS_WRIA1_NAARP	152	Protect sand lance spawning beach and no apparent armor.	down-drift	NA	no	Unknown	Aquisition or Conservation	sand lance spawning, no armor	Protect	Hale Pass	3.7011E+11	Private	3	0	0	Protection	No	2	2	5	0	0	Top	Top	
128		CGS_WRIA1_NAARP	150	Enhancement of marine riparian along artificial shore at ferry terminal.	footprint	NA	yes	Unknown	Revegetation	surf smelt spawning	Protect	Hale Pass	3.70105E+11	Whatcom County	1	0	0	Enhancement	Yes	2	1	2	1	0	0	0	
129		Whatcom County SMP	208	Remove relic structures in backshore/marsh environments with marsh restoration.	footprint	NA	no	Unknown	Debris removal, species habitat enhancement	N/A	Restore	N Lummi Island	3.70108E+11	Private-Lummi Is Land Co	2	0	0	Enhancement	No	5	1	3	0	0	0	0	
130	sediment	CGS_WRIA1_NAARP	207	Removal or modification of shore and road protection; this seawall is continually undermined and a maintenance issue for Whatcom County, consider land acquisition or road closure as alternatives	down-drift	shoreline modification	no	Unknown	Armor removal or modification	armored BAB	Protect	N Lummi Island	3.70108E+11	Private-Lummi Is Land Co	2	1	1	Restoration	No	4	2	6	0	0	High	High	
131	sediment	Whatcom County SMP	207	Remove failed solid filled pier, large rock groin, concrete debris and derelict piles in the western portion of Legoe Bay.	down-drift	shoreline modification	no	Unknown	Armor removal or modification, groin removal	N/A	Protect	N Lummi Island	3.70108E+11	Private	2	1	1	Restoration	No	4	2	6	0	0	High	High	
132		Whatcom County SMP	207	Remove derelict (creosote) piles on south Lummi Island	footprint	contaminants	no	Unknown	Contaminant removal	N/A	Protect	N Lummi Island	3.70109E+11	Private-Lummi Is Land Co	2	0	1	Enhancement	No	4	1	4	0	0	0	0	
133	tidal	CGS_WRIA1_NAARP	209	Reconnection of coastal wetland leeward of Legoe Bay Road through restored tide channel or installation of larger box culvert.	in-stream/wetland	wetland loss	no	Unknown	Channel rehabilitation	tidal barrier, salmonid migratory pathway	Protect	N Lummi Island	3.70109E+11	Private-Lummi Is Land Co	2	3	1	Restoration	No	4	3	9	0	0	Top	Top	