

National Park Service
U.S. Department of the Interior

Lake Chelan National Recreation Area



Stehekin River Corridor Implementation Plan and Final Environmental Impact Statement • Volume II

North Cascades National Park Service Complex
Lake Chelan National Recreation Area
July 2012



Early Morning on Lake Chelan (John Chao).

Lake Chelan National Recreation Area

Stehekin River Corridor Implementation Plan and Final Environmental Impact Statement • Volume II

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Rainbow Loop Trail (Bender).

TABLE OF CONTENTS

Appendix 1: Lake Chelan National Recreation Area Enabling Legislation (Public Law 90-544)	1
North Cascades Complex	1
Appendix 2: Management Objectives and Actions in the Lake Chelan NRA GMP Applicable to the SRCIP	5
Natural Resources	5
Wetland, Floodplain, Shoreline and Riparian Areas	6
Sand, Rock and Gravel Plan Elements	6
Geohazards	6
Threatened, Endangered and Rare Species / Nonnative Species	7
Scenic Resources	7
Visitor Experience	8
Land Use and Development	8
Park Operations	9
Appendix 3: Lake Chelan National Recreation Area Land Protection Plan Management Goals / Objectives and Guidelines	11
Management Goal / Objectives (NPS 1995a: 40-41, 1995c: 2-3)	11
Guidelines (NPS 1995: 3-4)	11
Appendix 4: Stehekin River Reach Analysis	13
Stream Channel Geometry, Hydraulics, and Stability	13
Channel Habitat	16
Selected Stream Reach Conditions in the Project Area.....	17
Appendix 5: Cumulative Impacts Project List.....	29
Parkwide Plans.....	29
Company Creek Road Plans	31
Stehekin Valley Road Plans	32
Other Related Park Environmental Assessments.....	35
Future Proposed Park Environmental Assessments.....	35
Other Park Plans.....	36
Non Park Environmental Impact Statements.....	36

Appendix 6: Summary of Mitigation Measures	39
Measures to Avoid, Minimize, or Mitigate Impacts.....	39
 Appendix 7: Army Corps of Engineers (ACOE) Advanced Flood Protection Measures.....	 51
 Appendix 8: Vascular Plants Observed within Proposed Project Areas	 63
Key.....	63
Proposed Land Exchange Parcels.....	63
<i>Camps</i>	70
<i>River Access Point</i>	72
<i>Alternative 5 Species Affected</i>	72
<i>Ranch Parcel</i>	73
 Appendix 9: Proposed Conditions, Covenants and Deed Restrictions (CCRs)	 75
 Appendix 10: 1995 Land Protection Plan Ranking of Private Lands	 77
 Appendix 11: Alternatives 2 and 3 Proposed Ranking of Private Lands for the Revised Land Protection Plan (2010)	 81
 Appendix 12: Alternative 4 Proposed Ranking of Private Lands (2010)	 87
 Appendix 13: Alternative 5 Proposed Ranking of Private Lands for the Revised Land Protection Plan (2012).....	 93
 Appendix 14: Revised 2010 Land Protection Plan (detached)	 99

Appendix 15: Laws, Regulations, and Policies

Whitepaper.....	101
Select Laws, Regulations and Policies Concerning Flood Control and Erosion Prevention in the Lower Stehekin Valley, Lake Chelan National Recreation Area.....	101
<i>Introduction</i>	101
<i>Enabling Legislation for Lake Chelan National Recreation Area</i>	102
<i>National Park Service Organic Act of 1916</i>	103
<i>Appropriations Bill for the Department of Interior, H.R. 1977, Title I, Section 117</i>	104
<i>National Park Service Management Policies 2006</i>	104
<i>Water Quality, §4.6.3</i>	105
<i>Floodplains, §4.6.4</i>	105
<i>Wetlands, §4.6.5</i>	105
<i>Watershed and Stream Processes, §4.6.6</i>	107
<i>General Management Plan, Lake Chelan National Recreation Area (NPS 1995)</i>	107
<i>Clean Water Act, as Amended</i>	108
<i>Section 404 of the Clean Water Act</i>	108
<i>Section 401 Water Quality Certification</i>	109
<i>Wild and Scenic Rivers Act</i>	110
<i>Rivers and Harbors Act</i>	111
<i>Endangered Species Act, as Amended</i>	112
<i>Washington State-Listed Species</i>	113
<i>Washington State Hydraulic Code</i>	115
<i>Washington State Floodplain Management Act</i>	115
<i>Washington State Shoreline Management Act</i>	118
<i>Washington State Environmental Policy Act</i>	122
References	123

Appendix 16: Current Knowledge Base Whitepaper (detached)	125
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Appendix 17: Draft Wetlands and Floodplains Statement of Findings.....	127
Introduction.....	128
Site Description	131
Floodplain Conditions	131
Wetlands	133
Proposed Actions	136
<i>Cumulative Effects</i>	138
<i>Why Proposed Actions are Located in Floodplains and Wetlands</i>	140
<i>Investigation of Alternative Sites</i>	141
Description of Site-Specific Flood Risk	142
<i>Recurrence Interval of Flooding</i>	142
<i>Hydraulics of Flooding (Site Depth and Velocity)</i>	142

<i>Time Required for Flooding to Occur (Amount of Warning Time Possible)</i>	144
<i>Opportunity for Evacuation of the Site in the Event of Flooding</i>	145
<i>Geomorphic Considerations (Erosion, Sediment Deposition, Channel Adjustments)</i>	146
Impacts to Wetlands from the Preferred Alternative 5	146
<i>Road Rehabilitation</i>	146
<i>Erosion Protection Measures</i>	148
<i>Large Woody Debris</i>	148
<i>Reroute Access Connector</i>	148
<i>Justification for Wetland Impacts</i>	149
Description and Explanation of Flood Risk Mitigation	149
Description and Explanation of Floodplain and Wetland Mitigation Plans in the Preferred Alternative.....	150
Summary.....	154
Conclusion	155
References	156

Appendix 18: Estimates of Gravel Accumulation in Two Reaches of the Stehekin River	157
Cross-section Data.....	157
Calculations of Gravel Accumulation.....	160
<i>Lower Reach</i>	160
<i>Upper Reach</i>	162
Potential Storage Site.....	166

Appendix 19: Carbon Emission Estimates and Calculations	167
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Appendix 20: USFWS Biological Opinion	171
--	------------

Appendix 21: NPS Responses to Comments on the DEIS	237
A. Elements Common to All	237
B. NPS Employee Housing.....	240
C. New Elements or Actions	242
D. Stehekin Heritage Alternative 5 Proposal	244
E. Bicycling	244
F. Camping	245
G. SRCIP DEIS / LPP Goals.....	247
H. Editorial Comments.....	249
I. Erosion Protection Measures	252
J. New Information.....	259
K. GAO Recommendations	259

L. Hiking Trails	261
M. General Impacts: LPP/SRCIP	263
N. LPP General Impacts.....	265
O. Impacts on Socioeconomics	268
P. Impacts to Stehekin Airstrip.....	270
Q. Impacts to Stehekin Community.....	271
R. Impacts to Visitor Experience.....	273
S. Water Resources	275
T. Wildlife Impacts	276
U. LPP Compatibility Criteria.....	277
V. Land Acquisition	278
W. LPP Land Exchanges.....	285
X. LPP Language	292
Y. LPP Priorities.....	294
Z. Materials Use - Rock	298
AA. Materials Use - Wood.....	298
BB. Overlay District and Zoning (1 comment supporting, 49 against)	298
CC. Planning Process.....	300
DD. Range of Alternatives.....	301
EE. River access point.....	301
FF. Reroute	303
GG. Reroute Safety	303
HH. Reroute Maintenance	306
II. Other Reroute Issues.....	307
JJ. Reroute Access	309
KK. Reroute - Scherer / Vavrek Proposal	310
LL. Reroute Views.....	312
MM. Shooting Range.....	313
NN. Support Stehekin Heritage Comments (Non-Substantive Category)	314
OO. Use of Channel Migration Zone (Non-Substantive Category).....	314

**Appendix 22: Agency, Organization and Business DEIS
Comment Letters 317**

List of Tables

Appendix 4

Table 1: Stream Reach Large Woody Debris (1984, 1999/2000, and 2007) 17

Table 2: Stream Reach Physical Characteristics 17

Appendix 15

Table 1: Washington State and Federal endangered (E), threatened (T), candidate (C) and other sensitive species for which there is suitable habitat in the Lower Stehekin Valley. 114

Appendix 17

Table 1: Largest Floods on Record for the Stehekin River..... 132

Table 2: Comparison of Two Approaches for Determining Flood Magnitude and Frequency on the Stehekin River by the U.S. Geological Survey Using a Log Pearson III Analysis..... 143

Table 3: Site Specific 100-Year Recurrence Interval Flood Conditions for Parts of the Stehekin River Floodplain Occupied by NPS Facilities, Visitors, or Private Residents..... 143

Table 4: SRCIP Adverse Impacts to Wetlands by Alternative 147

Table 5: SRCIP Beneficial Impacts to Wetlands by Alternative 151

Appendix 22

Table 1: Agencies, Businesses, and Organizations that Commented on the DEIS..... 317

List of Figures

Appendix 4

Figure 1: Stehekin River Channel Changes 1953-2011, above Harlequin Bridge..... 14

Figure 2: Stehekin River Channel Changes 1953-2011, below Harlequin Bridge..... 15

Figure 3: Overall Layout of the Stream Reaches on the Stehekin River..... 19

Figure 4: Location of Reach 1, with Associated Landforms, Logjams, and Habitat Units..... 20

Figure 5: Location of Reach 2, with Associated Landforms, Logjams, and Habitat Units 22

Figure 6: Cross-section N2 to N2' for Reach 2 23

Figure 7: Location of Reach 3, with Associated Landforms, Logjams, and Habitat Units..... 24

Figure 8: Cross-section T to T' for Reach 3..... 25

Figure 9: Location of Reach 4, with Associated Landforms, Logjams, and Habitat Units..... 27

Figure 10: Cross-section WSI-12 to WSI-12' for Reach 4 28

Appendix 17

Figure 1: Location of the SRCIP Project on the Floor of the Lower Stehekin Valley 129

Figure 2: Channel Migration Zone and Regulatory Floodplains in the Lower Stehekin Valley. 130

Figure 3: Magnitude and Timing of the Annual Peak Flood on the Stehekin River. 132

Figure 4: Wetlands in the Lower Stehekin Valley 134

Figure 5: Major Actions in SRCIP / FEIS Alternative 5 (Preferred)..... 137

Figure 6: Proposed Actions in McGregor Meadows: In Preferred Alternative, 0.8 miles of Road would be Removed Between White Circles. 139

Figure 7: Cross-Section through McGregor Meadows looking Downstream with the Elevation of the 100-year Flood in Blue. Data from 2011 NPS - FHWA Hydraulic Model. 145

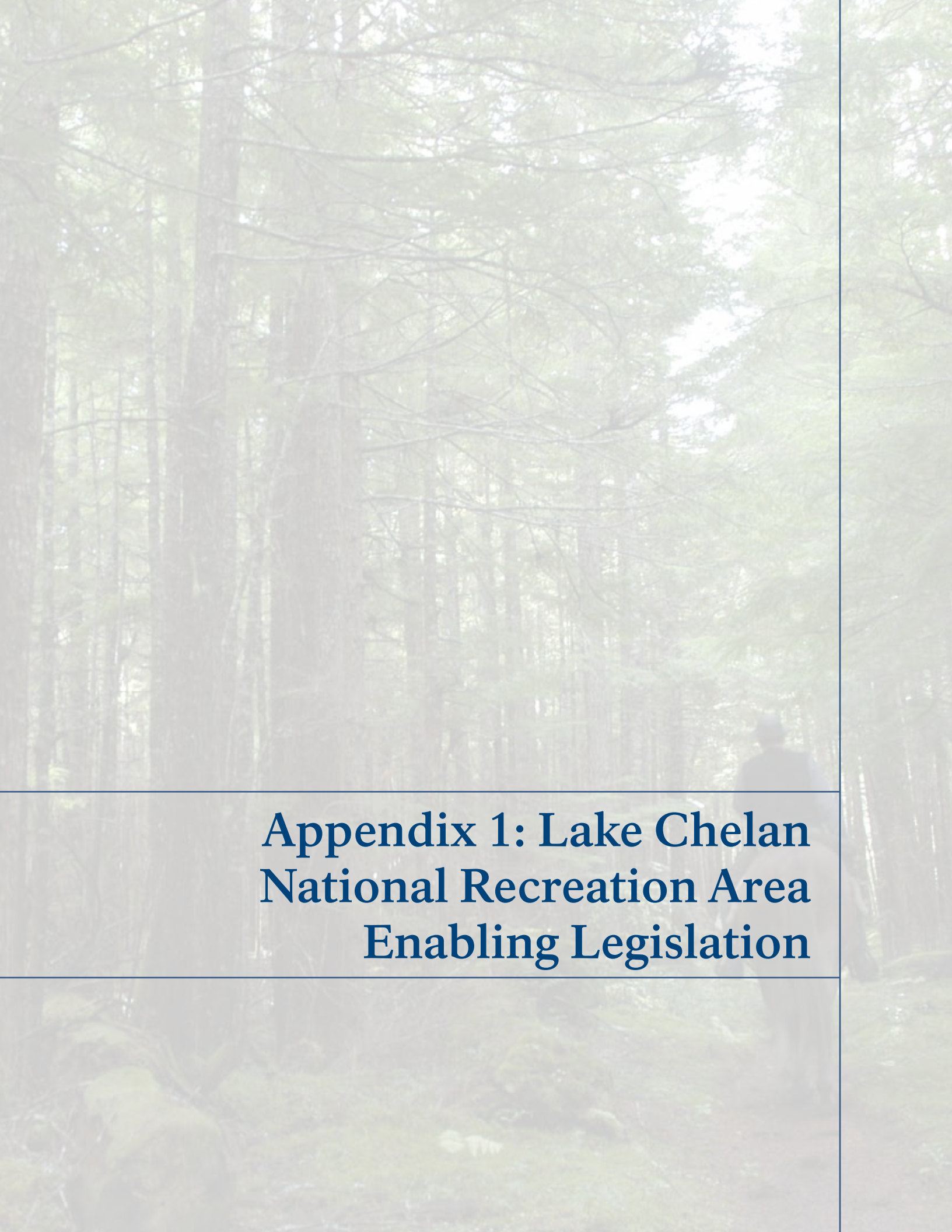
Figure 8: Wetlands Near the NPS Maintenance Compound That Would Be Restored Once the Facility is Relocated. 152

Figure 9: Location of Proposed Riparian Restoration at Buckner Homestead Hayfield and Pasture..... 153

Appendix 18

<i>Figure 1: The Location of the Two Reaches Evaluated for Gravel Accumulation on the Stehekin River</i>	158
<i>Figure 2: The Locations of Cross-Sections in the Lower Kilometer of the Stehekin River</i>	159
<i>Figure 3: Cross-section PUD-5 in the 1999 and 2009 Surveys</i>	160
<i>Figure 4: Cross-section PUD-11 in the 1999 and 2009 Surveys</i>	161
<i>Figure 5: Cross-section PUD-15 in the 1999 and 2009 Surveys</i>	161
<i>Figure 6: Cross-section PUD-18 in the 1999 and 2009 Surveys</i>	162
<i>Figure 7: The Locations of Cross-sections in the McGregor Meadows Reach of the Stehekin River</i>	163
<i>Figure 8: Cross-section USGS-Z and WSI-10 from the 1986 and 2007 Surveys</i>	164
<i>Figure 9: Cross-section USGS-AA and WSI-12 from the 1986 and 2007 Surveys</i>	164
<i>Figure 10: Cross-section USGS-AB and WSI-13 from the 1986 and 2007 Surveys</i>	165
<i>Figure 11: Cross-section USGS-AC and WSI-16 from the 1986 and 2007 Surveys</i>	165

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A misty forest scene with tall trees and a person walking in the distance. The image is overlaid with a semi-transparent white box containing the title text.

Appendix 1: Lake Chelan National Recreation Area Enabling Legislation



Stock use in North Cascades National Park Service Complex (David Snyder).

APPENDIX 1: LAKE CHELAN NATIONAL RECREATION AREA ENABLING LEGISLATION (PUBLIC LAW 90-544)

North Cascades Complex

An Act to establish the North Cascades National Park and Ross Lake and Lake Chelan National Recreation Areas, to designate the Pasayten Wilderness and to modify the Glacier Peak Wilderness, in the State of Washington, and for other purposes. (82 Stat. 926)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I - North Cascades National Park

SEC. 101. In order to preserve for the benefit, use, and inspiration of present and future generations certain majestic mountain scenery, snowfields, glaciers, alpine meadows, and other unique natural features in the North Cascade Mountains of the State of Washington, there is hereby established, subject to valid existing rights, the North Cascades National Park (hereinafter referred to in this Act as the “park”). The park shall consist of the lands, waters, and interests therein within the area designated “national park” on the map entitled “Proposed Management Units, North Cascades, Washington,” numbered NP-CAS-7002, and dated October 1967. The map shall be on file and available for public inspection in the office of the Director, National Park Service, Department of the Interior, and in the office of the Chief, Forest Service, Department of Agriculture.

TITLE II - Ross Lake and Lake Chelan National Recreation Areas

Sec. 201. In order to provide for the public outdoor recreation use and enjoyment of portions of the Skagit River and Ross, Diablo, and Gorge Lakes, together with the surrounding lands, and for the conservation of the scenic, scientific, historic, and other values contributing to public enjoyment of such lands and waters, there is hereby established, subject to valid existing rights, the Ross Lake National Recreation Area (hereinafter referred to in this Act as the “recreation area”). The recreation area shall consist of the lands and waters within the area designated “Ross Lake National Recreation Area” on the map referred to in section 101 of this Act.

SEC. 202. In order to provide for the public outdoor recreation use and enjoyment of portions of the Stehekin River and Lake Chelan, together with the surrounding lands, and for time conservation of the scenic, scientific, historic, and other values contributing to public enjoyment of such lands and waters, there is hereby established, subject to valid existing rights, the Lake Chelan National Recreation Area (hereinafter referred to in this Act as the “recreation area”). The recreation area shall consist of the lands and waters within the area designated “Lake Chelan National Recreation Area” on the map referred to in section 101 of this Act.

TITLE III - Land Acquisition

SEC. 301. Within the boundaries of the park and recreation areas, the Secretary of the Interior (hereinafter referred to in this Act as the “Secretary”) may acquire lands, waters, and interests therein by donation, purchase with donated or appropriated funds, or exchange, except that he

may not acquire any such interests within the recreation areas without the consent of the owner, so long as the lands are devoted to uses compatible with the purposes of this Act. Lands owned by the State of Washington or any political subdivision thereof may be acquired only by donation. Federal property within the boundaries of the park and recreation areas is hereby transferred to the administrative jurisdiction of the Secretary for administration by him as part of the park and recreation areas. The national forest land within such boundaries is hereby eliminated from the national forests within which it was heretofore located.

SEC. 302. In exercising his authority to acquire property by exchange, the Secretary may accept title to any non-Federal property within the boundaries of the park and recreation areas and in exchange therefor he may convey to the grantor of such property any federally owned property under his jurisdiction in the State of Washington which he classifies as suitable for exchange or other disposal. The values of the properties so exchanged either shall be approximately equal, or if they are not approximately equal the values shall be equalized by the payment of cash to the grantor or to the Secretary as the circumstances require.

SEC. 303. Any owner of property acquired by the Secretary which on the date of acquisition is used for agricultural or single-family residential purposes, or for commercial purposes which he finds are compatible with the use and development of the park or the recreation areas, may, as a condition of such acquisition, retain the right of use and occupancy of the property for the same purposes for which it was used on such date, for a period ending at the death of the owner or the death of his spouse, whichever occurs later, or for a fixed term of not to exceed twenty-five years, whichever the owner may elect. Any right so retained may during its existence be transferred or assigned. Any right so retained may be terminated by the Secretary at any time after the date upon which any use of the property occurs which he finds is a use other than one which existed on the date of acquisition. In the event the Secretary terminates a right of use and occupancy under this section, he shall pay to the owner of the right the fair market value of the portion of said right which remains unexpired on the date of termination.

TITLE IV - Administrative Provisions

SEC. 401. The Secretary shall administer the park in accordance with the Act, of August 25, 1916 (39 Stat. 535; 16 U.S.C. 1-4), as amended and supplemented.

Sec. 402. (a) The Secretary shall administer the recreation areas in a manner which in his judgment will best provide for (1) public outdoor recreation benefits; (2) conservation of scenic, scientific, historic, and other values contributing to public enjoyment; and (3) such management, utilization, and disposal of renewable natural resources and the continuation of such existing uses and developments as will promote or are compatible with, or do not significantly impair, public recreation and conservation of the scenic, scientific, historic, or other values contributing to public enjoyment. In administering the recreation areas, the Secretary may utilize such statutory authorities pertaining to the administration of the national park system, and such statutory authorities otherwise available to him for the conservation and management of natural resources as he deems appropriate for recreation and preservation purposes and for resource development compatible therewith.

(b) The lands within the recreation areas, subject to valid existing rights, are hereby withdrawn from location, entry, and patent under the United States mining laws. The Secretary, under such reasonable regulations as he deems appropriate, may permit the removal of the nonleasable minerals from lands or interest in lands within the recreation areas in the manner prescribed by

section 10 of the Act of August 4, 1939, as amended (53 Stat. 1196; 43 U.S.C. 387), and he may permit the removal of leasable minerals from lands or interests in lands within the recreation areas in accordance with the Mineral Leasing Act of February 25, 1920, as amended (30 U.S.C. 181 et seq.), or the Acquired Lands Mineral Leasing Act of August 7, 1947 (30 U.S.C. 351 et seq.), if he finds that such disposition would not have significant adverse effects on the administration of the recreation areas.

(c) All receipts derived from permits and leases issued on lands or interests in lands within the recreation areas under the Mineral Leasing Act of February 25, 1920, as amended, or the Acquired Lands Mineral Leasing Act of August 7, 1947, shall be disposed of as provided in the applicable Act; and receipts from the disposition of nonleasable minerals within the recreation areas shall be disposed of in the same manner as moneys received from the sale of public lands.

(d) The Secretary shall permit hunting and fishing on lands and waters under his jurisdiction within the boundaries of the recreation areas in accordance with applicable laws of the United States and of the State of Washington, except that the Secretary may designate zones where, and establish periods when, no hunting or fishing shall be permitted for reasons of public safety, administration, fish and wildlife management, or public use and enjoyment. Except in emergencies, any regulations of the Secretary pursuant to this section shall be put into effect only after consultation with the Department of Game of the State of Washington.

(e) The Secretary shall not permit the construction or use of any road within the park which would provide vehicular access from the North Cross State Highway to the Stehekin Road. Neither shall he permit the construction or use of any permanent road which would provide vehicular access between May Creek and Hozomeen along the east side of Ross Lake.

TITLE V - Special Provisions

SEC. 501. The distributive shares of the respective counties of receipts from the national forests from which the national park and recreation areas are created, as paid under the provisions of the Act of May 23, 1908 (35 Stat. 260), as amended (16 U.S.C. 500), shall not be effected by the elimination of lands from such national forests by the enactment of this Act.

SEC. 502. Where any Federal lands included in the park or recreation areas are legally occupied or utilized on the effective date of this Act for any purpose, pursuant to a contract, lease, permit, or license issued or authorized by any department establishment, or agency of the United States, the Secretary shall permit the persons holding such privileges to continue in the exercise thereof, subject to the terms and conditions thereof, for the remainder of the term of the contract, lease, permit, or license or for such longer period of time as the Secretary deems appropriate.

SEC. 503. Nothing in this Act shall be construed to affect adversely or to authorize any Federal agency to take any action that would affect adversely any rights or privileges of the State of Washington in property within the Ross Lake National Recreation Area which is being utilized for the North Cross State Highway.

SEC. 504. Within two years from the date of enactment of this Act, the Secretary of the Interior and the Secretary of Agriculture shall agree on the designation of areas within the park or recreation areas or within national forests adjacent to the park and recreation areas needed for public use facilities and for administrative purposes by the Secretary of Agriculture or the Secretary of the Interior, respectively. The areas so designated shall be administered in a manner that is mutu-

ally agreeable to the two Secretaries, and such public use facilities, including interpretive centers, visitor contact stations, lodges, campsites, and ski lifts, shall be constructed according to a plan agreed upon by the two Secretaries.

SEC. 505. Nothing in this Act shall be construed to supersede, repeal, modify, or impair the jurisdiction of the Federal Power Commission under the Federal Power Act (41 Stat. 1063), as amended (16 U.S.C. 791a et seq.), in the recreation areas.

SEC. 506. There are hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this Act, but not more than \$3,500,000 shall be appropriated for the acquisition of lands or interest in lands.

TITLE VI - Wilderness

SEC. 601. (a) In order to further the purposes of the Wilderness Act, there is hereby designated, subject to valid existing rights, the Pasayten Wilderness within and as a part of the Okanogan National Forest and the Mount Baker National Forest, comprising an area of about five hundred thousand acres lying east of Ross Lake, as generally depicted in the area designated as "Pasayten Wilderness" on the map referred to in section 101 of this Act.

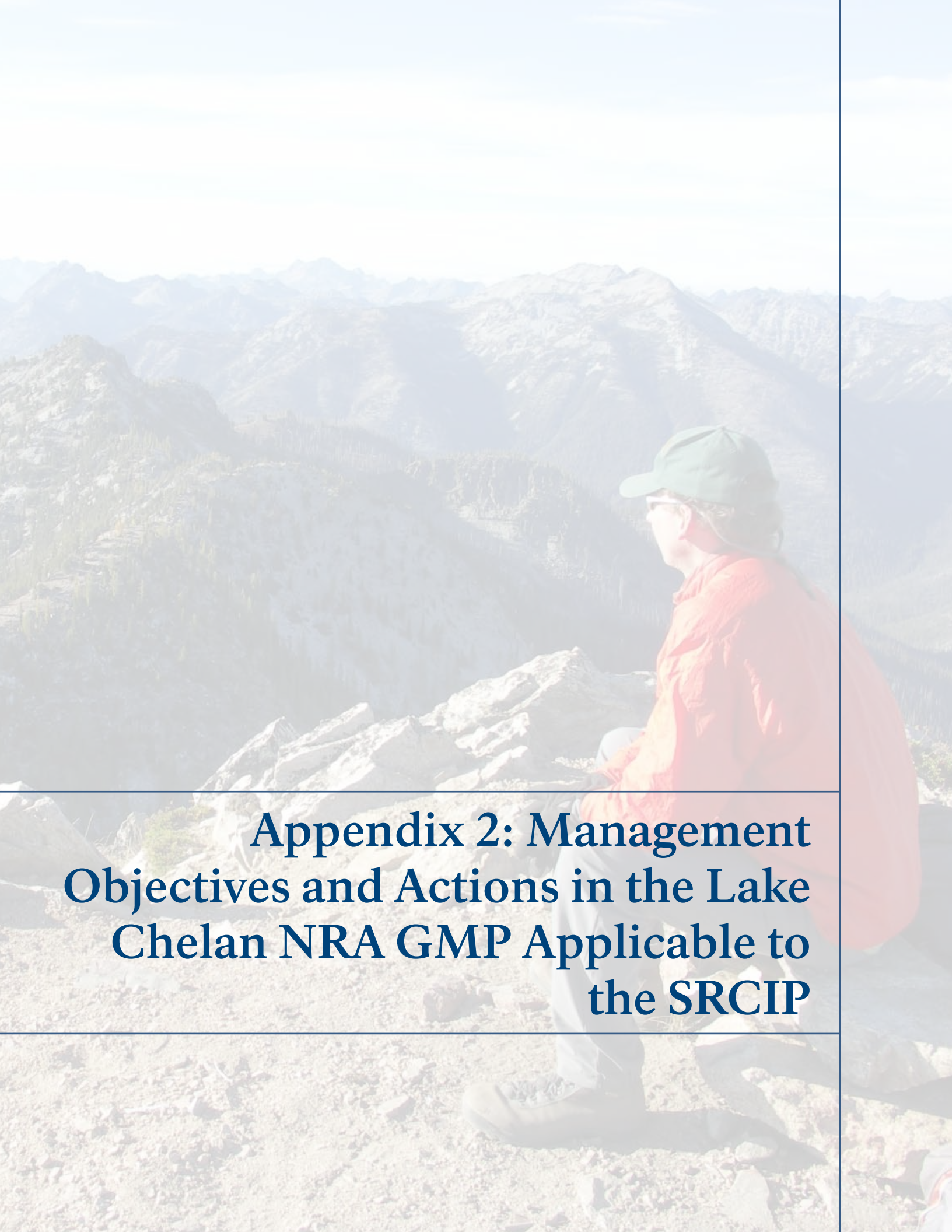
(b) The previous classification of the North Cascades Primitive Area is hereby abolished.

SEC. 602. The boundaries of the Glacier Peak Wilderness, an area classified as such more than thirty days before the effective date of the Wilderness Act and being within and a part of the Wenatchee National Forest and the Mount Baker National Forest, subject to valid existing rights, are hereby extended to include portions of the Suiattle River corridor and the White Chuck River corridor on the western side thereof, comprising areas totaling about ten thousand acres, as depicted in the area designated as "Additions to Glacier Peak Wilderness" on the map referred to in section 101 of this Act.

SEC. 603. (a) As soon as practicable after this Act takes effect, the Secretary of Agriculture shall file a map and legal description of the Pasayten Wilderness and of the Glacier Peak Wilderness, as hereby modified, with the Interior and Insular Affairs Committees of the United States Senate and House of Representatives, and such descriptions shall have the same force and effect as if included in this Act: Provided, however, That correction of clerical or typographical errors in such legal descriptions and maps may be made.

(b) Upon the filing of the legal descriptions and maps as provided for in subsection (a) of this section the Pasayten Wilderness and the additions to the Glacier Peak Wilderness shall be administered by the Secretary of Agriculture in accordance with the provisions of the Wilderness Act and thereafter shall be subject to the provisions of the Wilderness Act governing areas designated by that Act as wilderness areas, except that any reference in such provisions to the effective date of the Wilderness Act shall be deemed to be a reference to the effective date of this Act.

SEC. 604. Within two years from the date of enactment of this Act, the Secretary of the Interior shall review the area within the North Cascades National Park, including the Picket Range area and the Eldorado Peaks area and shall report to the president, in accordance with subsections 3(c) and 3(d) of the Wilderness Act (78 Stat. 890; 16 U.S.C. 1132 (c) and (d)), his recommendation as to the suitability or nonsuitability of any area within the park for preservation as wilderness, and any designation of any such area as a wilderness area shall be accomplished in accordance with said subsections of the Wilderness Act.

A person wearing a red jacket, a green cap, and sunglasses is sitting on a rocky ledge, looking out over a vast mountain range. The mountains are layered, with some peaks covered in green vegetation and others appearing more rugged and rocky. The sky is clear and blue. The overall scene is a scenic view of a mountain landscape.

Appendix 2: Management Objectives and Actions in the Lake Chelan NRA GMP Applicable to the SRCIP



Hiker looks out across the North Cascades from Boulder Butte.

APPENDIX 2: MANAGEMENT OBJECTIVES AND ACTIONS IN THE LAKE CHELAN NRA GMP APPLICABLE TO THE SRCIP

The following information is taken from the proposed action section in the Final Lake Chelan NRA GMP.

Among the applicable overall Management Objectives identified in the GMP (NPS 1995a: 19-49) under *Natural Resources* are those which pertain to the Stehekin River; wetland, floodplain, shoreline and riparian areas; geohazards and scenic resources. Other Management Objectives pertain to *Cultural Resource Management, Visitor Experience, Interpretation and Information, Land Use and Development* (transportation and land protection plan elements), and *Park Operations*. Because this plan focuses on the Stehekin River, that section is included in its entirety. Otherwise, only applicable management objectives and actions are cited below.

Natural Resources

Fish Management Objective: Preserve existing native fish populations and strive to restore viable native fish populations to levels where all endemic species are represented in Lake Chelan NRA; preserve or restore the opportunity for anglers to fish for native fish species and to enjoy and learn about the natural aquatic environment (NPS 1995a: 20).

Stehekin River Management Objective: Preserve and restore the free-flowing character and natural processes of the Stehekin River and its tributaries with consideration for protecting the public road system.

Management Actions: The National Park Service would not manipulate the Stehekin River to protect federal property except roads and bridges according to the following criteria. Existing public roads would be protected in erosion / river conflict zones only if (1) there are no feasible alternatives, (2) funds are available, (3) proposed actions would have lesser impacts than other alternatives, and (4) the proposed actions are permitted by the county, state, and other federal agencies. No new road construction would be proposed in active river / erosion conflict zones.

Previously manipulated sites that do not meet the above criteria for future manipulation would be restored to approximate natural conditions.

The Park Service would not manipulate the river to protect private property. No action would be taken to prevent private owners from manipulating the river on their land to protect their property unless such actions would significantly harm recreation area resources or were in violation of local, state, or federal ordinances, regulations, or laws. Such actions would not be encouraged, however.

NPS structures that could be threatened by river processes would be relocated.

The National Park Service would manipulate woody debris in the Stehekin River or its tributaries only to protect public roads and bridges according to the criteria above. Woody debris could also be trimmed or turned in the lower nine miles of the Stehekin River to allow safer recreational use of the river for rafting, kayaking, and canoeing if it did not alter the function or stability of woody debris accumulations and was permitted by the appropriate regulatory agency. Woody debris

would not be removed from the river system in any case. The Park Service would not remove or manipulate woody debris on public land or water to protect private property, and it would take no action to prevent private landowners from removing or manipulating woody debris on their land to protect their property, unless these actions would significantly harm recreation area resources or were in violation of local, state or federal ordinances, regulations or laws. Such actions would not be encouraged.

The National Park Service would work with the county to encourage private property owners to protect natural river processes. Private alteration of river processes would be opposed through cooperation with county, state and federal agencies that have appropriate authorization to take action. The highest priority would be placed on acquiring lands, through exchange or purchase that area threatened by or where development threatened natural river processes.

River processes would be inventoried, researched and monitored to evaluate and mitigate impacts of recreation and other land uses.

The suitability of the Stehekin River would be studied for designation as a wild and scenic river.

Wetland, Floodplain, Shoreline and Riparian Areas

Management Objective: Preserve or restore ecological processes and conditions in wetland, floodplain, shoreline and riparian areas (NPS 1995a:23).

Management Actions: Existing NPS development on public wetland, appropriate regulatory floodplain, shoreline, and riparian areas (except significant cultural resources) would be relocated to suitable sites and the disturbed sites restored to natural conditions. . . Campgrounds in regulatory floodplains would be brought into compliance with floodplain guidelines.

Property owners would be encouraged to minimize impacts on wetland, floodplain, shoreline or riparian areas. The National Park Service would take appropriate measures where actions threatened to cause significant impacts on wetland, floodplain, shoreline, or riparian areas.

Sand, Rock and Gravel Plan Elements

Management Objective: Allow mining of sand, rock, and gravel in Stehekin Valley but restrict mining to the Company Creek borrow pit for NPS maintenance and public use and minor reconstruction only; allow for importing of material from outside the valley for new construction (NPS 1995a: 23).

Actions: . . .No sand, rock or gravel would be removed from the 100-year floodplain of the Stehekin River or its tributaries.

Geohazards

Management Objective: Recognize and avoid hazards of natural geological processes, such as snow avalanches, debris torrents and rockfalls (NPS 1995a: 23).

Management Actions: New NPS developments and recreational facilities would be sited to avoid geohazards, and existing NPS / concession facilities would be relocated away from geohazards.

The National Park Service, through cooperative efforts with state and local agencies, would oppose private commercial visitor facilities in geohazard areas. . .

Threatened, Endangered and Rare Species / Nonnative Species

Management Objective: Preserve and restore, where feasible, species and ecological relationships that would exist were it not for human impacts including control of nonnative species, and comply with federal, state, and local laws and guidelines (NPS 1995a: 27).

Management Actions: The NPS would monitor and attempt to protect incoming gravel, soil and firewood from nonnative plants and would control selected nonnative species that threaten to spread and adversely affect national recreation area resources. The NPS would educate and cooperate with private landowners and other agencies to encourage use of native species.

The NPS would work with the USFWS and other agencies to define and properly management important habitats in an ecosystem context. The NPS would pursue resource inventory, monitoring and research programs to enhance knowledge of biological communities and natural processes to evaluate trends.

Human-disturbed sites would be actively revegetated, or natural revegetation with native species would be allowed to occur on a case-by-case basis. Species recovery plans would be implemented as approved.

Scenic Resources

Management Objective: Maintain existing levels of natural scenic quality and views and restore cultural scenes (NPS 1995a: 27-28).

Management Actions: The current character of the road from the Landing to Harlequin Bridge and from 9-Mile to High Bridge would be maintained. Between them a hardened, single lane road with pullouts would be provided from Harlequin Bridge to 9-Mile.

The natural character of the lake and river edge on public lands (includes areas within 200 feet of the lake and river shoreline) would be restored. . .

. . .Design guidelines would identify a crafted, step-back-in-time image. . . Where feasible, structures would be relocated away from environmentally sensitive areas.

In cooperation with Chelan County PUD and in compliance with state and federal requirements, power lines would be buried where feasible.

Visitor Experience

Management Objective: Emphasize selected opportunities that focus on natural, cultural, and recreational values, through both structured and unstructured ways and both solitary and social means. Visitors encounter facilities and services in a rural community context where needs are balanced with preservation of a nearly pristine natural environment.

Circulation Management Actions: . . . The Stehekin Valley Road would be paved from the Landing to 9-Mile, gravel between 9-Mile and High Bridge. . . (NPS 1995a: 30).

Overnight Uses Management Actions: . . . The National Park Service would provide camping areas (NPS 1995a: 30).

River Management Actions: The Stehekin River would be managed as a dynamic natural system. . . Opportunities for visitors to appreciate the power and intricacy of the river as a natural system would be enhanced (NPS 1995a: 30).

Land Use and Development

Transportation Plan Elements Management Objective: Provide transportation and access to, from and within the national recreation area to accomplish a quality visitor experience, fulfill resource management objectives, and meet local Stehekin Community needs (NPS 1995a: 32).

Transportation Plan Elements Actions: The airstrip would be retained and operated under a special use permit with the Washington State Department of Transportation, Aeronautics Division, for noncommercial public use on a “use at your own risk” basis (NPS 1995a: 33).

. . . Abandoned vehicles would be removed from public lands.

Roads and trails – the road system would not be expanded. Unnecessary roads would be eliminated and the areas restored to natural conditions.

Company Creek Road would be maintained in its current alignment and condition. According to the Lake Chelan GMP, rerouting the Company Creek Road was inappropriate because it would destroy one acre of riparian habitat and would require building numerous bridges over existing flood channels. As a result, the Record of Decision for the Lake Chelan GMP states: “Company Creek road will be maintained in its current alignment, and will be protected from river erosion at two locations.” As noted in the Company Creek EA (NPS 1997: 8) this references the flood prone areas at road mile 2.1 and 2.2.

An 11-mile pedestrian and horseback trail would be developed from the Landing to High Bridge. . . A pedestrian and horseback riding trail system that connects key lower valley features to the Stehekin Valley Road would also be developed.

Land Protection Plan Elements Management Objective: Make sure that land uses on public and private lands are compatible with the purposes of the Lake Chelan NRA, emphasizing those uses that protect natural and cultural resources and natural processes, and provide for safe visitor facilities and services (NPS 1995a: 40).

In addition to this overall objective, there are six management objectives and thirteen guidelines related to land protection within Lake Chelan NRA as well as five high value resources. Three subsequent sections identify the need to cooperate with Local Zoning/Land Use Regulations (Chelan County); to establish a Stehekin Valley Overlay District; and to establish NPS Land Use Compatibility Criteria (NPS 1995a: 4147).

Stehekin Maintenance Facility and Phase I Housing Development Concept Plan/Environmental Assessment Management Objective: The project will replace the existing maintenance facility and employee housing located in the floodplain at Lake Chelan National Recreation Area in accordance with the direction of the 1995 General Management Plan. The project will specifically provide for design and construction of a new maintenance facility, to include an equipment repair shop, fuel storage and dispensing facility, a search and rescue/fire cache building, storage building, solid waste compaction and recycling building, helipad and associated infrastructure. The project will also include the design and construction of the first phase of housing, to include a ten person fire dorm and one three-bedroom single family residence. The project is to include removal of the existing facilities, and site restoration. The site-specific planning for this project will begin in fall 2010 and include production of a Development Concept Plan and Environmental Assessment.

Park Operations

Cooperative Relationships with Others Management Objective: Strengthen working relationships with others, defining shared objectives and developing strategies that lead to cooperative agreements for the management of natural, scenic, cultural, and recreational resources of Lake Chelan NRA (NPS 1995a: 48).

Cooperative Relationships with Others Actions: The National Park Service would work with county, state, and federal agencies for enforcement of existing ordinances and regulations.

The National Park Service would build cooperative relationships with county, state, and federal agencies; the private sector; and the public through constant communication to involve them in all efforts to facilitate resource protection and visitor enjoyment. . .

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**Appendix 3: Lake Chelan National
Recreation Area Land Protection
Plan Management Goals /
Objectives and Guidelines**



Buckner Orchard Harvest Fest 2009 (Herb Sargo).

APPENDIX 3: LAKE CHELAN NATIONAL RECREATION AREA LAND PROTECTION PLAN MANAGEMENT GOALS / OBJECTIVES AND GUIDELINES

Management Goal / Objectives (NPS 1995a: 40-41, 1995c: 2-3)

The goal is to ensure that land uses on public and private lands are compatible with the purposes of Lake Chelan National Recreation Area (NRA), emphasizing those uses that protect area natural and cultural resources and natural processes, and provide for safe visitor facilities and services.

The six principal management objectives are as follows:

1. Protect Lake Chelan NRA from land uses and developments that are incompatible with the purposes of the recreation area.
2. Actively support local government in their regulation of nonfederal land within the Stehekin Valley, which places primary reliance on adopted Chelan County zoning ordinances, subdivision, and other applicable ordinances and regulations that ensure that the public health and safety of Stehekin Valley residents and visitors are maintained and enhanced.
3. Provide a formal process by which Stehekin Valley residents can actively participate in and provide meaningful input to the Chelan County land use decision process regarding the regulation of private lands.
4. Ensure that applicable laws and policies of the state of Washington, including health and safety regulations and Washington Growth Management Act provisions, are followed.
5. Provide a basis for meaningful and constructive NPS review of proposals for land use change on private land within the Stehekin Valley in order to ensure that all uses and land developments are compatible with the purposes of Lake Chelan NRA.
6. Maintain an effective NPS capability to acquire or exchange for full or partial interests in private lands, conducted on a willing buyer / willing seller basis, to augment the protection measures provided by county land use authority and compatibility determinations.

Guidelines (NPS 1995: 3-4)

Based on the land protection goal and objectives, the following guidelines form the basis for this *Land Protection Plan*:

- Place emphasis on local zoning and other land use authorities of county and state government to regulate private land uses within the Stehekin Valley.
- Provide opportunities for local review of Stehekin Valley land use proposals, and an appropriate forum to provide this input to Chelan County government.
- Accept new residential and other private land uses that are compatible with the purposes of Lake Chelan NRA.
- Accept new commercial uses on private lands that provide visitor and resident services and that are compatible with the purposes of Lake Chelan NRA.

- Accept new industrial uses on private lands that are typical of and compatible with historical industrial uses within the Stehekin Valley and that are compatible with the purposes of Lake Chelan NRA.
- Encourage land uses that consume a low level of resources, and that conserve both renewable and nonrenewable resources.
- Encourage new construction and conversion of existing facilities that adhere to sustainable design principles.
- Identify those properties with areas that have a high priority for resource protection, and where a public interest in land is necessary to protect recreation area resources, based on resource sensitivity and values, or to provide for compatible visitor use and public community needs consistent with the purposes of Lake Chelan NRA and other legislated mandates. Resources that have a high priority protection are wetland, high flood influence, riparian, and high visual sensitivity areas.
- Continue willing buyer / willing seller acquisitions for properties with areas that have a high priority for resource protection, or for which public needs have been identified, when appropriated funds are available for such purposes or appropriate lands are available for exchange. The National Park Service will consider other factors on a case-by-case basis in making final determinations to purchase tracts. Private lands consisting primarily of areas with a low priority for protection are considered lowest priority for acquisition; willing seller opportunities would be considered when funds are available.
- Unless specifically authorized by Congress, for all proposed NPS acquisitions of land, or interests in lands (e.g., easements), including exchanges, the National Park Service will provide advance written notification to both U.S. senators for Washington and the U.S. congressional representative(s) for the congressional district(s) containing the affected lands. A copy of the notification will also be sent to the Chelan County Commissioners. If specifically requested in writing by any of the congressional delegation, the National Park Service will enter into further consultation regarding the proposed action.
- Use land exchanges, as natural, cultural, and scenic conditions allow, within Lake Chelan NRA by offering to exchange private lands having resources with high priority for protection for public land from previously acquired private tracts having resources with a low priority for protection.
- Emphasize, where appropriate, with the cooperation of the landowner, opportunities for easement purchases and other less-than-fee (e.g., conservation easements) interests for resource protection and public use. This will allow greater flexibility in the protection of high priority resources, including scenic areas, and could provide an alternative method of achieving public nonmotorized recreational trail access to lakes, rivers, and streams, and other sites within Lake Chelan NRA.
- Exercise the use of eminent domain procedures only to prevent resource degradation of national recreation area values by incompatible uses on private land, and only as a last resort where other prudent and reasonable measures to protection national recreation area resources by eliminating or mitigating the resource degradation have been exhausted.

This *Land Protection Plan* further defines specific land protection strategies that are to be employed relative to private property within the Stehekin Valley. It also provides a tract by tract listing of landownerships, identifying the approximate percentage of each tract that has a high priority for resource protection (see the “Recommendations” section).



Appendix 4: Stehekin River Reach Analysis



Calypso orchid.

APPENDIX 4: STEHEKIN RIVER REACH ANALYSIS

Stream Channel Geometry, Hydraulics, and Stability

The lower Stehekin Valley is an alluvial valley with varying levels of confinement. It is characterized by a wide floodplain and gravel-dominated channel containing an island-bar pattern (Schumm 1977). The river has this pattern because of the heavy coarse-textured bed load it carries, its large-scale transport and storage of woody debris, and the effective resistance provided by dense stream-bank vegetation, including willow and red osier dogwood. The Stehekin is not a braided glacially dominated system like the large rivers at Mount Rainier and in Alaska.

Figures 1 and 2: *Stehekin River Channel Changes 1962-2006 (above and below Harlequin Bridge)* illustrate the island-bar pattern of the river in several reaches. Two sites in the lower valley, however, have more of a single, straight channel, including the reach above Harlequin Bridge and the reach near the mouth of Boulder Creek. As discussed above, these single-thread, relatively straight channel reaches have functioned as large wood and sediment transport zones. They have been stable features of the floodplain for most of the last century.

Areas standing above the floodplain, and limiting channel migration, include a large lateral moraine on the northeast side of the valley and the extensive alluvial fans of Company, Rainbow, and Boulder Creeks. Over the past several hundred years, the Stehekin River has meandered across most of the valley floor between these landforms.

Channel geometry varies considerably within the two types of lower valley reaches. In the narrow straight reaches, bank-full width is as low as 50 feet, but increases to more than 250 feet in other reaches. Channel sinuosity is generally near 1.3, but in areas of recent sediment deposition, such as McGregor Meadows, it is 1.8. Three relatively large meander loops have formed downstream from Harlequin Bridge, where sinuosity increases to 2.5. The first meander is located near Frog Island (river kilometer 6), where the channel has migrated into the left bank. A second meander is below Buckner Homestead hayfield and pasture. This unusually large meander formed in-part because a right bank side channel was blocked by Chelan Public Utility District (PUD) in the 1930s to prevent water from bypassing the downstream gauge. Growth of this meander was exacerbated by removal of native vegetation and the presence of weak sand and silt soils (ancient river delta) on the left bank below the mouth of Rainbow Creek. Another large meander has formed just above the mouth of the river and is discussed below.

Channel hydraulic conditions in the two different reaches were assessed by the NPS (1992a) with a HEC2 hydraulic model. Channel velocity generally decreases down valley, while width depth ratio and sinuosity increase. Superimposed on this general pattern, within three narrower straighter sediment transport zones adjacent to alluvial fans and above McGregor Meadows, 100-year flood channel velocities are on the order of 9-12 feet per second (fps). Within the sediment storage zones between the big fans and at McGregor meadows, 100-year flood velocities are typically 6-7 fps, but more variable due to the presence of multiple side channels. Flow depth, flood-prone width, entrenchment, width-depth ratio, and stream power also vary systematically between these zones. Overbank velocities during 100-year flood events vary between two to four feet, with flood depths of six feet or more in many side channels.

Manning's hydraulic roughness values for the Stehekin River channel have been estimated at 0.045 by the USGS (1987) and NPS (1992a). This is a measure of how many obstacles the water

Figure 1: Stehekin River Channel Changes 1953-2011, above Harlequin Bridge

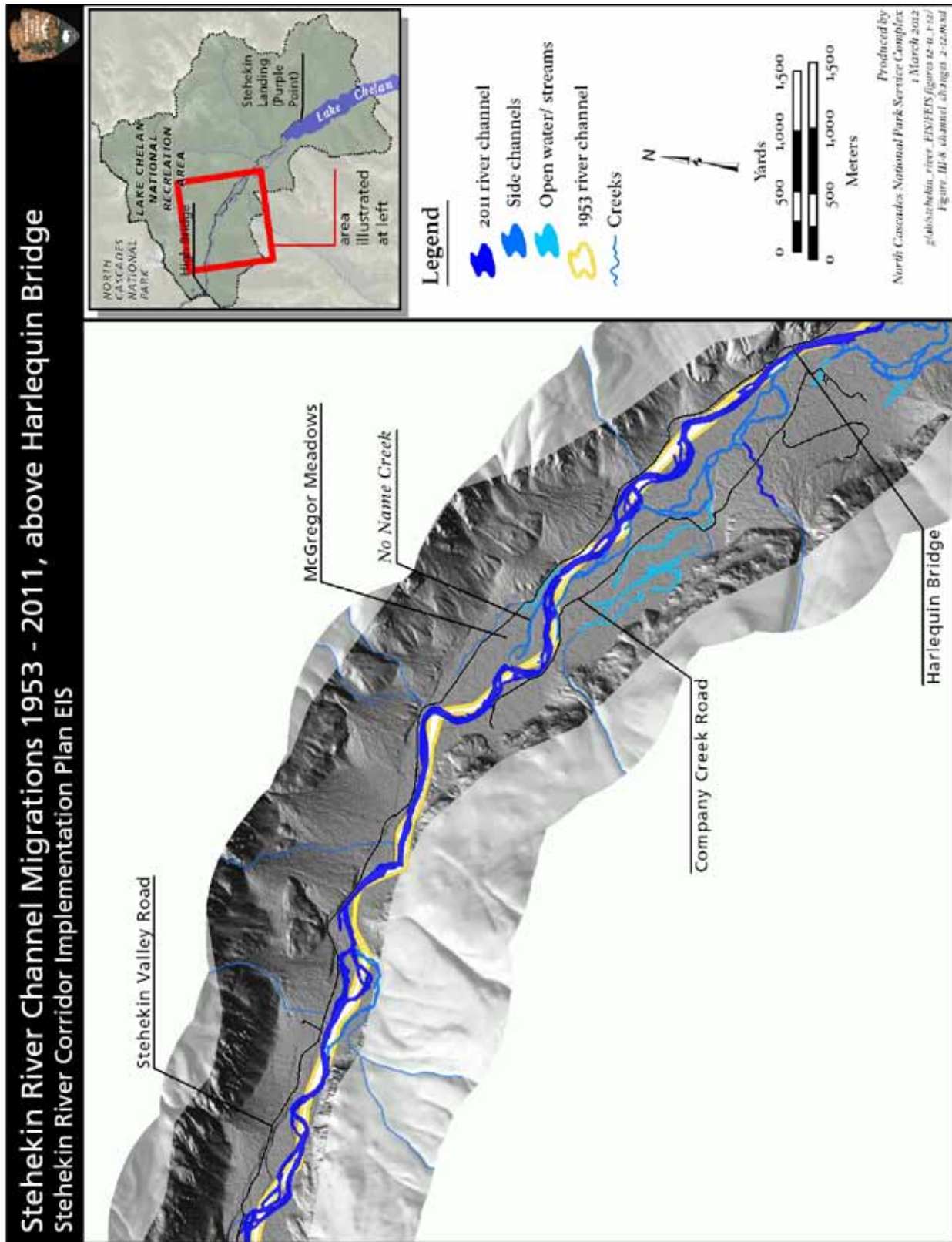
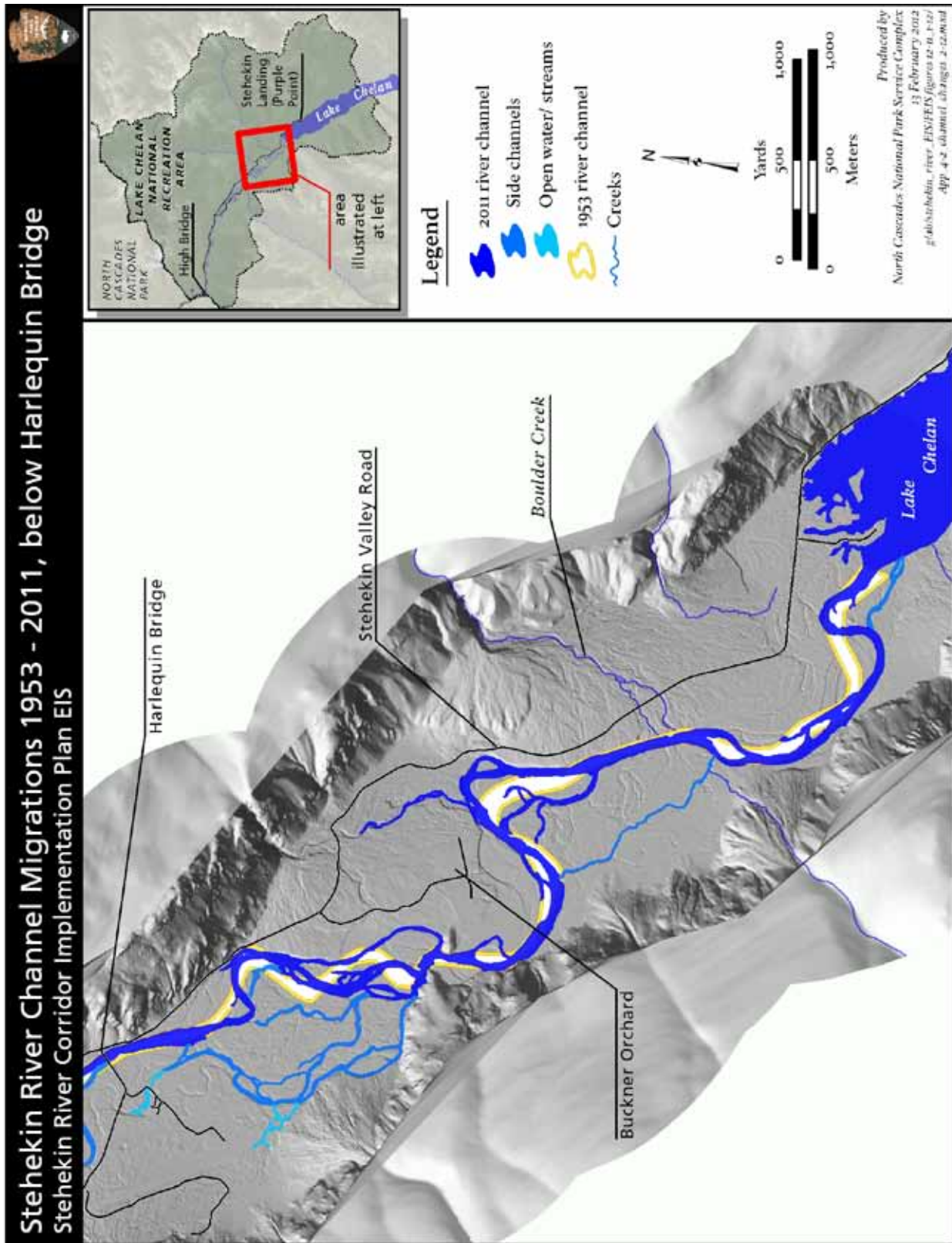


Figure 2: Stehekin River Channel Changes 1953-2011, below Harlequin Bridge



encounters as it flows downstream. Overbank flooding areas in the deposition zones, with dense forests and large wood accumulations, have 'n' values as high as 0.125. The high degree of roughness in most overbank areas reduces flood velocities in floodplains.

The position of the Stehekin River channel has been examined based on an old map made in 1902 and from aerial photos taken in 1957, 1962, 1978, 2004, and 2007. The 1902 channel location is suspect due to mapping scale and a lack of landmarks; however, in several areas there are old river channels where the map placed the river. Furthermore, it is interesting that the channel appears to have been straighter in 1902, and its sinuosity (curvature) has generally increased since 1962.

Until passage of the recent large floods, evidence indicates that the Stehekin Rivers channel geometry was fairly well adjusted to a spring mean bank-full discharge of about 9,000 cfs (Wolma and Leopold 1957; Ackers and Charlton 1970; Southerland 2002). Deposition of massive amounts of gravel and channel widening in different reaches during the recent fall floods is leading to channel changes on the lower Stehekin River.

Channel changes observed at three locations by the NPS in the past 50 years have been remarkably gradual, given the recent flood events. Qualitative observations indicate that the process begins with deposition of large amounts of gravel in the main channel during floods, which reduces channel capacity and results in accelerated bank erosion and over-bank flooding. Over-bank flooding exploits weaknesses in the floodplain, but generally follows and enlarges former river channels. The process of channel migration is complicated by the presence of large wood, which can block side channels and initiate new channel formation in unexpected locations.

Pronounced changes in channel configuration and associated rapid bank erosion can be found at and downstream of McGregor Meadows, below the orchard, and at the mouth of the river. At several other locations, including the Lower Field, McGregor Meadows, and near the mouth of Wilson Creek, the river has jumped from one side of its channel to the other with deposition of gravel during large floods.

Due to changes in valley width, stream gradient, and obstructions, there are three main areas of stream bank instability in the lower Stehekin valley. One is where the river loses its gradient upon entering Lake Chelan. Another is where the river is joined by Company Creek above Harlequin Bridge. The third is at McGregor Meadows, where the valley width increases three-fold. In the McGregor Meadows reach, the increase in valley width is accompanied by a drop in valley gradient, which in turn results in the loss of stream power and massive deposition of sand, gravel, and large wood.

Channel Habitat

In the lower valley, the Stehekin River is characterized primarily by alternating riffles and pools, with occasional cascades and glides. In a 2000 survey, approximately four pool units covered 32,000 square meters, compared to 39,000 square meters in four riffles, with small pools associated with accumulations of large wood (Table 1: *Stream Reach Large Woody Debris*). It is not currently known how the distribution and character of the riffle and pool habitat may have changed with the passage of the 2003 and 2006 floods (Riedel 2007).

Table 1: Stream Reach Large Woody Debris (1984, 1999/2000, and 2007)

Reach	1984 Logjams Large Woody Debris (LWD) (cubic yards)	1999 / 2000 Logjams LWD (cubic yards)	2007 Logjams LWD (cubic yards)	Habitat (acres)
Reach 1	Logjams:21 LWD: 2,607	Logjams:12 LWD: 22,682	Logjams:17 LWD: 110,348	Pool: 4.4 Riffle: 7.6 Glide: 5.8
Reach 2	Logjams:11 LWD: 1,111	Logjams: 15 LWD: 2,987	Logjams: 16 LWD: 3,083	Pool: 0.6 Riffle: 12.2 Run:2.9
Reach 3	Logjams: 16 LWD: about 2,300	Logjams: 15 LWD: 9,133	Logjams: 17 LWD: 21,398	Pool: 3.6 Riffle: 14.8 Run: 0.5
Reach 4	Logjams: 9 LWD: about 4,200	Logjams: 19 LWD: 16,705	Logjams: 26 LWD:48,371	Pool: 5.4 Riffle: 15.1 Cascade: 4.7

Selected Stream Reach Conditions in the Project Area

This section describes the characteristics of four stream reaches on the Stehekin River within the project area. A similar section was included in the Stehekin Valley Road Improvement Project (NPS 2005). These reach analyses help to sort out effects of existing erosion protection structures and the accumulation of large woody debris over time in the Stehekin River.

Descriptions of each reach include average depths and widths, flood prone areas, channel gradient, sinuosity, large wood accumulation, and distribution and amount of stream habitat such as riffle, pool, glide, and of side channel types (Table 1: *Stream Reach Large Woody Debris* and Table 2: *Stream Reach Physical Characteristics*). Reaches were selected for analysis based on their proximity to proposed erosion protection measures.

Table 2: Stream Reach Physical Characteristics

	Reach 1	Reach 2	Reach 3	Reach 4
River (kilometer)	0-1.5	4.8-6	7-8.5	9-11
Length (feet)	4,600	5,000	6,000	3,400
Bankfull Width (feet)	450	160	200	160
Width/Depth Ratio	40:1	24:1	37:1	20:1
Max. Bankfull Depth (feet)	11.1	6.6	5.4	7.9
Flood Prone Area Width (feet)	1400	1780	1600	1200
Channel Gradient (5)	0.5	1.6	0.8	0.8
Sinuosity	1.3	1.3	1.2	1.3
Maximum Diameter (in)	7.9	5.5	9.4	11.8

The lower Stehekin River flows through a wide and deep glacially carved valley into Lake Chelan. Glacial deposits are important in defining the river channel pattern in the lower Stehekin. In the lower valley towards the lake, alluvial fans, debris cones, fan terraces, and steep valley walls mark the edge of the channel migration zone (Reaches 1-2) (Figure 3: *Overall Layout of the Reaches on the Stehekin River*). A large glacial moraine runs along the northeast side of the valley and generally defines the limit of channel migration on the left bank for a large portion of the lower valley (Reaches 3-4) (Figure 3: *Overall Layout of the Reaches on the Stehekin River*). Steep first and second order streams contribute large amounts of sediment. At the bottom of Reach 1 is Lake Chelan, while bedrock at the lower end of Reach 2 controls the bottom of Reaches 2 - 4.

Within the approximately four miles containing Reaches 1-4, the longitudinal profile of the Stehekin River undergoes several significant changes. These changes define the riffle-pool sequence along the river; determine relative channel stability, large wood accumulation and stability, and other habitat factors. The U.S. Army Corps of Engineers conducted removal of large woody debris from the lower five kilometers of the Stehekin River in the early 1970s. Surveys of woody debris were conducted on the Stehekin River in 1984, 2000, and 2007 (Table 1: *Stream Reach Large Woody Debris*). Information about large woody debris within each reach from all three surveys has been included, as have cross-sections from each reach.

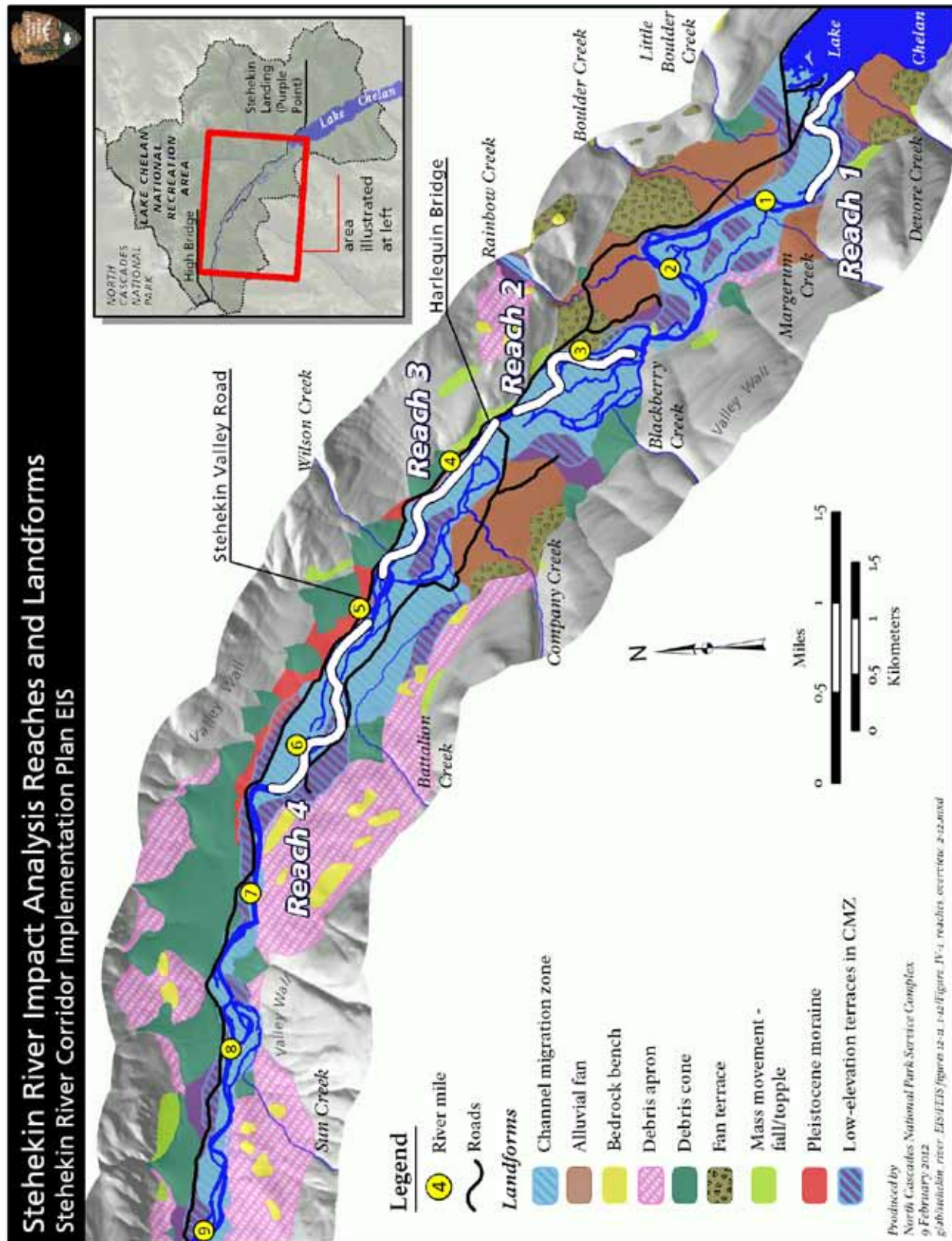
Reach 1

Reach 1 of the Stehekin River encompasses the river mouth to the edge of the Lake Chelan backwater zone (Figure 4: *Location of Reach 1*). When Lake Chelan is at full pool and river discharge approaches 20,000 cfs (i.e., a 100-year flood), the backwater effect of the lake extends about 0.25 mile upstream (Chelan PUD 2001). The backwater effect also extends several hundred feet further upstream for smaller floods that occur at full pool. Reach 1 ends near the edge of this backwater zone, which has a strong effect on gravel and wood deposition and channel stability in this section of the river. The lower valley is underlain by a thick silt and clay layer that represents the former bed of Lake Chelan. This material outcrops intermittently on the right bank of Reach 1. The presence of this layer along with the water level in Lake Chelan probably slows channel migration in this area.

Topography: The valley wall confines this section of the river on the right bank at the upper end of Reach 1. Downstream the river meanders across a wide floodplain with terraces on either side. The alluvial fans of Margerum and Devore Creeks on the right bank and the Boulder Creek alluvial fan on the left bank also limit channel migration. The width of the valley averages 0.7 miles in this reach. The Stehekin River meanders through gravel bars and logjams, dropping its remaining load as it approaches Lake Chelan. This is a net sediment deposition zone with massive logjams in multiple side channels. Based on a continual decrease in grain size as the river approaches the lake, only pebble gravel and finer material is transported through the lower valley and deposited in the lake. The largest diameter sediment cataloged in this reach was only 7.9 inches. The maximum depth for this reach is artificially high at 11.1 feet, since it is at a 50-foot recession bank next to a levee.

Large Woody Debris: The effect of the lake backwater is to raise the 100-year flood elevation about 0.5 feet, and to cause sediment deposition and accumulation of large woody debris in Reach 1. This reach is one of the largest net deposition zones for large woody debris on the river. In the 1984 the lower 4,600 feet of the Stehekin River contained 21 logjams, totaling 2,607 cubic yards of wood. The number of logjams dropped to 12 in 1999, but the volume increased to 22,682 cubic yards. In summer 2007, a large logjam was removed from the head of a side channel

Figure 3: Overall Layout of the Stream Reaches on the Stehekin River



Note the Pleistocene moraine (red) along the left bank and the alluvial fans (brown) along the lower valley, which generally defines the channel migration zone.

near river kilometer one on the right bank of Reach 1. Almost all of the logs were repositioned downstream of the channel mouth below the ordinary high water mark. This project represented the first large scale manipulation of wood on the Stehekin River in more than 35 years. The 2007 survey done in the fall showed the number of logjams to be 17, with 110,348 cubic yards of wood. There are four major logjams at the mouth of the Stehekin River, the largest totaling 861 logs.

Stream Habitat: Habitat in Reach 1 was last surveyed in 2000. It is characterized by a mix of riffle and glide sequences, along with an occasional pool. Riffles and glides are intermixed in this reach, with riffles accounting for 7.2 acres of habitat and 4.4 acres for glides. A majority of the glides are at the very mouth of the river, where it meets Lake Chelan. Pool habitat consists of two large pool features covering approximately 3.3 acres of habitat. Side channels are also a significant habitat feature in this reach, especially adjacent to Lake Chelan where they are strongly affected by changes in the lake level.

Erosion Protection Measures: In this reach there is currently a total of 1,000 feet of modified bank. Private landowners installed two rock barbs, effecting about 200 feet of the left bank in the 1990s. Rip-rap, covers 800 feet of the left bank immediately downstream near the mouth of the Stehekin River and was installed in 1983, including a few hundred feet on NPS land. In addition to stopping bank erosion where they were placed, the primary effect observed was development of scour holes on the channel bed within 200 feet downstream of the barbs. The effect of the rock barbs is also limited in time and in parts of the channel prone to gravel deposition. There are no other bank modifications in Reach 1.

Reach 2

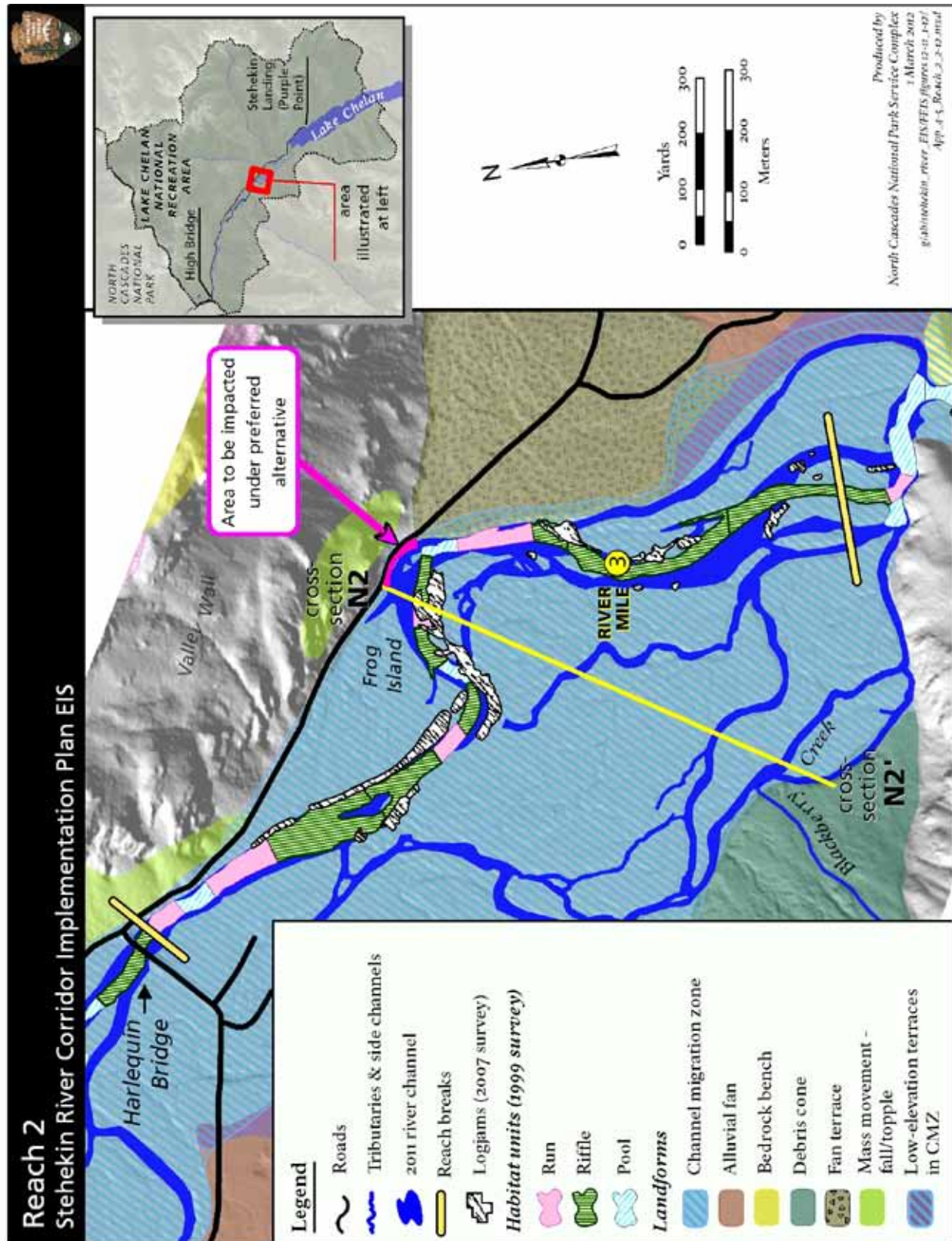
The Stehekin River within Reach 2 has a wide flood prone area averaging 1,780 feet in width due to the lack of confining landforms (Figure 5: *Location of Reach 2*). Located just down valley from the Company Creek alluvial fan, is a major gravel and wood deposition zone, Frog Island on the left bank marks the beginning of this reach. Highly unstable in this section, the Stehekin River reaches a sinuosity of 1.3, spreading over many side channels. Gradient in this reach appears to be controlled by a bedrock ledge at Buckner Rock. Right bank side channels represent the lowest part of the floodplain, and one cut 4-5 feet below the main channel, which is clogged with logs and gravel. While some of the right bank side channels are cut off at Harlequin Bridge, recent new channels have formed across from Frog Island.

Topography: At one time, the river travelled across the right side of its floodplain, but for at least the past 50 years it has been moving into the left bank. The channel is truncating the former alluvial fan of Rainbow Creek. As the river moved east the point bar on the opposite bank has grown proportionally. A cross-section through Frog Island reveals numerous side channels (Figure 6: *Cross-Section N2-N2' for Reach 2*). The channel gradient in Reach 2 is 0.02 percent and is influenced by Buckner rock. Gravel, only as large as 5.5 inches, was cataloged in this reach.

Large Woody Debris: When the channel in this reach was first surveyed in 1984, 1,111 cubic yards of woody debris was present. In the 1999 woody debris survey, 15 individual logjams were identified, totaling 2,987 cubic yards of wood. When surveying was completed in 2007, 16 logjams were present, with the overall size had increased to 3,083 cubic yards of wood.

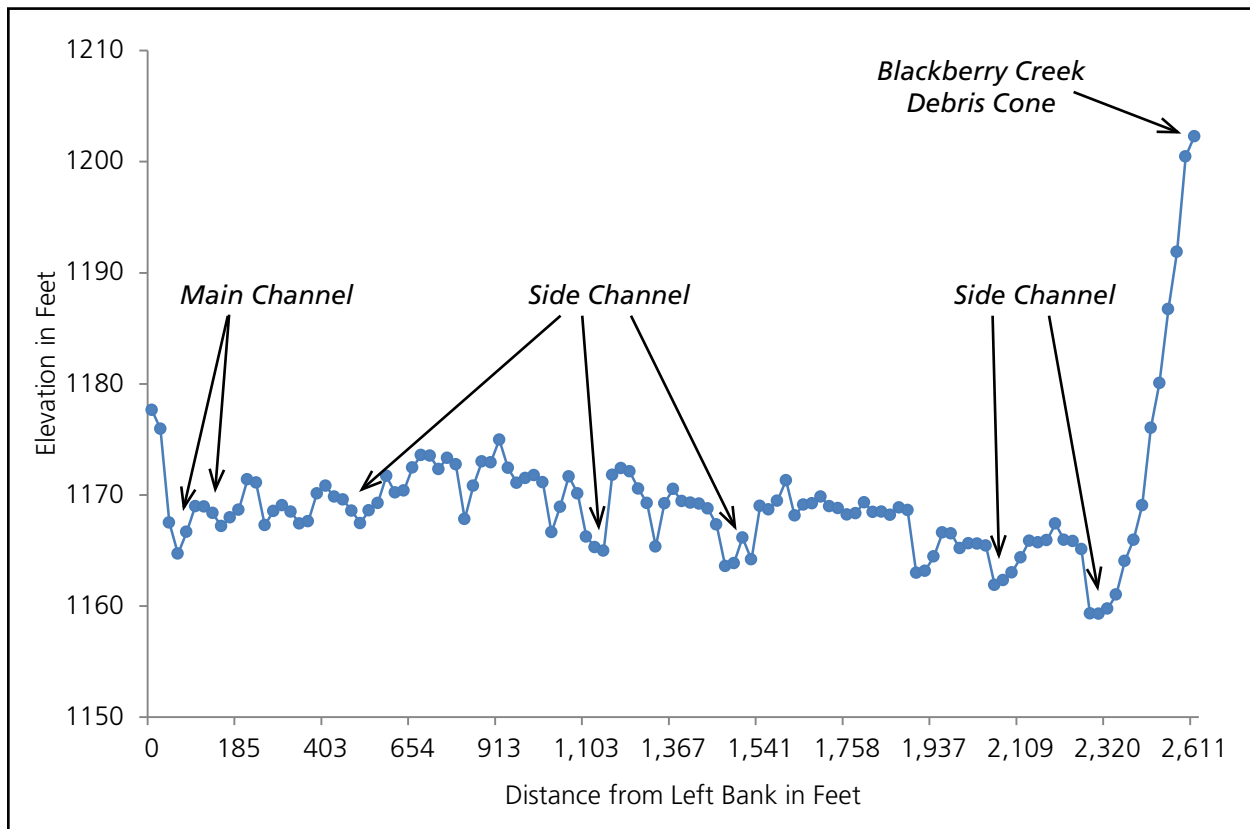
Minor amounts of rock were placed at this site in the past, but there are no other erosion management structures in this reach. The rock and natural accumulation of boulders from adjacent cliffs effect about 300 feet of riverbank.

Figure 5: Location of Reach 2, with Associated Landforms, Logjams, and Habitat Units



Proposed rock barbs just downstream of 'N2' where the river is encroaching on the road. Gravel was removed from a gravel bar on the left bank across from upper Frog Island.

Figure 6: Cross-section N2 to N2' for Reach 2



Erosion Protection Measures: Gravel was removed in small quantities from the right bank but ceased in the late 1970s. Harlequin Bridge upstream has a strong influence on river process. The potential action site on this reach includes the bend in the river just downriver of Frog Island, which is cutting laterally into the main Stehekin Valley Road. Proposed rock barbs would be on the edge of the channel migration zone, where the river flows against the valley wall.

Stream Habitat: The habitat within Reach 2 is characterized by a series of riffles, with only two pools present. The riffles account for 94 percent of the habitat area. The pools total only 0.4 acres and are located at the downstream end of Frog Island. Bank erosion at the site of the proposed barbs measures 240 feet since 1962, with approximately 90,300 cubic yards of gravel introduced into the channel downstream.

Reach 3

Topography: The upper part of this reach is at the end of a major gravel and wood deposition zone. At about River Kilometer 8, the river transitions to a transport zone. In Reach 3 the Stehekin River has alternated over time between two channels located on opposite sides of the floodplain. Channel migration is limited on the left bank by a large glacial lateral moraine, while on the right bank it is limited by the extensive alluvial fan of Company Creek (Figure 7: *Location of Reach 3*). The main channel of the river is paralleled by an abandoned channel on the floodplain of the right bank, which appears to have been the active channel in the early 1900s (Figure 7: *Location of Reach 3* and Figure 8: *Cross-section T to T' for Reach 3*). Avulsion of this abandoned

Figure 7: Location of Reach 3, with Associated Landforms, Logjams, and Habitat Units.

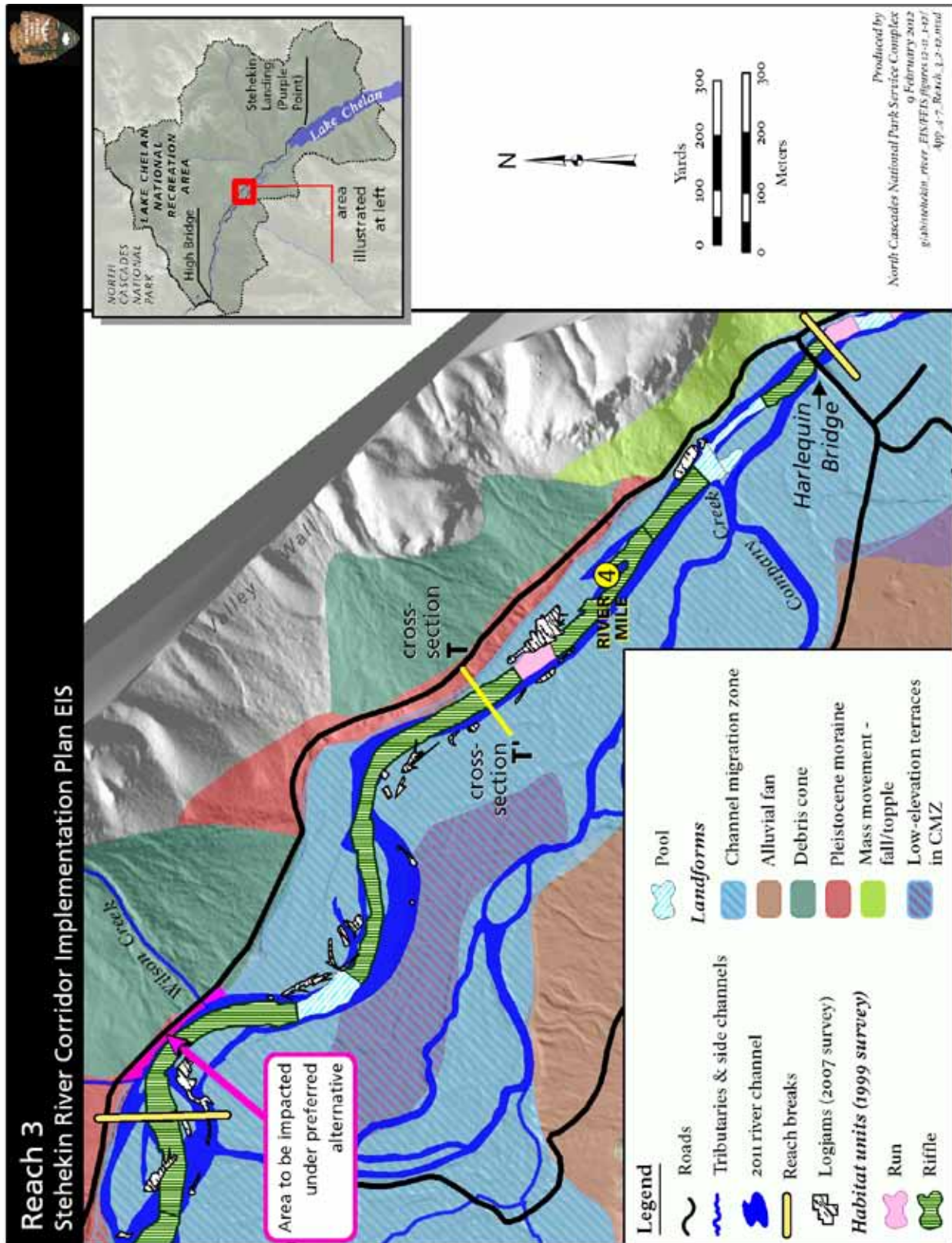
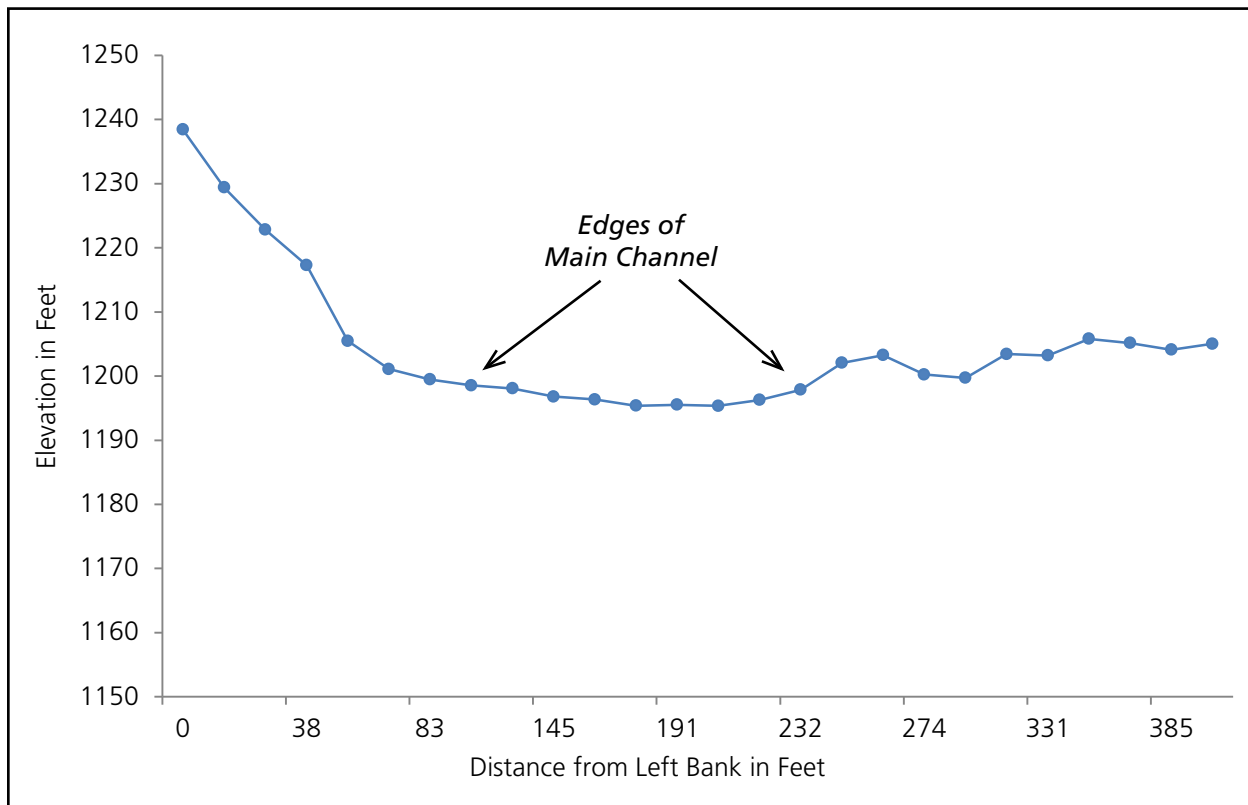


Figure 8: Cross-section T to T' for Reach 3



channel and occupation of the present alignment probably occurred sometime before 1953, most likely during the 1948 flood.

Stream gradient in Reach 3 varies significantly. In the upper part of the reach the gradient is 0.0089 percent, while in the lower part of the reach the gradient drops to 0.0039 percent. The substrate in this reach ranges from cobble and boulder to gravel with the maximum diameter pebble at 9.4 inches. Main channel flood velocities in this reach are on the order of 5-6 cubic feet per second (cfs). Bankfull width, bankfull depth, and width to depth ratios all reflect the broad alluvial nature of this reach.

Large Woody Debris: Reach 3 represents a significant storage zone for large woody debris. In a 2000 survey approximately 9,133 cubic yards of large wood in 15 logjams was inventoried in this reach, representing a 400 percent increase from a 1984 large wood survey. The results from the 2007 survey reveal 17 logjams that total a volume of 21,398 cubic yards in wood, reflecting further substantial increases during the large 2003 and 2006 floods.

Sinuosity is calculated at 1.2 in this reach, although it is higher in the upper parts of this reach. Associated with increased sinuosity is growth of gravel bars and bank erosion. Bank erosion since 1962 at one site measured 315 feet, with an average rate of 7feet/year. Bank erosion at these sites introduced 87,000 cubic yards of gravel to the channel downstream in the past half century.

Erosion Protection Measures: There are currently no erosion control structures within this reach, except for rip-rap at Harlequin Bridge.

Stream Habitat: Habitat in Reach 3 is characterized by riffle pool sequences. Seven long riffles dominate the reach, accounting for 87 percent of all main channel stream habitats (approximately 6.0 acres). Side channels are also a significant habitat feature in this reach (12.5 acres), and have half as much habitat as the main channel. The system of abandoned channels on the right bank of the river's floodplain accounts for most of the side channel habitat. Pool habitat is limited in Reach 3 to two pool features covering approximately 0.7 acres of habitat.

Reach 4

Topography: The Stehekin River channel in Reach 4 migrates across a broad alluvial floodplain between a glacial moraine on the north and a valley wall to the south (Figure 9: *Location of Reach 4*). The most significant change in valley geomorphology within the lower Stehekin River above the head of Lake Chelan occurs at Reach 4, where valley width increases from a width of 500 feet to a half-mile. Flood prone area and bankfull width (Figure 9: *Location of Reach 4*) also increase significantly in this reach (Table 2: *Stream Reach Physical Characteristics*). This change coincides with a drop-in stream gradient from 0.015 percent to 0.008 percent. Flood velocity in the main channel is estimated at nine cfs. The main channel in the upper part of this reach is boulder and cobble gravel, with a DMax of 11.8 inches.

Due to these physical changes in valley width and stream gradient, Reach 4 is located in an area where the Stehekin River channel is very unstable. Gravel deposition in this reach since the mid 1980s is estimated at 50,000 cubic yards. Most gravel deposited in this reach has been upstream of the large logjam shown in Figure 9. Downstream of the jam, repeat channel surveys indicate that the river has incised 2-3 feet into 1995 and earlier flood deposits.

A major stream avulsion has been underway in Reach 4 that will likely reroute the main channel through McGregor Meadows down No Name Creek on the left bank (labeled "Old River Channel" on Figure 9). Sinuosity in Reach 4 is as high as Reach 1, another very unstable section of the river (Table 2: *Stream Reach Physical Characteristics*), and has been increasing steadily since the 1950s. The increase in sinuosity is associated with rapid point bar growth and bank erosion. In the October 2003 flood, bank erosion of more than 50 feet was recorded on the right bank at the lower end of Reach 4. In response to bank erosion issues, the NPS and private landowners have installed rock barbs and three grade-control structures in this reach covering a linear distance of 1,565 feet at three locations. Most of these structures are in the middle of the channel migration zone, where their impact on river migration is large. However, four of the rock barbs are now buried in sediment deposited in the 2003 and 2006 floods.

Bankfull width in Reach 4 is 500 feet, while maximum bankfull depth is 7.9 feet (Table 2: *Stream Reach Physical Characteristics*). Repeat surveys of the river channel in this reach indicate that bankfull width is increasing, while bankfull depth has decreased. These changes are associated with the ongoing channel avulsion described above and are directly related to deposition of sediment as main channel conveyance is decreased.

Large Woody Debris: Reach 4 is located in an area that changes from a net large wood transport zone upstream to a storage zone downstream. Reach 4 contains 23 logjams in 2007, totaling 48,371 cubic yards of wood. Large wood accumulated rapidly in this area between surveys in 1984 and 2000 (16,705 cubic yards), with an approximately 1,800 percent increase in large wood volume. Large woody debris accumulations have played a major role in channel stability and pattern in Reach 4. For many years a rapidly growing logjam prevented the river from following No Name Creek and reoccupying an old river channel (Figure 10: *Cross-section WSI-12 to WSI-12' for*

Figure 9: Location of Reach 4, with Associated Landforms, Logjams, and Habitat Units

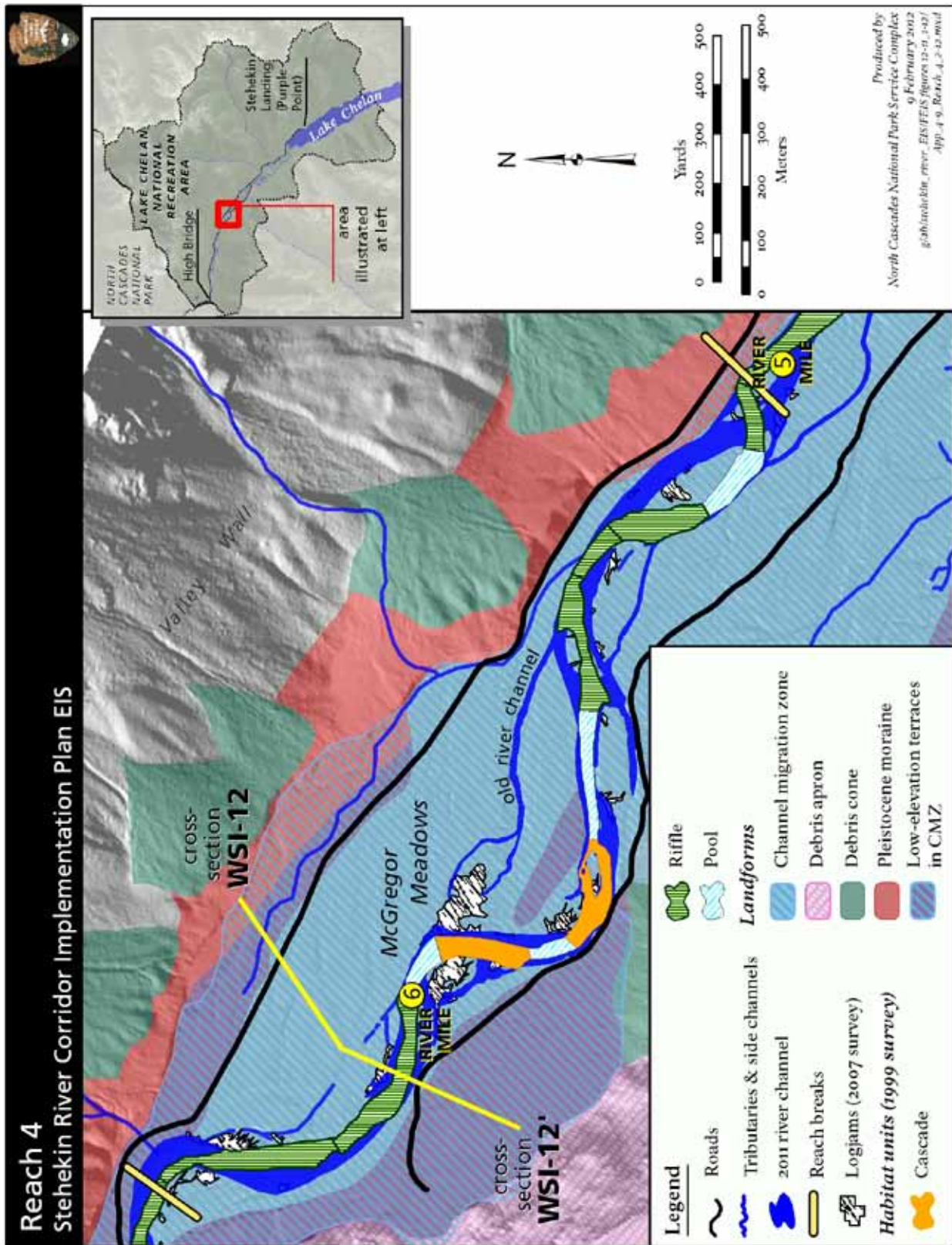
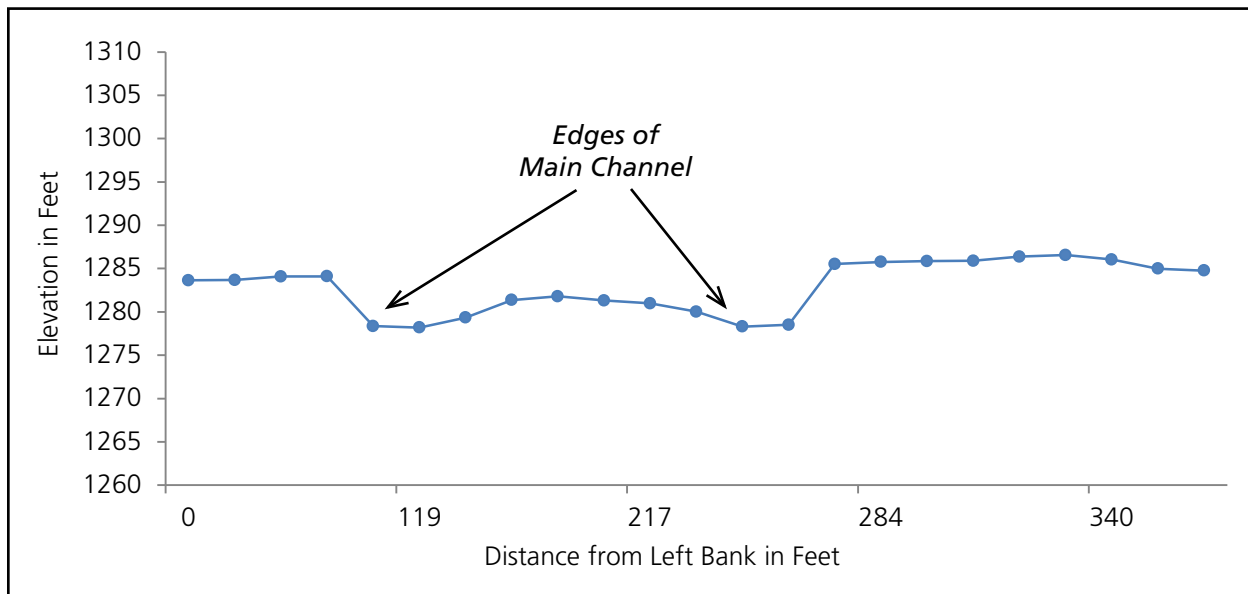


Figure 10: Cross-section WSI-12 to WSI-12' for Reach 4



Reach 4). However, the record October 2003 flood punched a hole in the logjam, thereby rapidly increasing conveyance down the avulsion route and decreasing flow down the main channel. The 2006 event re-plugged this route and the logjam grew to cover 5 acres on both sides of the main channel that contains more than 3,000 individual logs stacked as high as 20 feet.

Erosion Protection Measures: There are currently 14 erosion management structures within this reach, affecting about 4,000 feet of the river bank. Structures include 13 rock barbs on both banks, cabled logs, and two levees. A 300 foot long by 3 foot tall levee was built in the floodplain on the left bank in 2008. About 0.4 miles downstream, the NPS constructed a 400 foot long levee and log cribbing in the 1980s. Eleven of the 13 rock barbs are on the right bank to protect Company Creek Road.

In response to channel instability in upper Reach 4, the NPS and private landowners cooperated to manage ever-worsening flood damage. A 1998 plan coordinated installation of about a dozen small grade control structures on public and private land. These sills of rock buried beneath the surface are designed to slow channel formation and maintain sheet flow in McGregor Meadows (aka avulsion sill).

The 2003 and 2006 floods deposited massive quantities of gravel in upper Reach 4, resulting in unprecedented erosion and flooding of the left bank. In response, private landowners and the NPS cooperated on installation of three long grade control structures. The NPS also installed one long grade control structure and two smaller ones beneath the Stehekin Valley Road near Milepost 6.6 - 6.8.

Stream Habitat: Stream habitat in this reach is confined primarily to the main channel, until halfway through the reach, with a noticeable absence of pool and side-channel habitat. All habitats were classified as riffle in upper McGregor Meadows, covering an area of approximately 3.4 acres. Through lower McGregor Meadows, downstream of the logjam, pools dominate riffles, totaling 2.5 acres of habitat with numerous side channels along the river. Two cascades are present, signaling gradients over 3.5 percent just below the major logjam in McGregor Meadows.



**Appendix 5: Cumulative Impacts
Project List**



Camping in North Cascades National Park Service Complex.

APPENDIX 5: CUMULATIVE IMPACTS PROJECT LIST

(See also Chapter I: *Purpose of and Need for Management Action* and Chapter IV: *Environmental Consequences* (Methodology section).)

Parkwide Plans

Lake Chelan National Recreation Area Final General Management Plan / Environmental Impact Statement (NPS 1995c)

The final GMP (NPS 1995a) provides the overall direction for managing the park subsequent to enabling legislation. Because of the broad policy-level nature of this document, a series of implementation plans were called for within it or were part of it. It also provides some additional detail about the management objectives and corresponding actions that would be undertaken in Stehekin. This plan identifies management objectives associated with the management of Lake Chelan that would be implemented or clarified by the SRCIP (see Chapter I: *Purpose of and Need for Management Action*, North Cascades National Park Service Complex Plans).

Lake Chelan National Recreation Area Land Protection Plan (NPS 1995b)

The LPP's purpose is to:

- Effectively respond to private property owners who willingly and voluntarily approach the NPS with the goal of exchanging or selling their land.
- Provide a basis for meaningful and constructive NPS review of proposals for land use change on private land within the Stehekin Valley to ensure that new or modified land use and development is compatible with the purposes of Lake Chelan NRA and/or consistent with sustainable practices within the Stehekin River channel migration zone.
- Fulfill federal policy requirements to have a plan that makes use of the full range of land protection authorities to augment the land protection measures provided by Chelan County and Washington state land use laws, regulations and policies.
- Use land protection strategies such as easement, exchange, or acquisition to relocate or remove threatened development from the Stehekin River channel migration zone and/or encourage residents to implement advanced protection measures and ensure that structures and developments within the valley are sustainable.
- A revision to this plan is part of Alternatives 2-5 in the SRCIP (see Chapter I: *Purpose of and Need for Management Action*, North Cascades National Park Service Complex Plans and Chapter II: *Management Alternatives*).

Lake Chelan National Recreation Area Stehekin Landing and Valley Development Concept Plan (NPS 1995d)

These combined plans (NPS 1995d) prescribe NPS development plans for the Stehekin Landing, Stehekin Valley (roads, trails, and transportation services), and the Airstrip area.

Sand, Rock and Gravel Plan (NPS 1995e)

This plan (NPS 1995e) stipulated that no sand, rock, or gravel would be removed from the 100-year floodplain of the Stehekin River or its tributaries and that material needed for construction would be barged in.

The plan projected that the paving of the Stehekin Road from Harlequin Bridge to Milepost 9.0 would reduce gravel use, but anticipated that road repairs would continue to be required following flood events. It did not address specific projects, such as relocating the road farther away from the river. It does specify when and for what purposes material from the local Company Creek Pit in Stehekin may be used (NPS 2005a:7).

The *Sand, Rock, and Gravel Plan* is related to the current proposed project because some material from the local Company Creek Pit would be used for certain aspects of the project. Because the proposal in the SRCIP would need to comply with the plan, material from this source could only be used in certain instances, such as to repair flood-damaged road sections. In the SRCIP, material that has been determined to be excess to Lake Chelan NRA needs (oversize material and some screened material) could also be used. Much of the earth-related material needed for the current project, however, would come from road reroutes or would be barged in from an outside source (NPS 2005a:7).

Lake Chelan National Recreation Area Transportation Plan (NPS 1995f)

This plan prescribed management / use of campgrounds, the Stehekin Valley and Company Creek roads, trails and the maintenance facility (See Chapter I: *Purpose of and Need for Management Action*, North Cascades National Park Service Complex Plans).

Lake Chelan National Recreation Area Forest Fuel Reduction Plan / Firewood Management Plan (NPS 1995g)

The *Forest Fuel Reduction Plan* (NPS 1995g) was developed and implemented to reduce forest fuel accumulation in selected coniferous stands in the Stehekin Valley. The goals are to protect the safety of human life and property in the valley, to protect natural and cultural resources, to restore the forest to a late successional stage, and to protect old growth forest, particularly ponderosa pine. The plan provides for selective thinning and use of management-ignited controlled fires to reduce the fuel supply and risk of wildfires. It specifies the disposition of firewood obtained from tree thinning and also provides for long-term monitoring of the program to evaluate management actions (NPS 2005e:7).

The Stehekin Valley Road is the main route that would be used by visitors or residents to exit the Lake Chelan NRA in the event of a wildfire. Maintenance of the road is an important part of the strategy to protect Lake Chelan NRA users and local citizens from wildfire and structural fires. This is also the route that would be used to bring in equipment and personnel to fight wildfires in this area. Thus, protection of the road from wildfire is an important part of the strategy to protect resources and personal property in this area. As part of the fuel management program, management-prescribed and controlled fires are set and thinning of the forest are methods used to reduce fuels in the valley and to maintain a healthy late successional forest. NPS also conducts wildfire-suppression activities through its forest fuel reduction program (NPS 1995a).

Company Creek Road Plans

Erosion Control on Company Creek Road Environmental Assessment (NPS 1997)

For several decades, prior to the 1970s, there was repeated flood damage to the Company Creek Road, including deep scouring and loss of surface gravel. In 1976 a 290-foot long log-crib was constructed to protect the Company Creek Road (NPS 1997). By 1981, that log cribbing was extended 110 feet for a total length of 400 feet (NPS 1997) and was raised by approximately two feet (one row of logs) and an earthen levee from loose pit run material was built on top of the log-crib (NPS 1997). The levee is currently approximately six feet high and has not recently been topped by floodwaters along 90 percent of its length. Two rock barbs protect the river side of the levee.

A flood in the spring of 1982 substantially damaged the cribbing/levee and the adjacent road. In this flood, the last remnant of land between the river and the log-crib structure (formerly eight feet from the river) washed away. The flood inundated the area around the levee on both the upstream and downstream sides and flowed down the Company Creek Road, washing off the gravel surfacing (NPS 1997). The cribbing was repaired and expanded and was further damaged in subsequent floods (NPS 2007:3). These repairs to the road required over 3,000 cubic yards of rock and gravel (NPS 1997).

In 1995, a flood undermined the cribbing and eroded the lower end of the levee again (NPS 2007:3). By 1997, the height of the levee was 4.8 feet above the cribbing. As noted in the Erosion Control on Company Creek Road, Stehekin Valley Environmental Assessment (NPS 1997):

Although the log cribbing was constructed to protect the road from erosion by the river, it has locally accelerated the water velocity, creating a large scour hole at the base of the structure, undermining the crib. This allows some of the rock and soil in the crib and levee to wash out through the bottom. The cribbing now sags several feet in the middle. At present there is no protection for the downstream end of the crib, which has suffered from erosion damage and floats during high water events.

Therefore, in 1997 two rock barbs were constructed at the toe of the levee and a dense cover of native riparian vegetation was planted on top of the levee. The road was then protected from erosion and a section of road downstream from levee elevated to redirect overbank flow off the road into existing natural flood channels (NPS 1997). In the spring 1999 flood, the river channel along the levee was blocked by a natural logjam and is now covered in alders. The poorly constructed levee remains stable, with a dense cover of surface vegetation.

In 1997, four bank barbs and bioengineering were placed at Milepost 2.1 to protect the Company Creek Road from Stehekin River flood-related erosion. One of these barbs has since been buried, while three remain. Over time it is anticipated that these barbs will also be buried, necessitating their reconstruction as the riverbed continues to aggrade (increase in height). A fifth barb, placed on private land, has also been largely buried.

Repair / Replace Harlequin Bridge (1997):

Under this EA, Harlequin Bridge was replaced in its existing location.

Emergency Repairs to Company Creek Road (2004)

This road drainage feature allows water to run off into natural flood channels on the edge of Company Creek Road. It was constructed as part of an emergency action in 2004 following flooding in 2003. Over time it may require replacement or repair.

Minimize Erosion on Upper Company Creek Road Environmental Assessment (NPS 2007)

In 2007, three grade-control structures were constructed adjacent to the Company Creek Road (Milepost 2.2 - 2.4) to prevent head-cutting along the bank of the Stehekin River from affecting the Company Creek Road. Additional changes in the bank of the Stehekin River could necessitate the repair or reconstruction of these grade-control structures, which are designed to allow floodwater to pass through the floodplain without cutting large channels.

Using an easement, a 400-foot long rock toe (using approximately 4,000 cubic yards of rock), four rock barbs and bioengineering were installed on public and private land. The barbs and bioengineering were installed after a pile of rocks fell into the river and 100 feet of bank was lost in one day. In the fall of 2008, cabled logs were added behind the first barb to prevent the continued formation of a scour hole and 20 cubic yards of rock were used to repair three barbs. Although there is not a strong flow at this location, seeps are contributing to the ongoing erosion of the sandy bank. The rock toe armor was done as an emergency action, while the rock barbs and bioengineering were installed in 1998 and repaired in 2000 and 2008. Approximately 8,000 linear feet of streambank has been affected, with approximately 400 feet × 20 (8,000 linear feet) of bioengineering. Over time, additional maintenance of the rock barbs, including potential reconstruction, would be needed as the Stehekin River continues to fill with sediment.

Stehekin Valley Road Plans

Stehekin Valley Road Erosion at Mile 8 Environmental Assessment (NPS 1993):

The Mile 8 EA evaluated five alternatives, four alternatives to prevent a potential washout of the Stehekin Valley Road at MP 8.0 and a no action alternative. The action alternatives included riprap bank protection, rerouting the road away from the river, placing riprap and constructing two or three current deflectors (rock barbs), and bioengineering.

The preferred alternative was to use bioengineering: constructing two rock barbs in the Stehekin River spaced approximately 200 feet apart (this alternative placed less riprap in the river than some of the other alternatives considered). The rock barbs consisted of approximately 500 cubic yards of material and protruded into the river approximately ten feet. Vegetation was incorporated into the rock barbs to improve the habitat value. The preferred alternative also included reducing the road width in this area to 16 feet, and revegetating the road/river bank above the 10-year flood elevation to help stabilize the road.

The project was implemented in 1994 just upstream of the work that was proposed under the Stehekin Valley Road Improvement Project (2005) at Wilson Creek. The 1994 work has held up through a number of flood events, thus has been successful. The current proposal would extend this work downstream (NPS 2005: 6).

Protection of the Stehekin Valley Road in the Vicinity of McGregor Meadows, Lake Chelan National Recreation Area (NPS 2004a)

The Finding of No Significant Impact (FONSI) cleared the way for construction of several grade control structures in McGregor Meadows and placed a hump in the Stehekin Valley Road to reduce the potential for river avulsion through the area.

Stehekin Valley Road Improvement Project Environmental Assessment (NPS 2005a)

This EA included actions on five miles of the road from Harlequin Bridge to below High Bridge, including paving, reroutes (1,100 feet and 2,200 feet in length), raising of the road surface, and drainage improvements at specific locations, including repair of culverts, installation of bank protection, and installation of new barbs.

Implementation of some portions of the Road Improvement Project EA were put on hold because immediately following the preparation of the Road Improvement Project EA, a second 100-year flood occurred on the Stehekin River in 2006 and it became clear to NPS and FHWA staff that surfacing, rehabilitation and raising sections of the Stehekin Valley Road were not going to be enough to prevent future damage to the roadway. As a result, the NPS began implementation of some actions from the EA but postponed implementation of others to undertake a more comprehensive analysis of the Stehekin River corridor to determine what actions would best protect public facilities and allow continued access to private property with respect to the apparent flood regime changes on the Stehekin River.

The following actions were implemented as noted:

- (2006) Milepost 7.0: permanent reroute of approximately 1,000 feet (0.19 mile) following emergency reroute (constructed after October 2003) moved farther away from river. Revegetation also completed from Milepost 7.0 to 7.5.
- (2006) Milepost 7.5: reroute road farther from Stehekin River (2,300 feet or 0.44 mile).
- (2007) Milepost 8.0: repair and reinforce existing stream bank revetment; install four new barbs downstream of two existing barbs.
- (2005) WeavTel
- (2003) Courtney-Keller Park Land Exchange
- (2003) Griffith Cabin Housing Replacement

Restore Stehekin Valley Road Access at Coon Run (Mile 9.1 to 10.2) (NPS 2005b)

In 2003, catastrophic loss of the Stehekin Valley Road occurred in this area and an upper road reroute was selected from among the alternatives described in the EA that evaluated options for this portion of the road. Because the road reroute continues to traverse the edge of the floodplain, there is a potential that future additional repairs or modifications to the road and/or associated erosion control structures could be needed.

Chelan County Stehekin River 1948 Channel Project (2007)

Prior to a large logjam being deposited during a significant flood in 1948, the Stehekin River had access to an overflow flood channel near the Stehekin River Resort. The channel permitted

overflow from the right bank of the river (toward Silver Bay). At the logjam, where the channel is blocked, the main Stehekin River channel flows past the 1948 channel toward the left bank and then makes a large bend toward its right bank. Armoring along the left bank has been in place for many years. The unarmored portion of the bend is eroding rapidly and is exhibiting bank undercutting. At this location, where the erosion and undercutting is occurring, there is another low-lying channel that would allow the river to jump the left bank and flood the land and homes near it (toward the Stehekin Valley Road) during floods. It was postulated that this flow pattern caused the destruction of the Weaver Point docks (Chelan County 2007).

In this project, the 1948 channel was opened up to allow water from the Stehekin to pass by the area of erosion and undercutting toward the head of Lake Chelan. The purpose of the project was to allow high water to travel in a way that would protect the eroding bank, potentially alleviating flooding nearby, and reducing the force of floodwater exiting into upper Silver Bay (Chelan County 2007).

This project was completed in the fall of 2007 on private land, through applicable permitting from state and federal agencies. In the fall of 2008, the 1948 channel closed again and after additional maintenance, was reopened in the fall of 2009.

Upper Stehekin Valley Road, Flat Creek to Cottonwood Camp Environmental Assessment (NPS 1997)

The November 1995 flood severely damaged portions of the Stehekin Valley Road between Flat Creek and Cottonwood Camp. During the flood, the Stehekin River changed course and occupied approximately 3,000 feet of the road, making it impassable. Following public review and comment the NPS decided to temporarily close the road and to reevaluate the damaged area every year for possible reconstruction. Since then, the river has continued to occupy the roadbed and the road remained closed at what is referred to as the “Glory” turnaround until the Upper Stehekin Valley Road EA (NPS 2006) closed the road at Car Wash Falls, just above High Bridge.

Erosion Control on the Stehekin River Near Milepost 2.5 (1998)

Erosion the road was discontinued by placement of four rock barbs and bioengineering.

Upper Stehekin Valley Road Environmental Assessment (NPS 2006)

The decision in this EA closed the road at Car Wash Falls, just above High Bridge.

Stehekin Ferry Landing Improvement Project Environmental Assessment (FONSI approved 05/07/2010)

This action improved passenger safety and experience by providing year-round Americans with Disabilities Act (ADA)-compliant universal access at the Stehekin Ferry Landing for all passengers traveling via the commercial ferry system. An important but secondary purpose was to improve passenger circulation and freight handling.

Other Related Park Environmental Assessments

Land Exchange: Horseshoe Basin, North Cascades National Park and Stehekin Valley, Lake Chelan National Recreation Area (1997)

The last remaining private inholding in North Cascades (within the Stephen Mather Wilderness) was exchanged to allow for private development in a more suitable location.

Acquisition of Private Land and Interest in Private Land in the Vicinity of Logger's Point, Lake Chelan National Recreation Area (1999)

Although this acquisition was proposed as a land exchange, it was eventually purchased.

Finding of No Significant Impact: Acquisition of Interest in Private Land in the Stehekin Valley Environmental Assessment (2003)

Under this EA/ Finding of No Significant Impact (FONSI) (NPS 2003a), the NPS acquired 5.0 acres of private land (Tract 04103) near the head of Lake Chelan to protect high resource values and exchanged 7.15 acres of federal land (Little Boulder/Boulder creeks) (Tract 05131) previously identified in the 1995 LPP (NPS 1995b) as potentially available for exchange. This action was undertaken to provide protection of river dynamics and natural processes within the floodplain of the Stehekin River.

Future Proposed Park Environmental Assessments

Maintenance and Housing Facilities, including Solid Waste Treatment and Fire Cache Environmental Assessment:

This EA would be tiered off of the Stehekin River Corridor Implementation Plan, pending approval. It would include detailed plans for the maintenance and housing facilities called for by the GMP. If appropriate, it would also include modifications to the solid waste treatment facility to comply with law and policy.

Reestablish Private Access From the Stehekin Valley or Company Creek Roads

Under Alternatives 2-4, one or more environmental assessments could be needed if catastrophic loss of access to private property occurred as a result of flooding. As noted in the SRCIP, a set of criteria, to be identified, would be used to determine how to reestablish access.

"TBD Owner" Land Exchange

One or more environmental assessments would be needed to implement future potential land exchanges between the National Park Service and private landowners in Stehekin.

Other Park Plans

Buckner Homestead Historic District Management Plan

Implement the Buckner Homestead Historic District Management Plan recommendation to construct a multi-use trail from the Stehekin Valley Road to Buckner Orchard along the historic entrance road, instead of Buckner Lane (which would be closed to bicycle use). This action would likely be implemented with the proposal in the SRCIP to construct the Lower Valley Trail.

Guest Services, Inc. Contract

In fall 2011, the NPS awarded a ten-year contract to Guest Services, Inc. (GSI) for operation of the NPS-owned concession facilities in Stehekin. GSI currently provides lodging and food service for a variety of establishments throughout the country, including operation of concession facilities at Mount Rainier National Park and National Mall and Memorial Parks in Washington, D.C. Business assets such as regional economy of scale and marketing capacity associated with this new concessionaire could stimulate tourism-related demand for the area.

Non Park Environmental Impact Statements

Federal Energy Regulatory Commission (FERC) Final Preliminary Draft Environmental Assessment for Hydropower License, Lake Chelan Hydroelectric Project, FERC Project No. 637 (FERC 2002):

Weaver Point improvements are identified in the FERC relicensing EA for Lake Chelan. These include erosion control, recreation and cultural resources projects (Chelan PUD 2002). The erosion control plan includes construction of a 200-foot-long logjam to protect the bank and 260 feet of rock walls to protect dock bulkheads on the south shore of Weaver Point. Although there are gentle slopes, wave and river erosion have produced an eroding bluff at the east end of the site and a 5-foot-tall bluff at the west end. At the east end of the site, vegetation was historically removed for agricultural use. Parts of this east end are protected by a series of cabled logs that have worked well to slow erosion. This would be enhanced by construction of the FERC proposed logjam. Walls made of imported rock would also be constructed near the docks.

A study done for this EA also described the Lake Chelan backwater zone, where the dam influences the water level in Lake Chelan for approximately 0.25 mile up the Stehekin River.

Holden Mine Proposed Cleanup Plan Environmental Impact Statement (USFS 2010)

Although this site is outside of the project area, it has been included in the cumulative impact analysis because it is an ongoing source of contamination to Lake Chelan. The remediation plan was developed by the USFS, the EPA and the Washington State Department of Ecology. The Holden copper mine was one of the largest copper mines in the U.S. between 1938 and 1957. Approximately 8.5 million tons of mine tailings were removed and placed on USFS lands near Railroad Creek. These tailings cover approximately 90 acres with additional mine waste on another 30 acres. These tailings have contaminated an area from the site downstream to Railroad Creek where it enters Lake Chelan. Today this area is surrounded by the Glacier Peak Wilderness on three sides. It was declared a Superfund site by the EPA pursuant to the Comprehensive Envi-

ronmental Response, Compensation and Liability Act (CERCLA). In 1989 to reduce wind dispersion of contaminants from the tailings piles, the USFS undertook an interim remediation project to cover these with gravel. Beginning in summer 2011, additional work was begun to reduce the impacts of the former mine in the Railroad Creek watershed. Because this drainage is a continuing source of pollution to Lake Chelan clean-up of the area is important to minimize ongoing cumulative effects (USFS 2012a).

Based on the record of decision (January 27, 2012), cleanup of hazardous substances, at levels toxic to aquatic life, in the mine ground water and mine drainage being released into nearby Railroad Creek would begin with Phase I in 2013 and would take approximately two years, followed by five years of monitoring before beginning Phase II. According to the USFS, the cleanup remedy includes the collection of water discharging from the mine and collection of groundwater impacted by the mine, tailings, and waste rock. Construction of a barrier wall and water collection system down slope from the former mining area, and adjacent to Railroad Creek will reduce the amount of contaminated water that would otherwise enter the creek. These waters will then be treated to remove hazardous substances before being released into Railroad Creek. A portion of Railroad Creek will be rerouted to reduce exposure to adjacent tailing piles. Heavy equipment will grade and contour the tailing piles and waste rock piles to reduce the risk of erosion and slope failure (USFS 2012b).

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A rustic cabin with a prominent stone chimney and wooden siding, set in a lush, green environment with tall grass and dense trees. The scene is captured in a soft, slightly hazy light, suggesting a peaceful, natural setting.

Appendix 6: Summary of Mitigation Measures



Buzzard Cabin in Buckner Orchard, Stehekin.

APPENDIX 6: SUMMARY OF MITIGATION MEASURES

Measures to Avoid, Minimize, or Mitigate Impacts

Land Use

Measures included in the proposed project (as appropriate depending on the alternative) to minimize impacts to land use would be:

- Clearly identifying the construction limits, to prevent expansion of construction operations into undisturbed areas.
- Work with Chelan County on zoning and land use planning.
- Minimizing disturbance from reroutes by incorporating toe walls at fill locations where feasible.
- Retaining some sensitive lands previously proposed for exchange.
- Reducing the number of acres within the lower valley offered for exchange.
- Combining maintenance functions in buildings where possible.
- Restoring the former maintenance and housing areas.
- Limiting circulation space associated with new housing and maintenance areas to functional needs.
- Minimizing clearing of vegetation associated with the road rehabilitation.
- Continuing to exchange or acquire private lands in the floodplain and/or channel migration zone as identified by Land Protection Plan priorities.
- Restoring some riparian areas to natural conditions.
- Continuing to use conditions, covenants and deed restrictions (CCRs) on exchanged public lands when private development is proposed.

Air Quality

Measures included in the proposed project (as appropriate to the alternative actions) to minimize impacts to air quality would be:

- Chipping or mulching vegetation on site rather than disposing of it offsite or burning it.
- Spraying water to minimize fugitive dust resulting from roadway construction.
- Covering trucks transporting soils and aggregate to Lake Chelan barge.
- Encouraging contractor employees and National Park Service (NPS) employees to travel in groups to and from the project site (rather than in multiple separate vehicles).
- Revegetating bare and staging areas as soon as possible (upon final grading or when staging area is no longer in use).
- Minimizing the extent of vegetation removal associated with road rehabilitation.
- Encouraging the use of local labor sources and large-volume material delivery to minimize trip generation during construction activity.

- Not locating wood-burning stoves or fireplaces in buildings.
- Using propane and solar devices for heating.
- Using low VOC paints, solvents and other chemicals in building construction.
- Encouraging idling of construction vehicles and equipment for periods of no longer than 15 minutes when not in use.
- Encouraging use of a biodiesel mix fuel rather than traditional diesel fuel.

Soils

Measures included in the proposed project (as appropriate to the alternative actions) to minimize impacts to soils include:

- Locating staging areas where they would minimize new disturbance of area soils and vegetation.
- Minimizing ground disturbance to the extent practicable.
- Minimizing construction along water courses during periods of heavy precipitation.
- Minimizing driving over or compacting root-zones.
- Using mats or plywood to minimize soil compaction impacts in wetlands.
- Salvaging topsoil and duff from excavated areas for use in re-covering source area or other project areas.
- Windrowing topsoil at a height that would help to preserve soil microorganisms (less than three feet).
- Not leaving excavated soil alongside trees, and providing tree protection if needed for specimen trees.
- Reusing excavated materials where possible in the project area.
- Revegetating project areas through native seeding and planting.
- Importing weed-free clean fill.
- Storing imported topsoil and fill in a weed free area and covered by weed cloth to prevent contamination.
- Identifying clearing limits to minimize the amount of vegetation loss.
- Clearing and grubbing only those areas where construction would occur.
- Reusing topsoil from the reroute areas, to the extent practicable, to obliterate and revegetate abandoned road sections.
- Preparing and approving a hazardous spill plan or Spill Prevention, Containment and Control Plan (SPCC), whichever is appropriate, before construction begins.
- Encouraging the use of non-petroleum based hydraulic fluid in heavy equipment.

Vegetation

Measures included in the proposed project (as appropriate to the alternative actions) to minimize impacts to vegetation include:

- Minimizing construction limits and areas to be cleared, where possible.
- Clearly identifying the construction limits, to prevent expansion of construction operations into undisturbed areas.
- Revegetating road reroute clearing areas not occupied by the roadway.
- Retaining specimen trees where possible adjacent to erosion protection sites and along the reroute/realignment areas (as identified by park staff).
- Salvaging plant material, prior to construction, from areas to be disturbed.
- Replanting salvaged plants on reroute side slopes and obliterated areas to accelerate site recovery and to reduce the opportunity for exotic species to establish (Alternatives 2, 3 and 5).
- Continuing to use CCRs associated with the development of exchanged lands to address clearing of vegetation; location and design of access roads and utilities; density, height, design and color of visible development; and access for management of natural and cultural resources.
- Restoring staging and other temporarily impacted areas following construction.
- Obliterating and revegetating abandoned road segments and areas disturbed by construction with native plant species.
- Using bioengineering techniques such as willow layering to stabilize river banks.
- Minimizing actions that affect endangered, threatened, or sensitive plant species in the project area.
- Keeping fill slopes as steep as possible where fill is proposed to raise the road to minimize the disturbance footprint.
- Minimizing clearing of vegetation associated with reroutes by incorporating toe walls at appropriate locations (Alternatives 2 and 3).
- Conduct additional surveys for sensitive species, particularly where erosion protection measures or recreational facilities would be constructed.

Noxious Weeds

Mitigation measures for preventing the spread of noxious weeds include:

- Only importing freshly exposed subsurface materials.
- Avoiding the use of stockpiled materials from the Company Creek Pit unless designated for the project.
- Imported topsoil, fill and other construction materials capable of harboring seeds would be weed free, and would include certification if applicable.
- Washing all vehicles prior to barging to Stehekin. This includes all vehicles, but especially those having contact with soil or materials that may contain noxious weed seed prior to working in weed free areas or transporting weed free materials.
- Covering stored soil and rock, as appropriate, to prevent exposure to noxious weed seed.
- Separating contaminated soil from weed free soil and using the contaminated soil for subsurface fill.

- Conducting annual monitoring for potential weed infestation using early detection / rapid response eradication techniques.
- Identifying and controlling exotic plant species infestations prior to construction (especially associated with the airstrip and old roads).

Water Resources

Measures included in the proposed project (as appropriate to the alternative actions) to minimize impacts to water resources (including hydraulics and streamflow, water quality, wetlands, and floodplains) include:

- Locating staging and stockpiling areas away from the Stehekin River.
- Delineating staging areas to prevent incremental expansion of the staging area.
- Covering stockpiled fine-grained soil and rock near surface water and if overwintered with a breathable, water repellent fabric, such as silt fence, anchored around the perimeter.
- Using temporary sediment control devices such as filter fabric fences, sediment traps, or check dams as needed during culvert replacement.
- Identifying the area to be cleared to define extent and clearing only those areas necessary for construction.
- Minimizing the amount of disturbed earth area and the duration of soil exposure to rainfall.
- Using bioengineering to stabilize riverbanks where erosion protection measures are employed.
- Minimizing soil disturbance and re-seeding or revegetating disturbed areas as soon as practical.
- Using available topsoil and duff from the reroute areas to rehabilitate (re-create habitat) the obliterated road segments and road shoulders where reroutes occur.
- Scarifying slopes, if necessary, to slow erosion.
- Stabilizing disturbed areas until seeding and/or revegetation takes hold.
- Constructing temporary diversion devices such as swales, trenches, culverts, or drains to divert storm water runoff away from disturbed areas, including exposed slopes.
- Using native duff and topsoil to cover exposed soil as soon as practical.
- Installing protective construction fencing around, adjacent to, or near wetland and/or riparian areas that are to be protected or other erosion control measures to protect water resources in the project area.
- Avoiding machinery use below the wetted perimeter of water bodies (work would be done from the bank) where possible.
- For rock barbs, equipment (excavator) would be used from the bank to place rock below ordinary high water mark to reduce the potential for introducing pollutants, including possible leaks of hydraulic fluid or other substances from heavy equipment.
- Using vegetable based hydraulic fluid in heavy equipment.
- Limiting the duration of the instream work as much as possible.

- Timing instream work to occur at lower flow periods (i.e., work would not occur during heavy river flows).
- Minimizing creation of impervious surface.
- Using a Storm Water Pollution Prevention Plan (SWPPP) for construction activities to control surface run-off, reduce erosion, and prevent sedimentation from entering water bodies during construction.
- Developing and implementing a comprehensive spill prevention/response plan that complies with federal and state regulations and addresses all aspects of spill prevention, notification, emergency spill response strategies for spills occurring on land and water, reporting requirements, monitoring requirements, personnel responsibilities, response equipment type and location, and drills and training requirements. Using an oil and hazardous materials spill prevention, control, and countermeasure plan to address hazardous materials storage, spill prevention, and responses.

Prevention of Fuel Spills

The following best management practices to control adverse impacts of fuel spills would also be used:

- Refueling activities would be done at least 100 feet from the river and its tributaries or other surface water.
- Areas where refueling or maintenance of equipment would occur would be identified and have containment devices such as temporary earth berms.
- Absorbent pads would be available to clean up spills.
- Restrictions on the location of fueling sites, requirements for spill containment, and other measures to safeguard aquatic and terrestrial habitat from construction-related contaminants would be identified.

Fish and Wildlife

Measures included in the proposed project (as appropriate to the alternative actions) to minimize impacts to fish and wildlife would include:

- Scheduling construction activities with seasonal consideration of wildlife lifecycles to minimize impacts during sensitive periods (e.g., bird nesting and breeding seasons). The timing of the construction of rock barbs and other channel or bank stabilization measures, as well as extraction of large woody debris, would be limited to avoid spawning and other sensitive periods for fish and aquatic wildlife.
- Minimizing the degree of habitat removal (vegetation clearing) by delineating construction limits.
- Limiting the effects of light and noise on wildlife habitat through controls on construction equipment and timing of construction activities, such as limiting construction to daylight hours to the extent practicable.
- At the end of the day covering excavated pits and trenches to prevent animals from being trapped.

- Soil and erosion control best management practices employed on the project will minimize the potential for trapping small animals.
- Using spill prevention measures to prevent inadvertent spills of fuel, oil, hydraulic fluid, antifreeze, and other toxic chemicals that could affect wildlife. As required by law, prepare and implement a hazardous spill plan or SPCC.
- Discouraging construction personnel at work sites from providing a source of human food to wildlife, avoiding conditioning of wildlife and in human/wildlife conflicts. Title 36, Code of Federal Regulations (CFR), Chapter 1, Section 2.10(d) prohibits anyone from leaving food unattended or stored improperly where it could attract or otherwise be available to wildlife. Title 36, CFR, Chapter 1, Section 2.14(a) prohibits the disposal of refuse in other than refuse receptacles. Title 36, CFR, Chapter 1, Section 2.2(a)(2) prohibits the feeding and molesting of wildlife.
- Maintaining proper food storage, disposing of all food waste and food-related waste promptly, in a bear-resistant receptacle and removing all garbage off-site at the end of each working day.
- Placing rock barbs from outside the wetted channel. Rock would be placed in the channel using heavy equipment from the road or bank above the ordinary high water mark.
- Conducting surveys for aquatic species prior to removal of large woody debris from the tops of logjams.
- Obtaining single pieces of large woody debris only from above the high water mark in a manner that would not destabilize the logjam.
- Using intake screening devices to draw water from near the surface of fast-moving water habitats to avoid impacts to aquatic organisms during water withdrawal.
- Employing, monitoring and maintaining erosion control measures at construction locations to minimize sediment inputs to aquatic habitats.
- Engineering road stream crossings to facilitate aquatic organism passage and to maintain ecological connectivity.

Special Status Species

The following conservation measures would be included in the proposed project (as appropriate to the alternative actions) to minimize impacts related to northern spotted owls, bull trout, and other wildlife species were taken from the Biological Opinion (BO) produced by the U.S. Fish and Wildlife Service (USFWS 2005) for the Road Improvement Project (NPS 2005):

- Determining whether northern spotted owls are nesting, and then whether or not the proposed action will affect the active nest or disrupt reproductive behavior. If it is determined that the action will not affect an active nest or disrupt breeding behavior, work will proceed without any restriction or mitigation measure. If it is determined that construction activities will affect an active nest or disrupt reproductive behavior, then avoidance strategies will be implemented.
- If after northern spotted owl protocol surveys have been completed by July 1 in the year work is planned and occupancy has not been documented at the site (as determined by the park biologist), work may begin after July 1 of that year. If the site is occupied and nesting is occurring, construction activities within a 0.7 mile radius of the nest site cannot be conducted from

March 1 (the beginning of the spotted owl nesting season) through September 6 or after at least 4 weeks have passed since young fledged. This construction start date would be recommended by the North Cascades NPS Complex wildlife biologist. Temporarily closing parking within pullouts within line-of-sight (0.25 miles) of the area along the road that is immediately adjacent to the current spotted owl nest activity area if identified.

- Placing rock barbs from outside the wetted channel. The rock would be placed in the channel using heavy equipment that will be on the road or bank above the ordinary high water line.
- Storing food and garbage in wildlife-resistant containers during the day and removing all garbage off-site from project work areas at the end of each working day.
- Surveying construction areas and removing amphibian species to avoid incidental impacts through dewatering and/or crushing.
- Constructing road stream crossings to allow for aquatic organism passage.

The following reasonable and prudent measures with respect to northern spotted owls (developed by the USFWS in the Road Improvement Project Biological Opinion) would also be implemented as part of the project by NPS wildlife biologists:

- Monitoring project implementation to ensure compliance with the conservation measures listed above, especially the seasonal timing restrictions and the final placement of the road near the spotted owl nest and reporting the results of this monitoring to the USFWS. A North Cascades Complex biologist would monitor the spotted owl nest to determine if the spotted owls produce young during the year(s) of project implementation. (The biologist would also determine whether the spotted owl nest is occupied or has moved.) If young are discovered, then the biologist would estimate the age of the fledgling(s) as part of the timing restrictions described above.
- Reporting progress of the proposed action and its impacts on federally threatened and endangered species, particularly northern spotted owls to the USFWS as specified in the incidental take statement in the BO in accordance with 50 CFR §13.45 and §18.27.
- Reporting any dead or injured federally-listed species found in the action area within 24 hours to a special agent of the USFWS, Division of Law Enforcement at (360) 753-7764, or to the USFWS Western Washington Fish and Wildlife office at (360) 753-9440.
- Notifying USFWS in writing within 3 working days of the accidental death of, or injury to, a northern spotted owl or of the finding of any dead or injured spotted owls during implementation of the proposed federal action. Notification must include the date, time, and location of the incident or discovery of a dead or injured spotted owl, as well as any pertinent information on circumstances surround the incident or discovery. The USFWS contact for this written information is the Manager for the Western Washington Fish and Wildlife office.

In the 2010 BO, the USFWS identified the following measures (dates modified to “first year” where 2011 was used and “second year” where 2012 was used:

Conservation measures include:

- Align the road to avoid as many large diameter trees (“30” dbh) and those with nesting features (conifers with upper canopy crotch or mistletoe broom) as possible.
- Complete spotted owl surveys to protocol March 1 - June 30 in the first and second years. Surveys would be completed prior to the start of construction.

If spotted owls are detected during the first set of surveys, the following measures would be implemented:

- Construction or other disturbance activities would not occur within 0.7 mile radius of the nest site during the breeding season (March 1 - September 6). This applies to known all nest sites if the current year nest site location is not known.

If spotted owls are detected during the first year but not detected the second year:

- The first year, construction would begin on or after July 1 (following the 2011 surveys)
- The second year, surveys to protocol would be completed (March 1 - June 30). If spotted owls are detected, construction and disturbance activities within 0.7 miles of the nest site would not begin until after the breeding season (September 6). If spotted owls are not detected during the surveys, construction would begin once surveys are complete (July 1).

If spotted If spotted owls are not detected during surveys in the first or second year:

- Construction would begin July 1 the first year.
- Construction would begin the second year without restriction
- Monitoring by NPS biologist would continue throughout the breeding season (March 1-September 6) for the remainder of the project. If a spotted owl is detected during monitoring, construction and disturbance activities would stop within a 0.7 mile radius of the nest site until September 6.

In addition to these Conservation Measures, Best Management Practices (BMP' s) such as temporary erosion and sediment control, including silt fencing, would be used. Revegetation of disturbed areas would protect soils from erosion and reduce the potential for erosion and long-term impacts to stream habitat. In addition, moving the Stehekin Valley Road away from the river would have long-term beneficial effects on allowing additional area for natural river processes within the 100-year floodplain and channel migration zone, which could improve local habitat for fish.

Archeological Resources

Based on the NPS Programmatic Memorandum of Agreement with the Association of State Historic Preservation Officers and the Advisory Council (NPS 2008), the following measures would be included in the proposed project to minimize impacts to archeological resources:

- Documenting the rock walls along the reroute (Alternatives 2, 3 and 5) using Historic American Engineering Record (HAER) criteria if these would be affected by proposed road construction.
- In the event of inadvertent discoveries during implementation of projects, the park Superintendent would consult with the SHPO/THPO and federally recognized Indian Tribes (as appropriate) as soon as possible. The policy in such cases is to halt any additional work at the discovery location and to notify cultural resources staff immediately. Until the discovery can be documented by professionals with appropriate expertise, it would be secured and all disturbance would be avoided. In compliance with the NHPA and other applicable statutes, the discovery would be assessed for its eligibility for the National Register of Historic Places.

- In the event that human remains are discovered during implementation of any project, the park Superintendent would consult with the SHPO/THPO and federally recognized Indian Tribes as soon as possible. The policy in such cases is to halt any additional work at the discovery location and to notify cultural resources staff immediately. The location and its immediate vicinity would be secured, all disturbance will cease, and the find would be covered and protected until the presence of human remains can be confirmed. Human remains would be managed in compliance with the NAGPRA and ARPA.
- Determining if a monitoring plan is needed pending final construction plans and the potential to affect cultural resources.
- Monitoring would be focused where buried historical deposits are likely to be present beneath existing development. The NPS archeologist would assess the eligibility of any sites prior to construction.

Cultural Landscapes

The following measures would be included in the proposed project (as appropriate to the alternative actions) to minimize impacts to cultural landscapes:

- Implementing appropriate measures under archeological resources.
- Ensuring that access to the Buckner Homestead hayfield and pasture would be via existing roads and paths.

Visitor Experience

The following measures would be included in the proposed project (as appropriate to the alternative actions) to minimize impacts to visitor and resident access and transportation, interpretation and education, resident and visitor use opportunities, scenic resources, and visitor, resident, and employee safety:

- Allowing construction delays and one-lane closures to be no longer than 20 minutes per passage through the project (longer delays could be approved in advance).
- Avoiding evening, weekend, and holiday work by requiring approval in advance. Longer construction delays or total road closures would also be approved in advance.
- Distributing press releases to local media, locating signs in the recreation area and providing information on the boat to inform visitors about road conditions in the Lower Stehekin Valley during the project.
- Using a public information program to warn of construction related road closures, delays, and road hazards.
- Keeping a McGregor Meadows and Lower Field route open during re-route construction (Alternatives 2, 3 and 5).
- Providing notice to equestrians (e.g., Stehekin Valley Ranch) regarding conditions that could make the road temporarily impassable for horse crossing.
- Managing vehicle traffic and contractor hauling of materials, supplies, and equipment within the construction zone to minimize disruptions in visitor traffic.
- Developing a safety plan prior to the initiation of construction to ensure the safety of recreation area visitors, workers, residents, and park staff.

- Minimizing dust during construction on public roadways (by minimizing soil disturbance, spraying water but no chemicals over disturbed soil areas during dry periods and revegetating disturbed soil areas as soon as practical following construction).

Based on discussions between the NPS and FHWA, it is likely that the following measures would be used to reduce impacts of construction activities on visitors and residents if the proposal in Alternatives 2, 3 and 5 was implemented. These measures would also be similar under Alternatives 1 and 4 for the road rehabilitation actions.

- Daily hauling and work hours would be restricted in some areas.
- The road would be open at all times except when large culvert installation is occurring (currently projected to be at Wilson Creek, Thimbleberry Creek and the Milepost 8.5 creek, as well as during paving or Milepost 8.0 work.
- The road would be open for all shuttle bus service, as well as the Rainbow Falls tour.
- Emergency vehicles, hikers and bicyclists would be allowed safe passage through the work areas.
- Night work could be approved by the superintendent.

Wild and Scenic River Values

The following measures would be included in the proposed project (as appropriate to the alternative actions) to minimize impacts to wild and scenic rivers. Mitigation measures would include those listed in the water resources, vegetation, wildlife, and visitor experience – scenic resources sections.

Park Operations

Measures included in the proposed project (as appropriate to the alternative actions) to minimize impacts to park operations would include:

- Providing and maintaining emergency vehicle access through the project area during construction.
- Coordinating work with park liaison to minimize disruption to normal park activities.
- Monitoring construction activities to ensure adherence to mitigation measures.
- Monitoring construction activities to provide recommendations to minimize impacts on park resources.
- Conducting legal boundary surveys prior to scheduling work that may have the potential to affect private property. If necessary, easements would be negotiated.
- Designing new building construction to be silver or greater Leadership in Energy and Environmental Design (LEED) certified.
- Using functional, energy efficient appliances, and heating and cooling systems in new buildings.
- Designing efficient circulation spaces for new maintenance and housing areas.
- Using contractors and term employees to facilitate short-term workload increases.

- Providing emergency vehicle access through the project area during construction. Coordinating work with park staff to reduce disruption to normal activities.
- Informing construction workers about the special sensitivity of park resources and values and regulations.
- Providing orientation about park resources for the contractor(s).
- Encouraging park resource specialists to be involved in inspections and monitoring and providing recommendations during the road rehabilitation and facility construction work.

Socioeconomics

The following measures would be included in the proposed project (as appropriate to the alternative actions) to minimize impacts to the socioeconomic environment:

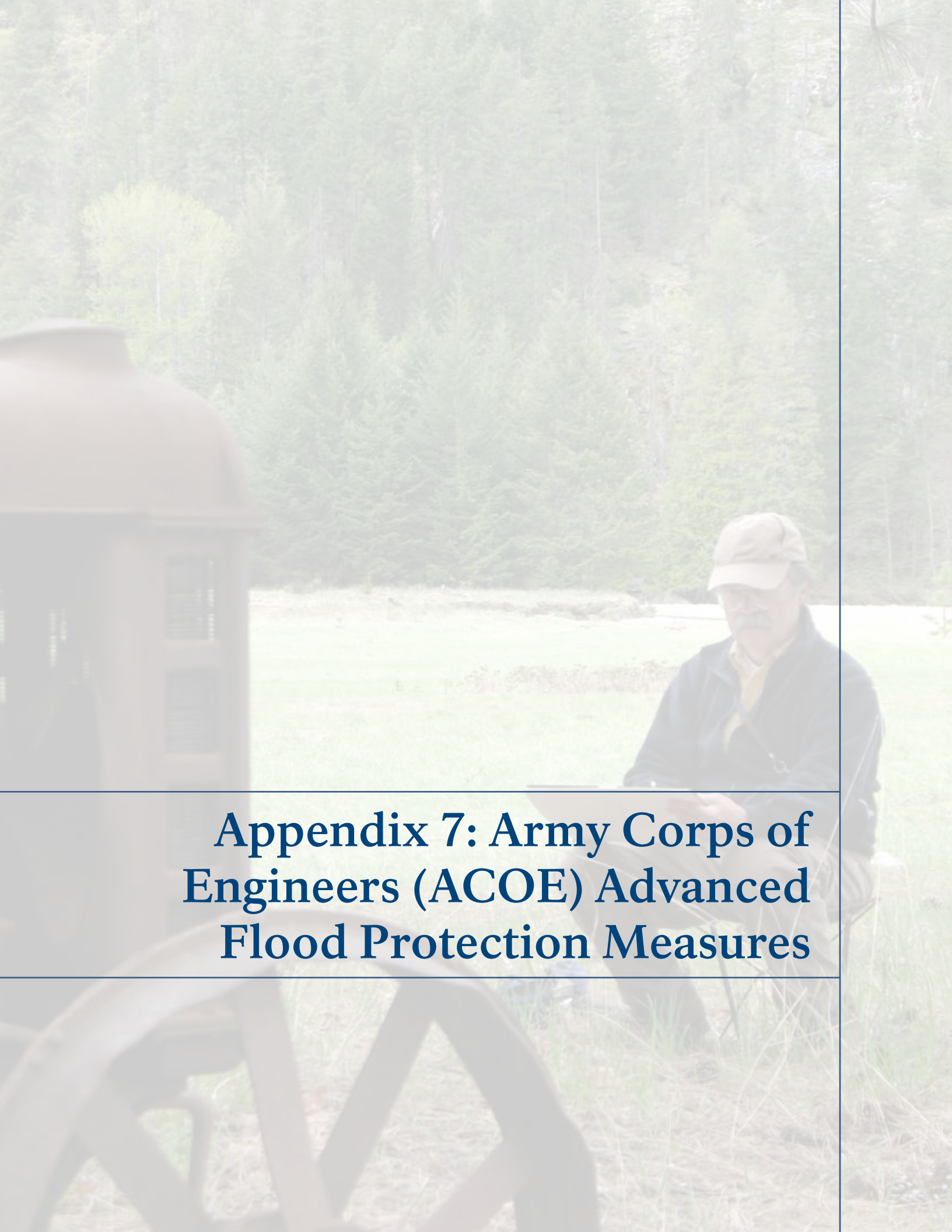
- Where possible projects would be combined or phased to allow for cost-savings measures related to staging remaining in place rather than setting up and taking down for sequential implementation actions.
- New buildings would be constructed to silver or greater LEED standards to minimize long-term operations costs.
- New buildings, facilities, and other improvements would use recycled or reused materials to the extent possible.

Hazardous Materials

The following best management practices would be included in the proposed project (as appropriate to the alternative actions) to minimize impacts from hazardous materials:

- Conducting formal surveys of the existing maintenance area, including contacts with staff to determine if any unanticipated spill or disposal areas are present before removal of buildings or structures and associated development.
- Wearing proper personal protective equipment for the nature of the hazardous materials identified in the surveys during all work in the affected area.
- Refueling vehicles and equipment at least 100 feet from the river and its tributaries or other bodies of water.
- Identifying areas where refueling or maintenance of equipment would occur and providing containment devices, such as temporary earth berms surrounding these areas.
- Ensuring that spill clean-up materials, such as absorbent pads, are present onsite where needed.
- Identifying the locations of fueling sites, requirements for spill containment, and other measures to safeguard aquatic and terrestrial habitat from construction-related contaminants.
- Locating fuel storage tank outside of the floodplain / channel migration zone floodplains and other sensitive areas.

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A man wearing a tan cap and a dark jacket is sitting on a metal bench in a grassy field. He is looking down at a tablet device in his hands. In the foreground, a large, dark metal structure, possibly a gate or part of a dam, is visible. The background consists of a dense forest of tall trees. The entire image has a light, semi-transparent overlay.

**Appendix 7: Army Corps of
Engineers (ACOE) Advanced
Flood Protection Measures**



Ernest Ward, 2011 Artist in Residence at North Cascades National Park Service Complex in Stehekin.

APPENDIX 7: ARMY CORPS OF ENGINEERS (ACOE) ADVANCED FLOOD PROTECTION MEASURES



REPLY TO
ATTENTION OF

Planning Branch

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-2255

Residents of Stehekin
Chelan County

Dear Residents:

As you may know we completed our Advanced Measures investigation and report in late August. Due to the high complexity and degree of uncertainty of the riverine system we determined the best course of action for the short term would be flood protection on individual landowner properties. In order to assist you in the planning or construction of these different flood protection measures, we have prepared the enclosed packet of information.

The enclosed packet contains generic drawings of several measures that can be implemented in suitable locations on individual properties. Each drawing or technique is supported by a fact sheet that explains the uses, risks, benefits, constructability, materials, etc. in constructing such a measure. The drawings are non-site specific and may be modified according to the individual characteristics of the property. Please be reminded that all flood protection measures are temporary and provide a limited level of protection.

To assist you in designing applicable measures on your property, a team of technical experts will be visiting the community the week of September 27. They will meet with individual and interested landowners at their property. Some materials will be provided to assist in the construction of these measures - more details will be provided at the public meeting. If you are interested and available, I recommend you take advantage of this opportunity.

On behalf of the Seattle District Army Corps of Engineers Advanced Measures Team, it has been a pleasure meeting with you and working towards a flood management solution. Your input and suggestions have been appreciated.

We hope you will find the contents of this package helpful in addition to the technical advice and assistance we can offer. If you have any questions please contact me (206) 764-5522, or alicia.m.austinjohnson@usace.army.mil.

Sincerely,

A handwritten signature in cursive script, appearing to read "Alicia M. Austin Johnson".

Alicia M. Austin Johnson, Program Manager

Encl.

Flow Deflector Fact Sheet

Fall 2004, Stehekin River Advance Measures Project

Offered measures should be monitored regularly to determine if there is need of repair, or to determine if there is risk of imminent failure.

- **Uses:** A Flow Deflector is a barrier that is intended to divert, but not stop, flow toward a structure. A typical situation where a flow deflector would be beneficial would be on a minimal to moderate slope that gets flow of a few inches or more of water and debris directed toward a home or structure.
- **Location and Form in Relation to Home or Property:** Flow deflectors should be placed a minimum of 20 feet from a structure. One or more flow deflectors can be used, depending on the situation.

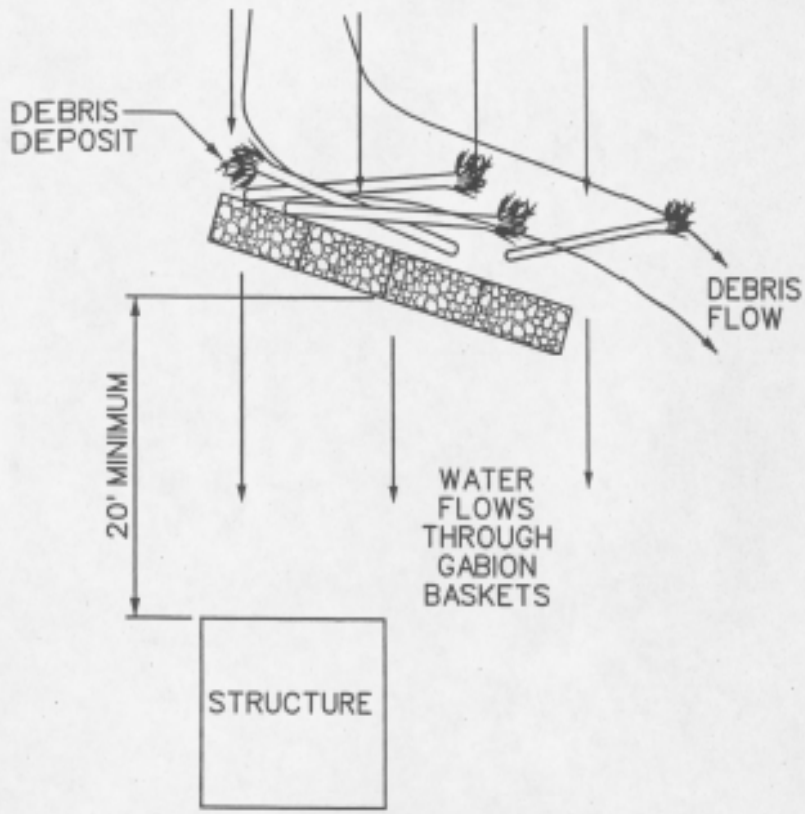
They should be placed at an angle that will divert water away from a structure. If more than one is necessary, then they should be angled and staggered apart.

Another configuration is a classic "V". Where the point of the "V" is aimed upstream to catch and deflect flow and debris away from the home, the flow deflector should be at least 20 feet from the property the "V" should be further.

- **Typical Materials used to Construct:** A flow deflector could be constructed of one or more gabion baskets filled with various sizes of rock that lock together well. This will slow the amount of water that flows through the structure, and divert it away. A combination of gabion baskets and logs would also work. The baskets are made of steel mesh. They are 3 feet wide X 3 feet tall X 6 feet long. They can be wired together to make any desired length.
- **Construction Methods:** If using logs and gabion baskets, place chain underneath the basket before filling with rock. Choose a length of chain long enough to run under the basket and anchor the logs to the baskets. The logs should be placed on the outside face, the direction the flow will come from. The logs should fit well enough to the ground surface so the flow will be diverted when it hits the logs.

The logs could also be chained to standing trees of sufficient girth to withstand uprooting. The log should be as long or longer than the distance between the trees. Place the log on the side of the trees the flow will be coming from, and make sure that the logs fit well to the ground surface.

- **Typical Lifespan:** Gabion basket structure should last for years, log structures can be expected to rot after a few years.
- **Risks:** There is the risk with the gabion basket deflectors, gabion basket/log deflectors, and the log/tree deflectors that they could possibly fail and cause material and water to flow toward a structure.

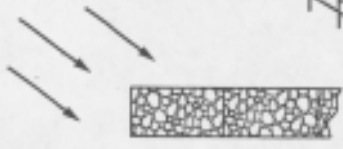


PLAN VIEW

SCALE: 1" = 10'

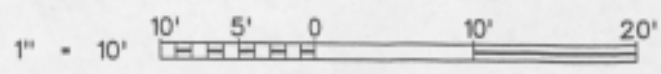
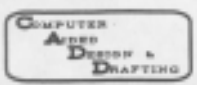


PLACE GABION BASKET AT APPROPRIATE ANGLE TO CATCH AND DEFLECT DEBRIS. FILL GABIONS WITH ROCK ON SITE.



GABION BASKET DETAILS

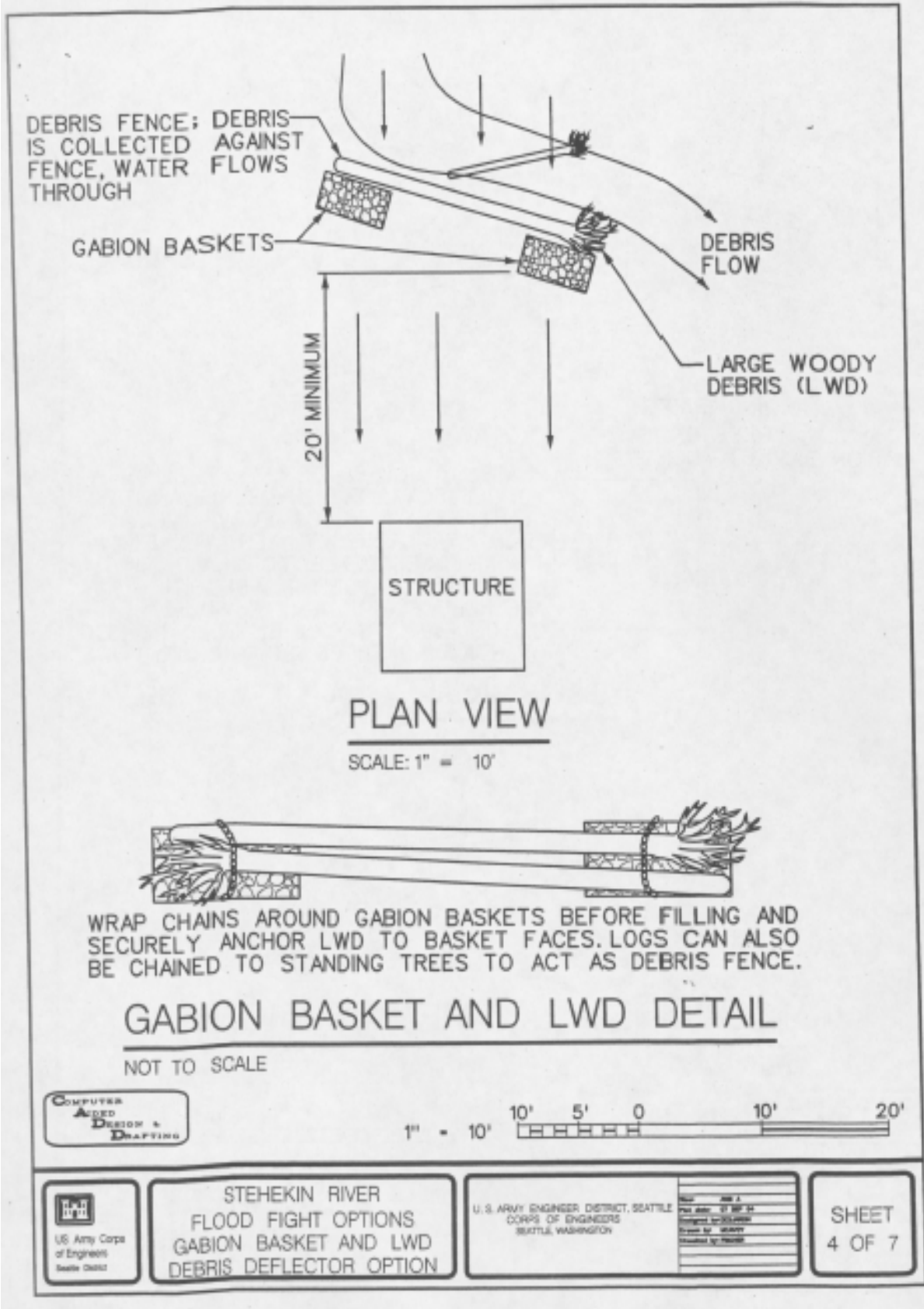
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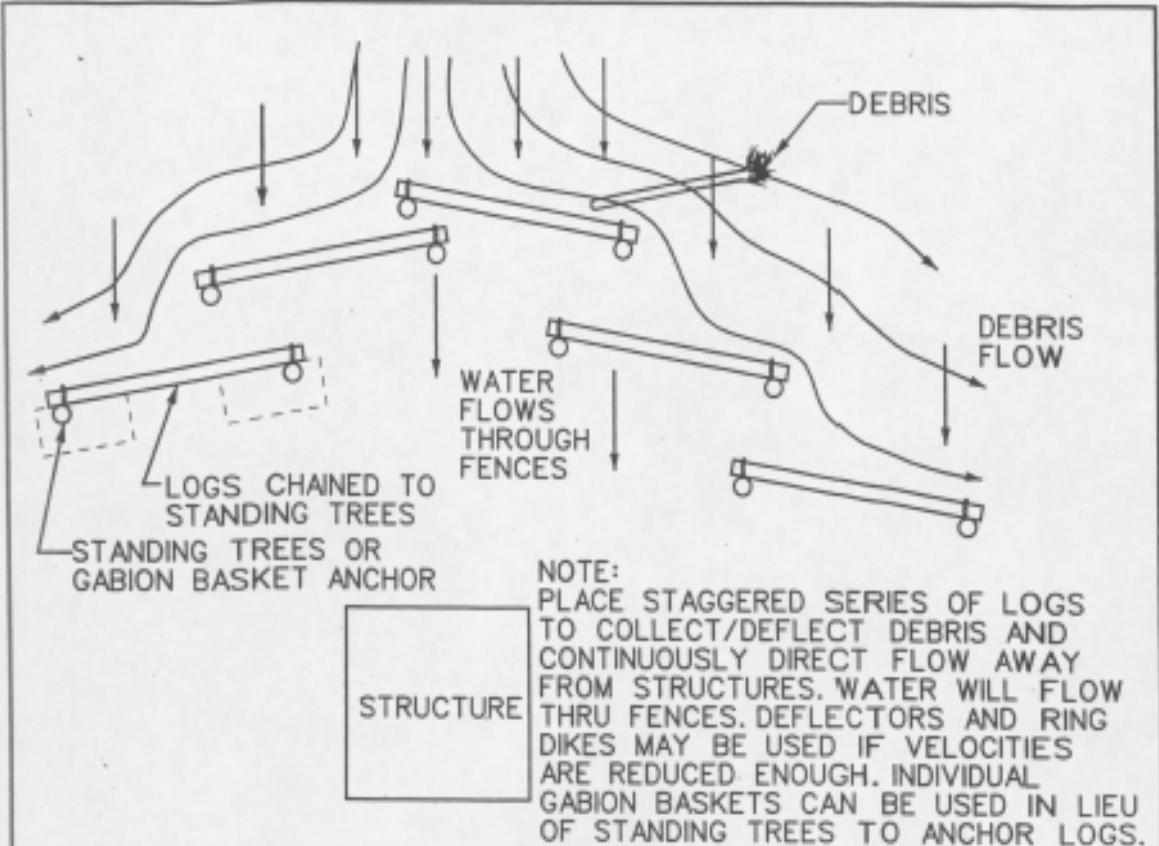


STEHEKIN RIVER
FLOOD FIGHT OPTIONS
GABION BASKET OPTION

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

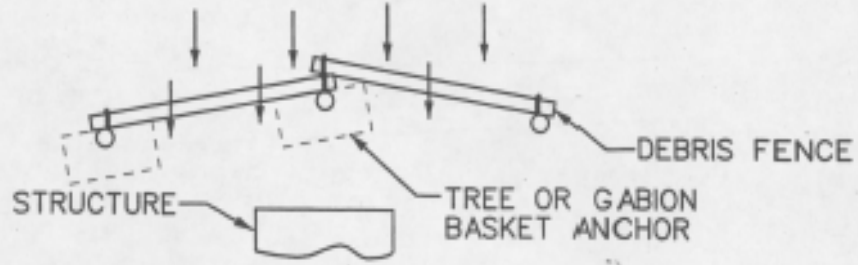
SHEET
3 OF 7





PLAN VIEW

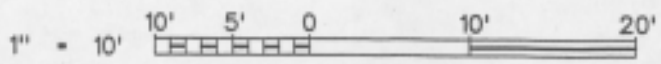
SCALE: 1" = 10'



ALTERNATE PLACEMENT OPTION

NOT TO SCALE

COMPUTER AIDED DESIGN & DRAFTING



US Army Corps of Engineers Seattle District

STEHEKIN RIVER FLOOD FIGHT OPTIONS
FLOW DEFLECTOR OPTION

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

SHEET 5 OF 7

Ring Dike Fact Sheet

Fall 2004, Stehekin River Advance Measures Project

Offered measures should be monitored regularly to determine if there is need of repair, or to determine if there is risk of imminent failure.

- **Description of Feature:** A ring dike is an arc or circular structure made of sandbags.
- **Uses:** To keep flood waters out of structures.
- **Location and Form in relation to Home or Property:** The ring dike should be constructed approximately 8 feet away from the structure to be protected if pumping is planned. The ring dike should be constructed in a circular shape.

If pumping isn't planned, then sandbags can be placed against or near the structure to be protected. If there is high ground to tie into on each side, then an arc shaped structure can be used.

- **Typical Materials used to Construct:** Typically, ring dikes are made of sandbags; treated burlap bags 14 inches by 24 inches and filled with sand $\frac{1}{2}$ to $\frac{2}{3}$ full (approximately 40 lbs.).
- **Construction Methods:** This is the preferred construction method for a ring dike and will withstand up to a one-foot rise in water. If pumping out the ring dike, the ring dike should be constructed about 8' from the structure to be protected. Fill in the low spots with sandbags before starting to build the ring dike. The sandbags should be placed in a pyramid structure with three bags across the base, 2 bags on the second layer and one bag on top. The seams of the sandbags should be staggered so they aren't placed over the layer above, below or beside each other.
- **Typical Lifespan:** A ring dike will typically last a few months until the sandbags begin to decompose.
- **Risks:** There is a possibility that the ring dike will overtop if not built high enough. It is a great deal of work to raise the dike any significant height. For instance, to protect against 2 feet of water, 2,100 sandbags would be required for a 100 foot long ring dike where only 600 bags would be required for a one foot height.

**Note: Ring dikes will leak, and if the intention is to keep the area dry, pumping will be necessary. Plan ahead and place the pump in a low spot. Pump downstream away from other structures. Ring dikes should be used only in areas where there is standing water. They are not appropriate to use with moving water. Use this sandbag method where water won't rise above one foot.*

Debris Fence Fact Sheet

Fall 2004, Stehekin River Advance Measures Project

Offered measures should be monitored regularly to determine if there is need of repair, or to determine if there is risk of imminent failure.

- **Physical Description of Feature:** Chain link fence, continuous row of gabion baskets, logs chained or cabled to standing trees or spaced gabion baskets.
- **USES:** A Debris Fence prevents debris flow toward a structure.
- **Location and Form in Relation to Home or Property:** The fence should be placed a minimum of 20 feet from structure at an angle to deflect debris away from the structure and toward a swale or channel. A debris fence should be placed where debris is expected to be carried by floodwaters.
- **Typical Materials Used to Construct:** materials include chain link fence, gabion baskets, a combination of gabion baskets and logs, or possibly logs anchored to large standing live trees.
- **Construction Methods:** A gabion basket is a steel mesh basket used to hold rock. The rock used should be material found on site. Downed logs with diameters of 12" to 24" can be chained between gabion baskets or standing timber to restrain the debris.

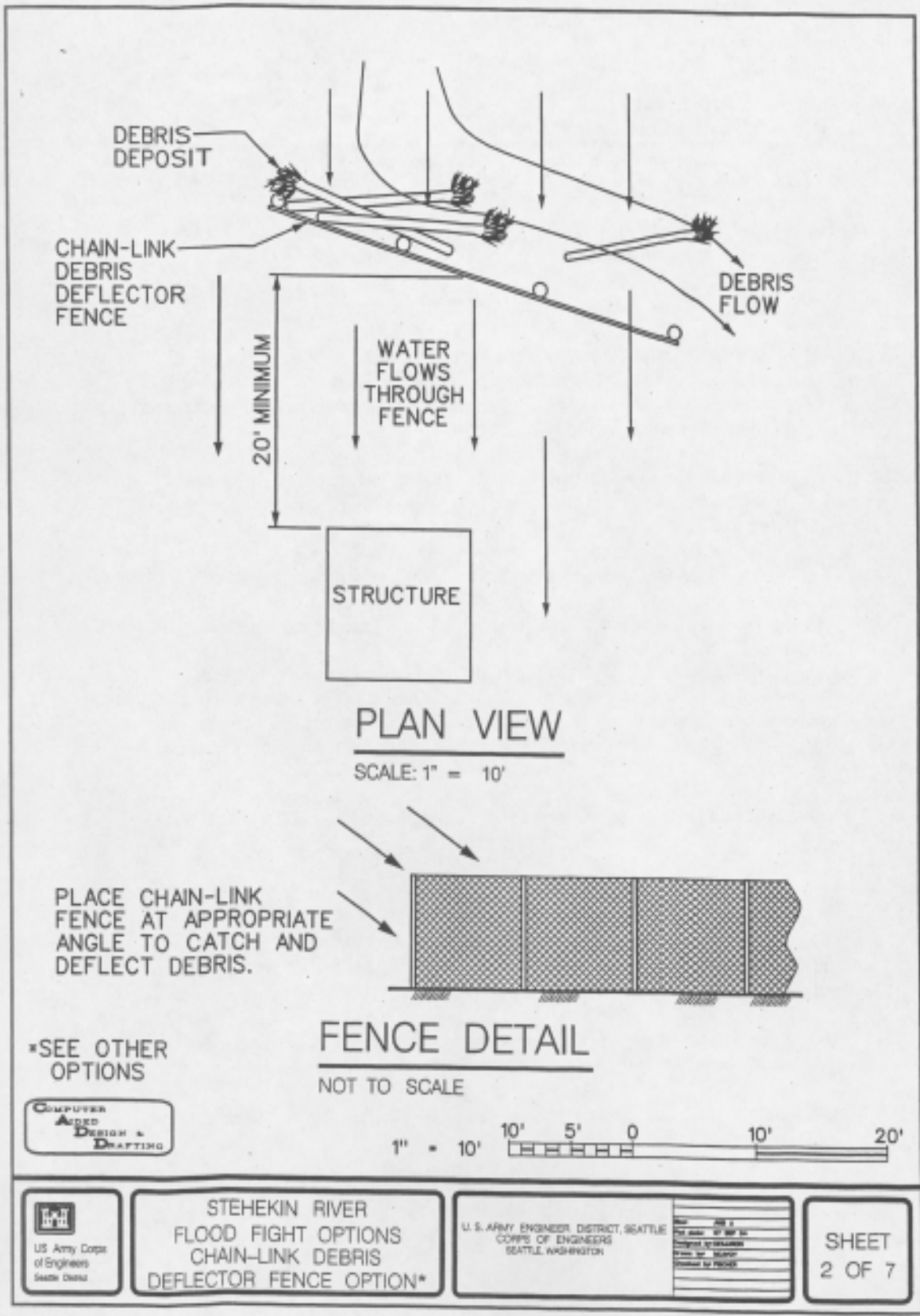
Assemble baskets and place on a relatively flat surface, fill with rock from site. If anchoring logs to baskets, place chain underneath the basket before filling. Choose a length of chain long enough to run under the basket and anchor the logs to the baskets. The logs should be placed on the outside face, the direction the debris flow will come from.

If using logs chained to standing trees of sufficient girth to withstand uprooting, place the logs on the outside face and anchor between trees.

Install chain link fence at an angle to deflect debris.

- **Typical Lifespan:** The chain link fence and gabion baskets should last for years, with regular maintenance to clear trapped debris and sediment, unless destroyed by large debris volume.
- **Risks:** There is a possibility of catastrophic failure if a large debris flow takes out the debris fence. The resulting flow could destroy the structure it was intended to protect.
- **Applicability to Stehekin River Site Locations:** The debris fences can be used at McGreagor Meadows.

**Note: debris fences will deflect debris, but not necessarily slow the flow of water unless constructed as a flow and debris deflector.*



Grade Control Fact Sheet

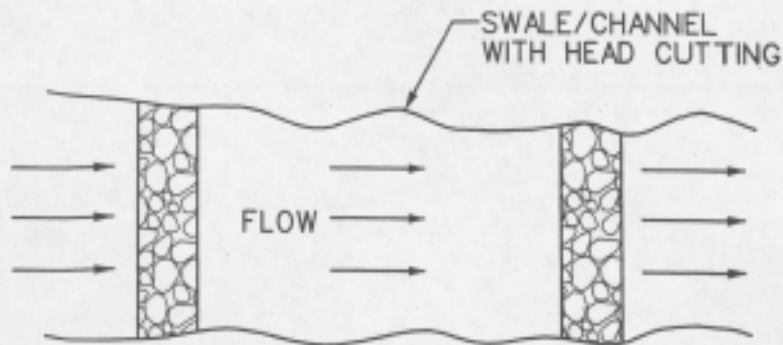
Fall 2004, Stehekin River Advance Measures Project

Offered measures should be monitored regularly to determine if there is need of repair, or to determine if there is risk of imminent failure.

- **Uses:** Grade control will help slow the progression of head cutting in an area where there is water flowing down a slope. The control will consist of digging a trench and filling it with riprap. These would be used if a home or structure were threatened by erosion.
- **Location and Form in Relation to Home or Property:** This form of prevention will be used where erosion occurs and creates flow that resembles a creek and causes erosion that keeps cutting back and eroding deeper taking more soil.
- **Typical Materials used to Construct/ Construction Methods:** Typically an excavator or backhoe can be used to dig a trench approximately 6 feet deep, a bucket wide, and as long as necessary. The trench is then filled with riprap to act as a hardened structure. As the material in front of the rock erodes away, the riprap will fall to that elevation and slow the progression of head cutting.

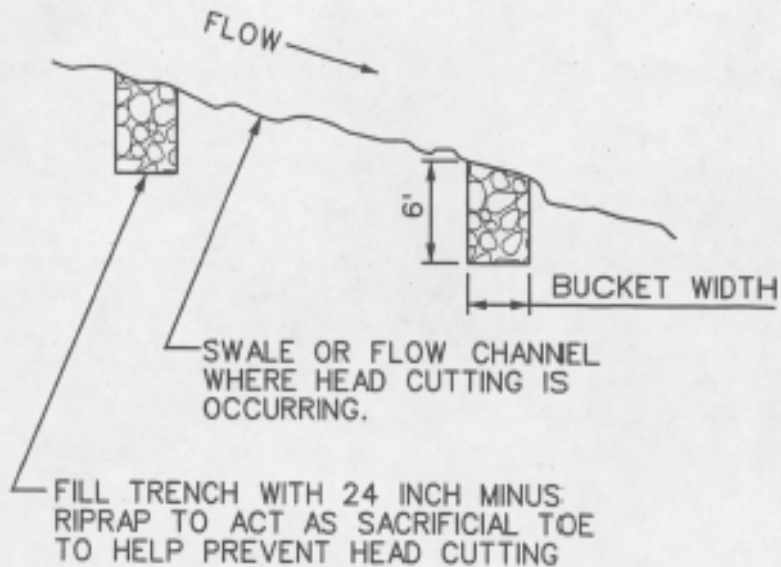
The number of trenches necessary will depend on the amount of flow and the angle of the slope.

- **Typical Life Span:** These trenches could possibly last a few years before having to be supplemented or replaced.
- **Risks:** There is always a possibility that there will be a great deal of concentrated flow that will erode away the slope. There is also a possibility that flow will divert around the hardened structure and make a new channel.



PLAN VIEW

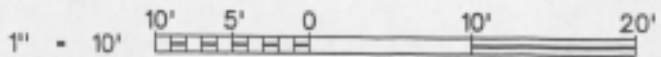
SCALE: 1" = 10'



ELEVATION VIEW

SCALE: 1" = 10'

COMPUTER
AIDED
DESIGN &
DRAFTING

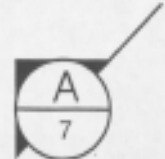
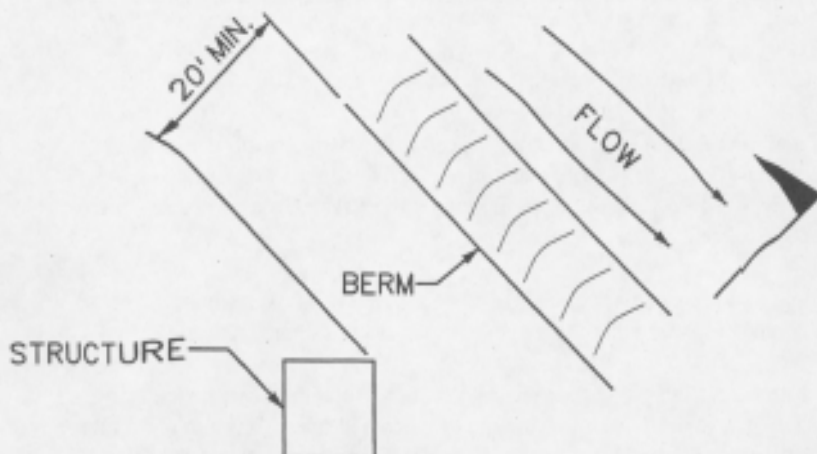


U.S. Army Corps
of Engineers
Seattle District

STEHEKIN RIVER
FLOOD FIGHT OPTIONS
GRADE CONTROL

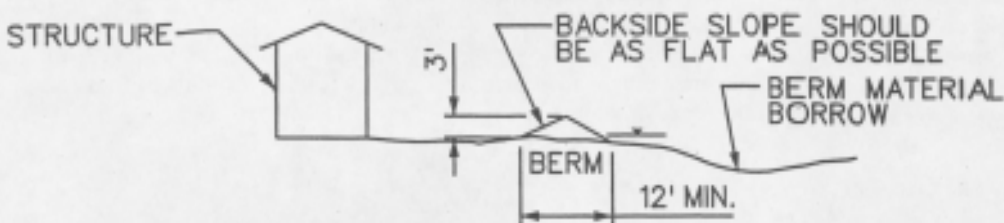
U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE WASHINGTON

SHEET
6 OF 7



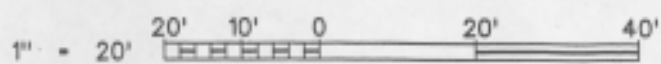
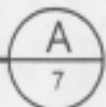
PLAN VIEW

SCALE: 1" = 20'



ELEVATION VIEW

SCALE: 1" = 20'



STEHEKIN RIVER
FLOOD FIGHT OPTIONS
SCOUR PROTECTION

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

DATE	08/14
DESIGNED BY	W. J. BERRY
CHECKED BY	W. J. BERRY
IN CHARGE	W. J. BERRY
APPROVED BY	W. J. BERRY
DATE	08/14

SHEET
7 OF 7

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**Appendix 8: Vascular Plants
Observed within Proposed Project
Areas**



Stehekin Airstrip (Bender).

APPENDIX 8: VASCULAR PLANTS OBSERVED WITHIN PROPOSED PROJECT AREAS

Key

Abundance codes represent relative abundance of individual plant species within the area.

- R-Rare is a few plants less than five individuals for the area surveyed.
- U-Uncommon is a species which is greater than five plants but is only occasionally observed.
- C-Common, species are found throughout the area surveyed.
- A-Abundant, species that are found throughout the area surveyed and are a dominate species.

Proposed Land Exchange Parcels

Stehekin Valley Ranch Area	Abundance
<i>Acer macrophyllum</i>	A
<i>Achillea millefolium</i>	C
<i>Adenocaulon bicolor</i>	U
<i>Agoseris sp.</i>	U
<i>Agrostis stolonifera</i>	C
<i>Alnus rubra</i>	C
<i>Amelanchier alnifolia</i>	U
<i>Anaphalis margaritacea</i>	U
<i>Angelica sp.</i>	U
<i>Apocynum androsaemifolium</i>	U
<i>Arctostaphylos uva-ursi</i>	U
<i>Artemesia sp.</i>	U
<i>Aster engelmannii</i>	C
<i>Aster sp.</i>	U
<i>Bromus inermis</i>	C
<i>Calamagrostis rubescens</i>	U
<i>Carex mertensii</i>	U
<i>Castilleja miniata</i>	U
<i>Centaurea sp.</i>	U
<i>Chamerion angustifolium</i>	U
<i>Chimaphila umbellata</i>	U
<i>Cirsium edule</i>	U
<i>Collomia heterophylla</i>	U
<i>Cornus sericea</i>	C

Stehekin Valley Ranch Area	Abundance
<i>Dactylus glomerata</i>	A
<i>Disporum hookeri</i>	U
<i>Elymus glaucus</i>	U
<i>Equisitem arvense</i>	U
<i>Erigeron foliosus</i>	U
<i>Festuca sp.</i>	U
<i>Galium triflorum</i>	U
<i>Goodyera oblongifolia</i>	U
<i>Hieracium albiflorum</i>	U
<i>Hieracium gracile</i>	U
<i>Lomatium brandegii</i>	U
<i>Lonicera ciliosa</i>	U
<i>Lonicera involucrata</i>	U
<i>Lunia nardosmia</i>	U
<i>Lupinus latifolia</i>	C
<i>Madia sp.</i>	U
<i>Madia exugia</i>	U
<i>Mahonia nervosa</i>	U
<i>Microseris sp.</i>	U
<i>Moehringia macrophylla</i>	C
<i>Mycalis muralis</i>	C
<i>Osmorhiza chilense</i>	C
<i>Paxistima myrsinites</i>	U
<i>Penstemon serrulatus</i>	U

Stehekin Valley Ranch Area	Abundance
<i>Phacelia hastata</i>	U
<i>Philadelphus lewisii</i>	C
<i>Pinus ponderosa</i>	C
<i>Plantago lanceolata</i>	C
<i>Platanthera sp.</i>	U
<i>Poa bulbosa</i>	A
<i>Poa pratensis</i>	A
<i>Populus balsamifera</i>	C
<i>Prunella vugalare</i>	U
<i>Pseudotsuga menziesii</i>	A
<i>Pseudoregneria spicatum</i>	A
<i>Pteridium aquilinum</i>	C
<i>Ribes sanguineum</i>	U
<i>Rosa gymnocarpa</i>	U
<i>Rumex acetosa</i>	C
<i>Sambucus racemosa</i>	C
<i>Sanicula crassicaulis</i>	U
<i>Sanicula bipinnata</i>	U
<i>Smilacina racemosa</i>	U
<i>Solidago sp.</i>	U
<i>Spirea betula</i>	U
<i>Stipa lemmonii</i>	U
<i>Symphoricarpos albus</i>	C
<i>Taraxacum officinale</i>	C
<i>Taxux brevifolia</i>	U
<i>Tragopogon sp.</i>	U
<i>Trifolium pratense</i>	C
<i>Trifolium repens</i>	C
<i>Vaccinium membranaceum</i>	U
<i>Verbascum thapsus</i>	U
<i>Viola sp.</i>	U

McGregor Meadows	Abundance
<i>Acer douglasii</i>	C
<i>Acer macrophyllum</i>	C
<i>Adenocaulon bicolor</i>	U
<i>Agoseris sp.</i>	U
<i>Amelanchier alnifolia</i>	C

McGregor Meadows	Abundance
<i>Apocynum androsaemifolium</i>	C
<i>Arnica cordifolia</i>	C
<i>Asarum caudatum</i>	U
<i>Aster engelmannii</i>	C
<i>Athyrium filix-femina</i>	U
<i>Balsamorhiza sagittata</i>	U
<i>Calamagrostis rubescens</i>	C
<i>Carex rossii</i>	U
<i>Collinsia sparsiflora</i>	U
<i>Cornus nuttallii</i>	A
<i>Delphinium nuttallianum</i>	U
<i>Disporum hookeri</i>	U
<i>Elymus glaucus</i>	C
<i>Festuca idahoensis</i>	A
<i>Galium triflorum</i>	U
<i>Goodyera oblongifolia</i>	U
<i>Hieracium albiflorum</i>	U
<i>Lupinus latifolia</i>	U
<i>Mahonia nervosa</i>	C
<i>Moehringia macrophylla</i>	C
<i>Mycelis muralis</i>	A
<i>Orthilia secunda</i>	U
<i>Osmorhiza chilense</i>	U
<i>Paxistima myrsinites</i>	U
<i>Penstemon serrulatus</i>	U
<i>Philadelphus lewisii</i>	C
<i>Pinus ponderosa</i>	C
<i>Polystichum munitum</i>	U
<i>Pseudotsuga menziesii</i>	A
<i>Pteridium aquilinum</i>	C
<i>Rosa gymnocarpa</i>	U
<i>Rubus ursinus</i>	U
<i>Sanicula bipinnatifida</i>	U
<i>Silene seelyi</i>	U
<i>Spirea betula</i>	C
<i>Symphoricarpos albus</i>	C

North Parcel - 3 parcels	
<i>Acer macrophyllum</i>	
<i>Achillea millefolium</i>	
<i>Amelanchier alnifolia</i>	
<i>Apocynum androsaemifolium</i>	
<i>Apodosis densa</i>	
<i>Athyrium filix-femina</i>	
<i>Bromus tectorum</i>	
<i>Carex rossii</i>	
<i>Chamerion angustifolium</i>	
<i>Collomia sp.</i>	
<i>Cornus nuttallii</i>	
<i>Cryptogramma crista</i>	
<i>Dactylus glomerata</i>	
<i>Elymus glaucus</i>	
<i>Hieracium sp.</i>	
<i>Holodiscus discolor</i>	
<i>Juncus sp.</i>	
<i>Lomatium brandegii</i>	
<i>Mahonia nervosa</i>	
<i>Moehringia macrophylla</i>	
<i>Paxistima myrsinites</i>	
<i>Pinus ponderosa</i>	
<i>Plantago lanceolata</i>	
<i>Poa bulbosa</i>	
<i>Poa pratensis</i>	
<i>Pseudoregneria spicatum</i>	
<i>Pseudotsuga menziesii</i>	
<i>Rubus ursinus</i>	
<i>Sambucus racemosa</i>	
SANCRA	
<i>Tragopogon dubius</i>	
<i>Taraxacum officinale</i>	
<i>Vaccinium membranaceum</i>	

Skinnny Wilson's	Abundance
<i>Acer circinatum</i>	C
<i>Acer macrophyllum</i>	C
<i>Adenocaulon bicolor</i>	U

Skinnny Wilson's	Abundance
<i>Agrostis capillaris</i>	C
<i>Amelanchier alnifolia</i>	U
<i>Apocynum androsaemifolium</i>	U
<i>Iris sp.</i>	C
<i>Calamagrostis rubescens</i>	C
<i>Chimaphila umbellata</i>	U
<i>Convallaria sp.</i>	C
<i>Cornus nuttallii</i>	U
<i>Cytisus scoparius</i>	C
<i>Dactylus glomerata</i>	A
<i>Dianthus barbatus</i>	C
<i>Disporum hookeri</i>	U
<i>Elymus glaucus</i>	C
<i>Galium triflorum</i>	U
<i>Hieracium albiflorum</i>	U
<i>Lathyrus latifolius</i>	C
<i>Linaria sp.</i>	U
<i>Lonicera ciliosa</i>	U
<i>Lupinus latifolia</i>	U
<i>Mahonia nervosa</i>	C
<i>Osmorhiza chilense</i>	U
<i>Paxistima myrsinites</i>	U
<i>Phleum pratense</i>	C
<i>Prunus emarginata</i>	C
<i>Pseudotsuga menziesii</i>	A
<i>Pteridium aquilinum</i>	C
<i>Rosa gymnocarpa</i>	U
<i>Rubus parviflorus</i>	U
<i>Rubus ursinus</i>	U
<i>Sambucus racemosa</i>	C
<i>Smilacina racemosa</i>	U
<i>Spirea betula</i>	C
<i>Taraxacum officinale</i>	C
<i>Thuja plicata</i>	C
<i>Trifolium pratense</i>	C
<i>Trifolium repens</i>	C
<i>Vinca major</i>	A
<i>Viola sp.</i>	U

Getty/Griffin/Dineen Properties	Abundance
<i>Acer macrophyllum</i>	C
<i>Achillea millefolium</i>	C
<i>Agropyron repens</i>	C
<i>Amelanchier alnifolia</i>	U
<i>Arctostaphylos nevadensis</i>	U
<i>Aspidotis densa</i>	R
<i>Aster engelmannii</i>	C
<i>Bromus hordeaceus</i>	U
<i>Bromus tectorum</i>	C
<i>Calamagrostis rubescens</i>	U
<i>Carex rossii</i>	R
<i>Centaurea sp.</i>	U
<i>Collinsia sparsiflora</i>	R
<i>Collomia grandiflora</i>	R
<i>Collomia linearis</i>	R
<i>Dactylus glomerata</i>	C
<i>Elymus glaucus</i>	C
<i>Equisetum sp.</i>	R
<i>Festuca idahoensis</i>	U
<i>Hieracium albiflorum</i>	U
<i>Hieracium scouleri</i>	U
<i>Holodiscus discolor</i>	U
<i>Koeleria cristata</i>	U
<i>Lathyrus latifolius</i>	U
<i>Syringa vulgaris</i>	U
<i>Lomatium brandegii</i>	U
<i>Moehringia macrophylla</i>	C
<i>Mahonia nervosa</i>	U
<i>Melilotus alba</i>	U
<i>Meticago sativa</i>	U
<i>Montia parviflora</i>	U
<i>Osmorhiza chilense</i>	U
<i>Paxistima myrsinites</i>	U
<i>Penstemon serrulatus</i>	U
<i>Pinus ponderosa</i>	C
<i>Poa bulbosa</i>	C
<i>Prunus emarginata</i>	U
<i>Pseudotsuga menziesii</i>	C

Getty/Griffin/Dineen Properties	Abundance
<i>Pteridium aquilinum</i>	U
<i>Rubus discolor</i>	U
<i>Rubus leucodermis</i>	U
<i>Rumex acetosa</i>	C
<i>Sambucus racemosa</i>	U
<i>Symphoricarpos alba</i>	U
<i>Trifolium repens</i>	C
<i>Vinca major</i>	C
<i>Vulpia sp.</i>	U

Riverside Park	Abundance
<i>Acer circinatum</i>	A
<i>Adenocaulon bicolor</i>	U
<i>Artemesia sp.</i>	U
<i>Asarum caudatum</i>	U
<i>Calypso bulbosa</i>	U
<i>Chimaphila umbellata</i>	U
<i>Disporum hookeri</i>	U
<i>Festuca sp.</i>	U
<i>Galium triflorum</i>	U
<i>Goodyera oblongifolia</i>	U
<i>Hieracium albiflorum</i>	U
<i>Lonicera ciliosa</i>	U
<i>Philadelphus lewisii</i>	C
<i>Populus balsamifera</i>	C
<i>Pteridium aquilinum</i>	C
<i>Rosa gymnocarpa</i>	U
<i>Rubus parviflorus</i>	C
<i>Smilacina racemosa</i>	U
<i>Trillium ovatum</i>	U
<i>Trisetum cernuum</i>	U
dense <i>Acer circinatum</i> thickets	

Behind school	Abundance
<i>Acer macrophyllum</i>	C
<i>Achillea millefolium</i>	U
<i>Acnatherum lemmonii</i>	U

Behind school	Abundance
<i>Agoseris sp.</i>	U
<i>Antenaria sp.</i>	U
<i>Arctostaphylos nevadensis</i>	U
<i>Brodiaea sp.</i>	U
<i>Calamagrostis rubescens</i>	U
<i>Carex rossii</i>	U
<i>Cheilanthes gracillima</i>	U
<i>Collinsia sp.</i>	U
<i>Collomia linearis</i>	U
<i>Cytisus scoparius</i>	U
<i>Dactylus glomerata</i>	C
<i>Elymus glaucus</i>	U
<i>Festuca idahoensis</i>	U
<i>Hieracium scouleri</i>	U
<i>Koeleria cristata</i>	U
<i>Mahonia nervosa</i>	U
<i>Moehringia macrophylla</i>	U
<i>Penstemon serrulatus</i>	U
<i>Poa pratensis</i>	C
<i>Polystichum munitum</i>	U
<i>Pseudoregneria spicatum</i>	U
<i>Pseudotsuga menziesii</i>	A
<i>Pteridium aquilinum</i>	U
<i>Spirea betula</i>	U
<i>Taraxacum officinale</i>	U
<i>Vulpia bromoides</i>	A

Keller Park / Castle	Abundance
<i>Abies grandis</i>	A
<i>Acer circinatum</i>	A
<i>Acer macrophyllum</i>	A
<i>Achillea millefolium</i>	U
<i>Adenocaulon bicolor</i>	U
<i>Agoseris sp.</i>	U
<i>Amelanchier alnifolia</i>	U
<i>Anaphalis margaritacea</i>	U
<i>Artemesia sp.</i>	U
<i>Aster engelmannii</i>	C

Keller Park / Castle	Abundance
<i>Bromus tectorum</i>	A
<i>Ceanothus sanguineus</i>	C
<i>Collomia linearis</i>	R
<i>Cornus nuttallii</i>	U
<i>Dactylus glomerata</i>	A
<i>Elymus glaucus</i>	A
<i>Festuca idahoensis</i>	A
<i>Festuca scabrella</i>	A
<i>Galium triflorum</i>	U
<i>Goodyera oblongifolia</i>	U
<i>Hieracium albiflorum</i>	U
<i>Hieracium scouleri</i>	C
<i>Holodiscus discolor</i>	C
<i>Lonicera ciliosa</i>	C
<i>Mahonia nervosa</i>	C
<i>Moehringia macrophylla</i>	C
<i>Oryzopsis exigua</i>	R
<i>Osmorhiza chilense</i>	U
<i>Paxistima myrsinites</i>	U
<i>Penstemon sp.</i>	U
<i>Philadelphus lewisii</i>	U
<i>Pinus ponderosa</i>	C
<i>Poa commutata</i>	C
<i>Poa pratensis</i>	C
<i>Polystichum munitum</i>	U
<i>Pseudoregneria spicatum</i>	C
<i>Pseudotsuga menziesii</i>	A
<i>Pteridium aquilinum</i>	U
<i>Rosa gymnocarpa</i>	U
<i>Rubus leucodermis</i>	U
<i>Rubus ursinus</i>	U
<i>Smilacina sp.</i>	U
<i>Spirea betula</i>	C
<i>Symphoricarpos alba</i>	C
<i>Tragopogon dubius</i>	U
<i>Taraxacum officinale</i>	U
<i>Trifolium pratense</i>	C

Peterson Property	Abundance	Origin
Trees		
<i>Abies grandis</i>	C	N
<i>Acer macrophyllum</i>	A	N
<i>Cornus nuttallii</i>	U	N
<i>Pinus ponderosa</i>	U	N
<i>Populus balsamifera</i> <i>ssp. trichocarpa</i>	C	N
<i>Pseudotsuga menziesii</i> <i>var. menziesii</i>	A	N
Shrubs		
<i>Acer circinatum</i>	C	N
<i>Amelanchier alnifolia</i>	U	N
<i>Berberis aquifolium</i>	C	N
<i>Berberis repens</i>	R	N
<i>Cornus sericea</i> <i>ssp.</i> <i>sericea</i>	U	N
<i>Holodiscus discolor</i>	C	N
<i>Paxistima myrsinites</i>	C	N
<i>Philadelphus lewisii</i>	C	N
<i>Rosa gymnocarpa</i>	C	N
<i>Rubus parviflorus</i> <i>var.</i> <i>parviflorus</i>	U	N
<i>Rubus ursinus</i> <i>ssp.</i> <i>macropetalus</i>	A	N
<i>Sambucus cerulea</i> <i>var.</i> <i>cerulea</i>	U	N
<i>Spiraea betulifolia</i> <i>var.</i> <i>lucida</i>	U	N
<i>Symphoricarpos albus</i> <i>var. laevigatus</i>	C	N
Graminoids		
<i>Bromus mollis</i>	C	E
<i>Bromus tectorum</i>	U	E
<i>Calamagrostis</i> <i>rubescens</i>	U	N
<i>Carex geyeri</i>	U	N
<i>Dactylis glomerata</i>	C	E
<i>Elymus glaucus</i> <i>ssp.</i> <i>glaucus</i>	C	N
<i>Elymus repens</i>	A	E

Peterson Property	Abundance	Origin
<i>Festuca idahoensis</i> <i>var.</i> <i>idahoensis</i>	U	N
<i>Festuca rubra</i> <i>ssp.</i> <i>rubra</i>	U	E
<i>Melica subulata</i> <i>var.</i> <i>subulata</i>	U	N
<i>Poa pratensis</i>	C	E
<i>Stipa occidentalis</i> <i>var.</i> <i>minor</i>	R	N
<i>Trisetum canescens</i>	R	N
Ferns/Allies		
<i>Pteridium aquilinum</i> <i>var. pubescens</i>	A	N
Herbs		
<i>Achillea millefolium</i>	U	N
<i>Adenocaulon bicolor</i>	U	N
<i>Agoseris heterophylla</i> <i>var. heterophylla</i>	U	N
<i>Chimaphila umbellata</i> <i>var. occidentalis</i>	U	N
<i>Corallorrhiza maculata</i> <i>var. maculata</i>	R	N
<i>Cryptantha</i> <i>sp.</i>	R	N
<i>Disporum hookeri</i>	U	N
<i>Eucephalus</i> <i>engelmannii</i>	C	N
<i>Fragaria vesca</i>	U	N
<i>Galium triflorum</i>	U	N
<i>Gnaphalium</i> <i>microcephalum</i> <i>var.</i> <i>thermale</i>	U	N
<i>Habenaria</i> <i>sp.</i>	R	N
<i>Hieracium albiflorum</i>	C	N
<i>Hieracium scouleri</i>	U	N
<i>Holosteum</i> <i>umbellatum</i>	U	N
<i>Lactuca muralis</i>	U	E
<i>Linaria vulgaris</i>	U	E
<i>Maianthemum</i> <i>racemosum</i> <i>ssp.</i> <i>racemosum</i>	U	N

Peterson Property	Abundance	Origin
<i>Microsteris gracilis</i>	U	N
<i>Microsteris gracilis</i> var. <i>humilior</i>	U	N
<i>Moehringia macrophylla</i>	U	N
<i>Osmorhiza chilensis</i>	C	N
<i>Plantago lanceolata</i>	C	E
<i>Rumex acetosella</i>	C	E
<i>Sanicula</i> sp.	R	N
<i>Taraxacum officinale</i>	U	E
<i>Thalictrum occidentale</i>	U	N
<i>Tragopogon dubius</i>	U	E
<i>Trifolium pratense</i>	U	E
<i>Trifolium repens</i>	U	E
<i>Veronica arvensis</i>	U	N

Ward Property	Abundance	Origin
Trees		
<i>Abies grandis</i>	C	N
<i>Acer macrophyllum</i>	C	N
<i>Cornus nuttallii</i>	A	N
<i>Pinus ponderosa</i>	R	N
<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	A	N
Shrubs		
<i>Amelanchier alnifolia</i>	C	N
<i>Arctostaphylos nevadensis</i>	U	N
<i>Arctostaphylos uva-ursi</i>	U	N
<i>Berberis aquifolium</i>	C	N
<i>Berberis repens</i>	R	N
<i>Ceanothus velutinus</i>	U	N
<i>Paxistima myrsinites</i>	U	N
<i>Philadelphus lewisii</i>	U	N
<i>Rosa gymnocarpa</i>	U	N
<i>Rubus leucodermis</i>	U	N
<i>Spiraea betulifolia</i> var. <i>lucida</i>	U	N
<i>Symphoricarpos albus</i> var. <i>laevigatus</i>	C	N

Ward Property	Abundance	Origin
Graminoids		
<i>Bromus tectorum</i>	U	E
<i>Calamagrostis rubescens</i>	C	N
<i>Carex geyeri</i>	C	N
<i>Deschampsia elongata</i>	R	N
<i>Elymus glaucus</i> ssp. <i>glaucus</i>	C	N
<i>Festuca occidentalis</i>	U	N
<i>Mellica subulata</i> var. <i>subulata</i>	U	N
<i>Poa pratensis</i>	U	E
<i>Pseudoroegneria spicata</i>	U	N
<i>Stipa occidentalis</i> var. <i>minor</i>	U	N
Ferns & Allies		
<i>Pteridium aquilinum</i>	C	N
Herbs & Forbs		
<i>Achillea millefolium</i>	U	N
<i>Adenocaulon bicolor</i>	U	N
<i>Apocynum androsaemifolium</i>	C	N
<i>Arenaria macrophylla</i>	U	N
<i>Asarum caudatum</i>	U	N
<i>Collinsia parviflora</i>	U	N
<i>Collomia grandiflora</i>	U	N
<i>Galium triflorum</i>	U	N
<i>Gnaphalium microcephalum</i> var. <i>thermale</i>	U	N
<i>Goodyera oblongifolia</i>	U	N
<i>Hieracium albiflorum</i>	C	N
<i>Hieracium scouleri</i>	C	N
<i>Holosteum umbellatum</i>	U	N
<i>Lomatium brandegeei</i>	U	N
<i>Lomatium triternatum</i> ssp. <i>platycarpum</i>	U	N
<i>Lonicera ciliosa</i>	C	N

Ward Property	Abundance	Origin
<i>Osmorhiza chilensis</i>	C	N
<i>Rumex acetosella</i>	U	E
<i>Taraxacum officinale</i>	U	E
<i>Viola glabella</i>	R	N

Camps

Purple Point Horse Camp	Abundance
<i>Achillea millefolium</i>	U
<i>Amelanchier alnifolia</i>	U
<i>Calamagrostis rubescens</i>	A
<i>Elymus glaucus</i>	A
<i>Festuca sp.</i>	A
<i>Hieracium scouleri</i>	U
<i>Lonicera ciliosa</i>	U
<i>Moehringia macrophylla</i>	U
<i>Pinus ponderosa</i>	A
<i>Poa pratensis</i>	A
<i>Pseudotsuga menziesii</i>	A
<i>Symphoricarpos alba</i>	U

Purple Point Overflow	Abundance
<i>Achillea millefolium</i>	U
<i>Amelanchier alnifolia</i>	U
<i>Calamagrostis rubescens</i>	C
<i>Elymus glaucus</i>	C
<i>Festuca sp.</i>	C
<i>Hieracium scouleri</i>	U
<i>Lonicera ciliosa</i>	U
<i>Pinus ponderosa</i>	A
<i>Poa pratensis</i>	A
<i>Pseudotsuga menziesii</i>	A
<i>Symphoricarpos alba</i>	C

Bullion Camp	Abundance
<i>Acer macrophyllum</i>	A
<i>Achillea millefolium</i>	U
<i>Amelanchier alnifolia</i>	A
<i>Arctostaphylos nevadensis</i>	U
<i>Aster engelmannii</i>	C
<i>Calamagrostis rubescens</i>	C
<i>Carex rossii</i>	U
<i>Castilleja miniata</i>	U
<i>Ceanothus sanguineus</i>	C
<i>Chamerion angustifolium</i>	C
<i>Collomia linearis</i>	U
<i>Collinsia sparsiflora</i>	U
<i>Comandra umbellatum</i>	C
<i>Elymus glaucus</i>	A
<i>Epilobium minutum</i>	U
<i>Goodyera oblongifolia</i>	U
<i>Hieracium scouleri</i>	U
<i>Holodiscus discolor</i>	C
<i>Lomatium brandegii</i>	U
<i>Lupinus latifolia</i>	C
<i>Mahonia nervosa</i>	U
<i>Paxistima myrsinites</i>	C
<i>Pinus ponderosa</i>	A
<i>Poa pratensis</i>	A
<i>Pseudotsuga menziesii</i>	A
<i>Rumex acetocella</i>	C
<i>Sambucus racemosa</i>	U
<i>Spiraea betula</i>	U

Proposed Rainbow Falls Camp	Abundance
<i>Achillea millefolium</i>	U
<i>Amelanchier alnifolia</i>	U
<i>Apocynum androsaemifolium</i>	U
<i>Arctostaphylos uva-ursi</i>	C
<i>Aspidotis densa</i>	U
<i>Bromus tectorum</i>	A
<i>Calamagrostis rubescens</i>	C

Proposed Rainbow Falls Camp	Abundance
<i>Carex rossii</i>	U
<i>Collomia heterophylla</i>	U
<i>Hieracium albiflorum</i>	U
<i>Hieracium scouleri</i>	U
<i>Holodiscus discolor</i>	C
<i>Paxistima myrsinites</i>	C
<i>Penstemon serrulatus</i>	U
<i>Pinus ponderosa</i>	A
<i>Poa pratensis</i>	A
<i>Polystichum munitum</i>	U
<i>Pseudoregneria spicatum</i>	C
<i>Pseudotsuga menziesii</i>	A
<i>Spirea betula</i>	C
<i>Vulpia bromoides</i>	C

Proposed Company Creek Camp	Abundance
<i>Abies grandis</i>	U
<i>Acer circinatum</i>	A
<i>Acer glabrum</i>	A
<i>Achillea millefolium</i>	C
<i>Adenocaulon bicolor</i>	U
<i>Alnus rubra</i>	A
<i>Amelanchier alnifolia</i>	C
<i>Apocynum androsaemifolium</i>	C
<i>Arctostaphylos nevadensis</i>	U
<i>Arnica cordifolia</i>	C
<i>Arnica latifolia</i>	C
<i>Asarum caudatum</i>	U
<i>Aster sp.</i>	U
<i>Athyrium filix-femina</i>	R
<i>Calamagrostis rubescens</i>	U
<i>Carex rossii</i>	R
<i>Chimaphila umbellata</i>	U
<i>Clintonia uliflora</i>	U
<i>Cornus nuttallii</i>	C
<i>Cornus sericea</i>	C
<i>Disporum hookeri</i>	U

Proposed Company Creek Camp	Abundance
<i>Elymus glaucus</i>	A
<i>Festuca idahoensis</i>	A
<i>Galium aparine</i>	U
<i>Goodyera oblongifolia</i>	U
<i>Hieracium albiflorum</i>	U
<i>Holodiscus discolor</i>	C
<i>Lilium sp.</i>	R
<i>Lonicera hispidula</i>	U
<i>Mahonia nervosa</i>	U
<i>Oplopanax horridus</i>	C
<i>Orthilia secunda</i>	U
<i>Osmorhiza chilense</i>	C
<i>Paxistima myrsinites</i>	C
<i>Pinus monticola</i>	R
<i>Pinus ponderosa</i>	U
<i>Populus balsamifera</i>	U
<i>Pseudoregneria spicatum</i>	C
<i>Pseudotsuga menziesii</i>	C
<i>Pteridium aquilinum</i>	U
<i>Pyrola asarifolia</i>	U
<i>Pyrola picta</i>	U
<i>Rhamnus purshiana</i>	U
<i>Ribes sanguineum</i>	U
<i>Rosa gymnocarpa</i>	U
<i>Rubus parviflorus</i>	U
<i>Rubus ursinus</i>	U
<i>Salix scouleri</i>	U
<i>Sambucus racemosa</i>	U
<i>Streptopus sp.</i>	R
<i>Symphoricarpos albus</i>	C
<i>Thuja plicata</i>	C
<i>Trillium ovatum</i>	U
<i>Trisetum cernuum</i>	R
<i>Viola sempervirens</i>	R

Company Creek Camp	Abundance
<i>Acer macrophyllum</i>	C
<i>Achillea millefolium</i>	C
<i>Acnatherum lemmonii</i>	U
<i>Agoseris sp.</i>	R
<i>Amelanchier alnifolia</i>	U
<i>Anaphalis margaritacea</i>	U
<i>Antennaria sp.</i>	U
<i>Arctostaphylos uva-ursi</i>	C
<i>Bromus tectorum</i>	A
<i>Cares rossii</i>	U
<i>Carex sp.</i>	U
<i>Centaurea sp.</i>	U
<i>Collinsia sparsiflora</i>	U
<i>Collomia linearis</i>	U
<i>Dactylus glomerata</i>	A
<i>Elymus repens</i>	A
<i>Hieracium scouleri</i>	C
<i>Holodiscus discolor</i>	U
<i>Luina media</i>	U
<i>Mahonia nervosa</i>	U
<i>Moehringia macrophylla</i>	C
<i>Philadelphus lewisii</i>	C
<i>Plantago lanceolata</i>	C
<i>Poa bulbosa</i>	A
<i>Poa pratensis</i>	A
<i>Pseudoregneria spicatum</i>	A
<i>Pseudotsuga menziesii</i>	C
<i>Rosa gymnocarpa</i>	U
<i>Rubus ursinus</i>	U
<i>Rumex acetosa</i>	C
<i>Salix sp.</i>	U
<i>Spirea betula</i>	U
<i>Taraxacum officinale</i>	C
<i>Tragopogon dubius</i>	C
<i>Vulpia bromoides</i>	A

River Access Point

Stehekin River Mouth	Abundance
<i>Abies grandis</i>	A
<i>Acer circinatum</i>	A
<i>Acer macrophyllum</i>	A
<i>Adenocaulon bicolor</i>	U
<i>Asarum caudatum</i>	R
<i>Athyrium filix-femina</i>	R
<i>Carex deweyana</i>	C
<i>Cornus nuttallii</i>	C
<i>Disporum hookeri</i>	U
<i>Equisetum sp.</i>	A
<i>Galium triflorum</i>	U
<i>Goodyera oblongifolia</i>	U
<i>Lonicera ciliosa</i>	U
<i>Philadelphus lewisii</i>	U
<i>Populus balsamifera</i>	A
<i>Rosa sp.</i>	U
<i>Rubus parviflorus</i>	C
<i>Rubus ursinus</i>	U
<i>Rumex sp.</i>	C
<i>Smilacina sp.</i>	U
<i>Symphoricarpos alba</i>	U
<i>Thuja plicata</i>	A
<i>Trillium ovatum</i>	U
<i>Viola sp.</i>	U

Alternative 5 Species Affected

Reroute Access Connector
<i>Trees</i>
<i>Acer macrophyllum</i>
<i>Alnus rubra</i>
<i>Conus nuttallii</i>
<i>Populus balsamifera ssp. trichocarpa</i>
<i>Pinus ponderosa</i>
<i>Psuedotsuga menziesii</i>
<i>Shrubs</i>
<i>Acer circinatum</i>

Reroute Access Connector
<i>Amelanchier alnifolia</i>
<i>Cornus sericea</i>
<i>Holodiscus discolor</i>
<i>Mahonia aquifolium</i>
<i>Rosa gymnocarpa</i>
<i>Rubus parviflorus</i>
<i>Rubus ursinus</i>
<i>Spiraea betulafolia</i>
Herbs
<i>Adenocaulon bicolor</i>
<i>Asarum caudatum</i>
<i>Carex spp</i>
<i>Equisetum arvense</i>
<i>Hieracium albiflorum</i>
<i>Mycelis muralis</i>
<i>Osmorhiza chilensis</i>
<i>Pteridium aquilinum</i>
<i>Viola sempervirens</i>

Reroute Access Connector
Grasses
<i>Calamagrostis rubesens</i>
<i>Elymus glauca</i>

Corral Parcel
<i>Dactylis glomerata</i>
<i>Festuca arundinacea</i>
<i>Lolium perenne</i>
<i>Melilotus alba</i>
<i>Plantago lanceolata</i>
<i>Plantago major</i>
<i>Poa pratensis</i>
<i>Taraxacum officinale</i>

Ranch Parcel

Same as above.

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**Appendix 9: Proposed Conditions,
Covenants and Deed Restrictions**



Buckner Orchard (Herb Sargo).

APPENDIX 9: PROPOSED CONDITIONS, COVENANTS AND DEED RESTRICTIONS (CCRS)

- All site development and building construction plans would be reviewed and approved by the National Park Service.
- The primary residential building would not exceed 30 feet in height and accessory buildings would not exceed 25 feet in height.
- Cottage craft uses would be limited to hand manufactured art objects and personal use products.
- Proposed new construction could be of a contemporary design, construction, and color that blends with other structures in the Valley. New construction would be in harmony and continuity with the Valley's traditional character and style, scale and orientation, color, and texture of exterior surface.
- Structures would be screened to be unobtrusive from public use roads, trails, and viewpoints, including from the Stehekin Valley Road.
- Energy efficient standards would be incorporated to the extent possible.
- No building would be served by aerial (overhead) electric or utility lines.
- All construction would comply with local, state, and federal ordinances and regulations.
- Native noninvasive species would be used for any plantings and any invasive nonnative species would be eliminated.
- No mobile homes, travel trailers, or similar would be used even temporarily unless approved by the National Park Service.
- No rubbish, junked or salvaged equipment, vehicles, or other materials would be disposed of or accumulate on the property.
- The location of radio antenna towers taller than the roof peak of the primary building on the site or of dish antennas would require approval by the National Park Service.
- Except as needed for approved construction, there would be no cutting, destroying, or removing of trees, live or dead, 12 inches in diameter or larger, at 4.5 feet (diameter breast high), unless approved by the National Park Service.
- Pesticides, herbicides, and other chemicals for weed and pest control for other than household uses would be prohibited.
- State and local laws, ordinances, and regulations would be enforceable on these premises and would apply to all parties using the premises.
- The property could not be subdivided.
- The National Park Service could enter the property, with prior notification, to inspect for compliance with deed restrictions.
- Property would be used primarily for residential purposes, including cottage craft uses.
- Residential development would consist of one single-family residence with a footprint not to exceed 2,500 square feet (excluding basement).

- Residential uses may include gardening.
- Additional conditions covenants and restrictions would be determined on a case-by-case basis by the National Park Service.

A group of people is hiking on a forest trail. The scene is a dense forest with many trees and ferns. The image has a semi-transparent overlay, and the text is centered in the lower half. The text is in a bold, dark blue serif font.

**Appendix 10: 1995 Land
Protection Plan Ranking of
Private Lands**



North Cascades Institute Tracking Class.

APPENDIX 10: 1995 LAND PROTECTION PLAN RANKING OF PRIVATE LANDS

Tract	Name	Acres	Priority
01-100	Wall	23.3	High
01-101	Barnhart	7.21	High
01-102	McKellar	5.5	High
01-103	Lewman	30.8	High
02-102	Brewster Hgts	0.7	Medium
02-104	Blue Grade Par.	6.65	High
02-105	Pinnow	17.9	High
02-106	Kinman, et ux	0.3	Medium
02-107	Blue Grade Par.	2.49	High
02-108	Blue Grade Par.	2.35	High
02-109	Blue Grade Par.	6.28	High
03-100	Stifter	40.07	High
03-108	Stevens	0.11	Low
03-125	Clayson	1	High
03-131	Purple Cr.	0.16	Low
04-100	Hegge	1.73	High
04-101	Hegge	1.73	High
04-102	Flint	1.74	High
04-103	Thompson	5	High
04-104	Darvill	4.24	High
04-105	Williams	0.37	Low
04-106	Bell	4.24	High
04-108	Waddell	0.59	Low
04-110	Peterson	0.5	Low
04-112	Blomberg	4.09	High
04-114	Clark	10	High
04-116	Ste. R. Resort	10.28	High
04-117	Moriarity	0.14	Low
04-120	Blackburn	0.69	Low
04-124	McLean	0.58	Low
04-127	Bluhm	0.2	Low
04-128	Bridges	0.34	Low

Tract	Name	Acres	Priority
04-130	Pearl	0.36	Low
04-131	Parks	0.21	Low
04-136	Carleton	0.2	Low
04-137	Katz	0.18	Low
04-139	Glenn	0.71	Medium
04-143	Behie	0.33	Low
04-144	Pritt	0.28	Low
04-145	Freeman	0.22	Low
04-147	Hubbard	0.2	Low
04-148	Dinwiddie	0.62	Low
04-149	Harvey	0.24	Low
04-150	Dinwiddie	0.24	Low
04-153	The Cedar Company	0.2	Low
04-154	Buehler	0.53	Medium
04-155	Bohn	0.32	Medium
04-156	Williams	0.64	Medium
04-157	Stehekin Chapel	0.55	Medium
04-158	Higgins	0.48	Medium
04-162	Morehead	0.55	Medium
04-163	Hayes	0.71	Medium
04-164	Glenn	0.2	Medium
04-165	Loynes	0.52	Low
04-166	Blackburn	0.66	Low
04-172	Parks	0.72	Low
04-173	Blackburn	0.75	Low
04-177	Graham	0.48	Low
04-178	Calvin	0.48	Low
04-179	Gaukroger	1.1	High
04-181	Parks	0.03	Low
04-184	Mathews	0.48	Low
04-186	Harvey	0.21	Low
04-187	Holcomb	0.35	Low
04-188	Parks	3.65	High
04-189	Dinwiddie	0.22	Low

Tract	Name	Acres	Priority
04-190	Courtney	0.18	Low
04-191	Libby	0.38	Low
04-192	Karapostoles	0.38	Low
04-193	Parsons	1.24	Medium
04-194	Lesmeister	0.48	Low
04-195	Theubet	0.48	Low
04-196	Clayson	0.25	Low
04-197	Kelly	0.48	Low
04-198	Baker	0.48	Low
04-199	Robson	0.48	Low
05-102	Kelly	1.68	High
05-104	Gans	2	Medium
05-107	Sherer	27	High
05-108	Bowles	1.52	High
05-109	Spirk	0.76	Low
05-110	Malone	0.76	Low
05-111	Mathews	0.76	Low
05-112	Jacobson	0.76	Low
05-113	Weagant	0.76	Low
05-119	Hammett	0.7	Low
05-120	Scutt	0.76	Low
05-121	Courtney	5.46	High
05-124	Morehead	0.21	Low
05-125	Caffell	0.41	Low
05-126	Denning	0.85	Low
05-127	Torcaso	0.85	Low
05-128	Stewart	0.85	Low
05-130	Courtney	0.43	Low
05-133	Staley	0.85	Low
05-135	Beuhler	27.65	High
05-136	Saul	0.36	Medium
05-140	Hayes	2.13	High
05-141	Sargo	2.17	High
05-142	Gans	2.48	High
05-144	Morehead	0.21	Low
05-145	Hutson	0.65	Low
05-147	Morehead	0.42	Low
05-148	Stone	0.77	High

Tract	Name	Acres	Priority
05-150	Courtney	0.58	Low
05-157	Hammett	2.99	High
05-158	Breeze	3.03	High
05-159	Warner	1.21	High
05-160	Breeze	1.65	High
06-102	Fultz	4.06	High
06-106	McConnell	2.9	Medium
06-111	Boyd	0.21	Low
06-113	Miles	0.18	Low
06-114	Stevens	0.24	Low
06-116	Bardin	0.7	Low
06-119	Peterson	6.7	High
06-120	Gianulis	0.32	Low
07-100	McConnell	4.36	Medium
07-105	Blomberg	0.59	Low
07-107	Courtney	1.12	High
07-109	McKinley	0.71	Low
07-110	Webb	0.68	Low
07-112	Avery	0.66	Low
07-114	Wilsey	4	High
07-116	Neuzil	1.6	High
07-121	Williams	0.41	Low
07-122	Williams	2.32	High
07-124	Ralphs	1.18	High
07-125	Stegeman	2.07	High
07-127	Winkel	2.18	High
07-130	Linston	2	High
07-131	Bingham	0.97	Low
07-133	Winkel	6.89	High
07-138	Scutt	2	High
07-142	Scherer	9.95	High
07-145	Pitts	0.97	Low
07-147	Pitts	0.71	Low
07-149	Jenkins	0.61	Low
07-150	Barnhart	1.01	High
07-153	Fellows	0.9	Low
07-157	Leader	28.7	High
07-161	Quoidbach	0.63	Low

Tract	Name	Acres	Priority
07-166	Taylor	0.32	Low
07-168	Pitts	0.47	Low
07-172	Dickerson	1.24	High
07-176	Baker	2.48	High
07-177	Otto	0.64	Low
07-179	Nawalinski	0.9	Low
07-184	Quoidbach	0.8	Low
07-185	Byerly	0.97	Low
07-186	Mitchell	3.53	High
07-187	O'Neal	0.1	Low
07-188	Unknown	0.61	Low
07-189	Ralphs	0.58	Low
07-190	Morrison	0.53	Low
07-191	Garfoot	2.99	High
07-192	Robbins	1.42	High
07-193	Courtney	1.98	High
07-194	Courtney	2.02	High
07-195	Courtney	2.01	High
07-196	Courtney	2.01	High
07-197	Courtney	2.02	High
07-198	Courtney	2.02	High
07-199	Danielson	4.97	High
07-200	Bowles	1.74	Medium
07-201	Ramos	3	Medium
08-101	Courtney	20	High

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A person is captured mid-air, performing a backflip over a blue kayak on a lake. The person is shirtless and wearing dark shorts. The kayak is on a wooden dock. In the background, there are large, forested mountains under a blue sky with white clouds. The water in the foreground is rippled.

**Appendix 11: Alternatives 2 and
3 Proposed Ranking of Private
Lands for the Revised Land
Protection Plan (2010)**



Swimming in Lake Chelan (Bender).

APPENDIX 11: ALTERNATIVES 2 AND 3 PROPOSED RANKING OF PRIVATE LANDS FOR THE REVISED LAND PROTECTION PLAN (2010)

(Since the printing of the draft Environmental Impact Statement, changes in some parcel ownership have occurred. The most current owner known for each parcel is now shown in this table.)

Tract	Name	Acres	Priority
01-101	Barnhart, Michael J. et ux	8.38	High
01-102	McKellar, Richard V., et al	6.39	High
01-103	Lewman, Darrel, et al	30.72	High
02-102	C& M I, LLC	0.70	Low
02-104	Kaminski, Perry	6.65	High
02-105	Pinnow, Edward M., et al	17.90	High
02-106	Kinman, Marilyn M.	0.30	Medium
02-107	Kaminski, Perry	2.49	Medium
02-108	Britt, James M., et us	2.35	High
02-109	McMurry, John, et ux	6.28	Medium
03-100	Stifter, Patricia	12.95	Medium
03-108	Stevens, John T., et ux	0.11	Medium
03-125	Courtney, Thomas H., et ux, trustees	1.00	High
03-131	Purple Creek Corp.	0.16	Medium
04-100	Hegge, Gary L., et ux	1.73	Medium
04-101	Hegge, Gary L., Trustee	1.73	Medium
04-102	Bouslaugh, Tom A., et ux	1.74	Medium
04-104	Darvill, Virginia T., et al.	4.31	High
04-105	Ellis, James L., et ux	0.37	Medium
04-106	Bell, Lloyd	3.65	High
04-108	Bishop, James L., et ux	0.59	Medium
04-110	Petersen, Gregory H., et al	0.50	Medium
04-112	McGinness, Collin	4.09	High
04-114	Clark, James D.	1.69	Medium
04-115	Weavtel LLC	1.69	Medium
04-116	Morse Resort Inc.	11.67	High
04-117	Heimbigner, Christine	0.14	Medium
04-120	Blackburn, Ovidia L., et al	0.69	High
04-121	Clark, Judith	6.62	High
04-124	McLean, Mark A	0.58	High
04-127	Griffiths, William S., et al	0.20	Medium
04-128	Bridges, Jon	0.16	High

Tract	Name	Acres	Priority
04-130	Pearl, Warren L.	0.36	Medium
04-131	Parks, Terry V.	0.21	Low
04-136	Davis, Lewis V., et ux	0.20	Medium
04-137	StewFam LLC	0.18	Medium
04-139	Glenn, Nicholas A.	0.91	Medium
04-143	Sherman, Angela C.	0.33	Medium
04-144	Breeze, William E.	0.28	High
04-145	Freeman, Lillian A., et al	0.22	High
04-147	Hubbard, Duane L., et ux	0.20	High
04-148	Dinwiddie, Randall R.	0.70	High
04-149	Stehekin Joint Venture LLC	0.24	High
04-150	Dinwiddie, Randall R., et ux	0.24	High
04-153	Libbey, Caroline L.	0.20	Medium
04-154	Buehler, Walter E., et al, Trustees	0.53	High
04-155	Bohn, Willis C., et al, Trustees	0.32	High
04-156	Liberty, Janet L., et al	0.64	High
04-157	First United Methodist Church	0.55	High
04-158	Higgins, Ben C., et al	0.48	High
04-162	Morehead, Harriet O., Trustee	0.55	Medium
04-163	Hazell, Marjorie J.	0.71	Medium
04-165	Menefee, Jill D., et al	0.56	Medium
04-166	Blackburn, Ovidia L., et al	0.66	Medium
04-169	Parks, Terry	0.42	Medium
04-172	Parks, Terry	0.72	Medium
04-173	Blackburn, Ovidia L., et al	0.75	Medium
04-177	Kelly, Patrick J., et al	0.48	Medium
04-178	Goodwin, Richard H., Jr., et al	0.48	Medium
04-179	Gaukroger, James G.	0.55	Medium
04-180	Gaukroger, Robin R.	0.55	Medium
04-181	Parks, Terry	0.03	Medium
04-183	Griffith, Jimmy E., et al	0.18	High
04-184	Gordon, Carole B., Custodian	0.48	High
04-186	Skidz LLC	0.21	Medium
04-187	Davis, Lewis V., et ux	0.35	High
04-188	Parks, Terry	2.98	High
04-189	Noble, Daniel, et ux	0.22	High
04-190	Courtney, Cragg, et ux, Trustees	0.18	Medium
04-191	Libbey, Caroline	0.38	Medium

Tract	Name	Acres	Priority
04-192	Karapostoles, Caitlin, et al	1.00	Medium
04-193	Parsons, Jeffrey L., et ux	1.18	Medium
04-194	Courtney, Mistaya M. (CP)	0.48	Medium
04-195	Theubet, James H., Trustee	0.48	Medium
04-197	Kelly, William L., et ux, Trustees	0.48	Medium
04-198	Seemiller, Joseph	0.48	Medium
04-199	Griffith, Frederick L., et al	0.48	Medium
05-102	Kelly, William L., et ux, Trustees	1.68	Medium
05-104	Gans, William C., Jr., et al	2.00	Medium
05-107	Sherer, Wesley, M., et ux	4.05	High
05-109	Raymond, Charles F., et ux	1.52	Medium
05-111	Raymond, Charles F., et ux	0.76	Medium
05-112	Jacobson, Neal, et ux	0.76	Medium
05-113	Weagent, Rodney W., et al	0.76	High
05-119	Story, Michael J., et ux	0.70	Medium
05-120	Scutt, Ronald W., et ux, Trustees	0.76	High
05-121	Courtney, Cragg, et ux, Trustees	6.76	High
05-123	Sherer, Wesley, M., et ux	22.15	High
05-124	Morehead, Dwight T., et ux	0.21	Medium
05-125	Courtney, Reed	0.41	Medium
05-126	Denning, Michael	0.85	Low
05-127	Hudak, Renee Y., et al	0.85	Medium
05-128	Ward, Norma V.	0.85	Medium
05-130	Courtney, Thomas H., et ux, trustees	0.43	Medium
05-132	Courtney, Cragg, et ux, Trustees	7.15	Medium
05-133	Staley, James E., et al	0.85	High
05-135	Buehler, Thomas M., et al	27.65	Medium
05-136	Nielsen, Robert C., et ux	0.34	Medium
05-140	Carpenter, Adrienne, et al	2.13	Medium
05-141	Sargo, Herbert J., et al	2.17	High
05-142	Gans, William C., Jr., et al	2.48	High
05-144	Morehead, Harriet O., Trustee	0.21	Medium
05-145	Story, Michael J., et ux	0.65	Medium
05-147	Morehead, Kenneth, et ux	0.42	Medium
05-150	Courtney, Thomas H., et ux, trustees	0.58	Medium
05-157	Goodwin, Richard H., Jr., et al	2.99	Medium
05-158	Gaskill, Karl B.	3.03	Medium
05-159	Gaskill, Karl B.	1.21	Medium

Tract	Name	Acres	Priority
05-160	Gaskill, Karl B.	1.65	Medium
06-102	Fultz, Elizabeth R.	4.06	High
06-106	Ward, Vince, et ux	2.90	Medium
06-111	Peterson, Gail C.	0.21	Medium
06-113	Miles, Michael, R.	0.18	High
06-114	Stevens, John T., et ux	0.24	Medium
06-116	Valenti, Ron, et ux	0.70	High
06-119	Peterson, B. Jean	6.70	High
06-120	Stevens, John C., et al	0.32	Medium
07-100	McConnell, Carolyn A.	4.36	High
07-105	Blomberg, John	0.50	Medium
07-107	Courtney, James O., Trustee	1.12	High
07-109	Mundal, Anne S., et al	0.71	High
07-110	Walker, Allan E., III, et al, Trustees	0.68	High
07-114	Duke, Loretta	2.15	High
07-115	Thompson, Laura J., et al	2.15	Medium
07-116	Neuzil Living Trust	1.60	High
07-121	Robbins, Jeffrey C., et ux	0.41	Medium
07-122	Saulsbury, David, et ux	2.32	High
07-124	Lavendar, Teresa	1.18	Medium
07-125	Evans, Linda R., et al	2.48	High
07-127	Winkel, Avy, et ux	2.18	High
07-130	Burhen, William S., et ux	2.00	High
07-131	Bingham, John R., et ux	0.97	Medium
07-133	Winkel, Martin, et ux	6.19	High
07-134	Winkel, Alvy H., et ux	0.70	Medium
07-138	Scutt, Ronald W., et ux, Trustees	2.00	High
07-142	Scherer, Jonathan, et ux	9.95	High
07-145	Pitts, Edward D., et ux	0.97	Medium
07-147	Pitts, Edward D., et ux	0.71	Medium
07-149	Barnhart, Michael J.	0.61	Medium
07-150	Barnhart, Michael J.	1.01	Medium
07-153	Schmid, Walter D.	0.90	Medium
07-157	Leader, Thomas W., et al	28.70	High
07-166	Pitts, Donald, et ux	0.32	Medium
07-168	Pitts, Edward D., et ux	0.47	Medium
07-176	Leaf, Robert H., et al.	2.48	High
07-177	Thompson Family Trust	0.64	High

Tract	Name	Acres	Priority
07-179	Nawalinski, Thomas E., et ux	0.90	Medium
07-184	Woodward, Douglas L.	0.80	Medium
07-185	Lehman, Robert A., et ux, Trustees	0.97	High
07-186	Mitchell, Robert D., Jr., et al	3.53	Medium
07-187	Parlette, Linda O'Neal, et al	0.10	Medium
07-188	Unknown (Company Creek Road)	0.61	Medium
07-189	Kurth, David W., et ux	0.58	Medium
07-190	Morrison, Randy C.	0.53	Medium
07-191	Garfoot, Wendy	3.00	High
07-192	Robbins, Jeffrey C., et ux	1.40	High
07-193	Courtney, James O.	2.99	Low
07-195	Courtney, Thomas H., et ux, trustees	3.02	Medium
07-196	Courtney, Mark L.	2.01	Medium
07-197	Courtney, Clifford G.	2.02	Medium
07-198	Courtney, Clifford G.	2.02	Medium
07-199	Danielson Stehekin Cabin Mgt, LLC	4.97	High
07-200	Bowles, Stephen B., et ux, Trustees	1.74	High
07-201	Ramos, Myra	3.00	High
07-202	Blomberg, John	0.09	Medium
08-101	Ray and Esther Courtney Family, LLC, et al	20.00	High
08-105	Courtney, Clifford G.	5.60	Medium

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A white boat with an American flag on a lake with forested mountains in the background. The boat is docked at a wooden pier. The background shows a large, forested mountain range under a hazy sky.

**Appendix 12: Alternative 4
Proposed Ranking of Private
Lands (2010)**



The Lady Express arrives in Stehekin (Michael Silverman).

APPENDIX 12: ALTERNATIVE 4 PROPOSED RANKING OF PRIVATE LANDS (2010)

Following the release of the DEIS, park staff made corrections in the scoring for some criteria for several parcels, based on new information, which resulted in a change in the overall priority for several of the parcels. As a result, for Alternative 4 of the revised 2010 LPP, the number of Low priority parcels changed from 82 to 72, the number of Medium priority parcels changed from 72 to 81, and the number of High priority parcels changed from 14 to 15.

Since the printing of the DEIS, changes in some parcel ownerships have occurred. The most current owner known for each parcel is now shown in this table.

Tract	Name	Acres	Priority
01-101	Barnhart, Michael J. et ux	8.38	High
01-102	McKellar, Richard V., et al	6.39	High
01-103	Lewman, Darrel, et al	30.72	High
02-102	C& M I, LLC	0.70	Low
02-104	Kaminski, Perry	6.65	High
02-105	Pinnow, Edward M., et al	17.90	High
02-106	Kinman, Marilyn M.	0.30	Low
02-107	Kaminski, Perry	2.49	Medium
02-108	Britt, James M., et us	2.35	High
02-109	McMurry, John, et ux	6.28	Medium
03-100	Stifter, Patricia	12.95	Low
03-108	Stevens, John T., et ux	0.11	Low
03-125	Courtney, Thomas H., et ux, trustees	1.00	Low
03-131	Purple Creek Corp.	0.16	Low
04-100	Hegge, Gary L., et ux	1.73	Medium
04-101	Hegge, Gary L., Trustee	1.73	Medium
04-102	Bouslaugh, Tom A., et ux	1.74	Low
04-104	Darvill, Virginia t., et al	4.31	Medium
04-105	Ellis, James L., et ux	0.37	Low
04-106	Bell, Lloyd	3.65	Medium
04-108	Bishop, James L., et ux	0.59	Low
04-110	Petersen, Gregory H., et al	0.50	Low
04-112	McGinness, Collin	4.09	Medium
04-114	Clark, James D.	1.69	Medium
04-115	Weavtel LLC	1.69	Medium
04-116	Morse Resort Inc.	11.67	Medium
04-117	Heimbigner, Christine	0.14	Low
04-120	Blackburn, Ovidia L., et al	0.69	Medium

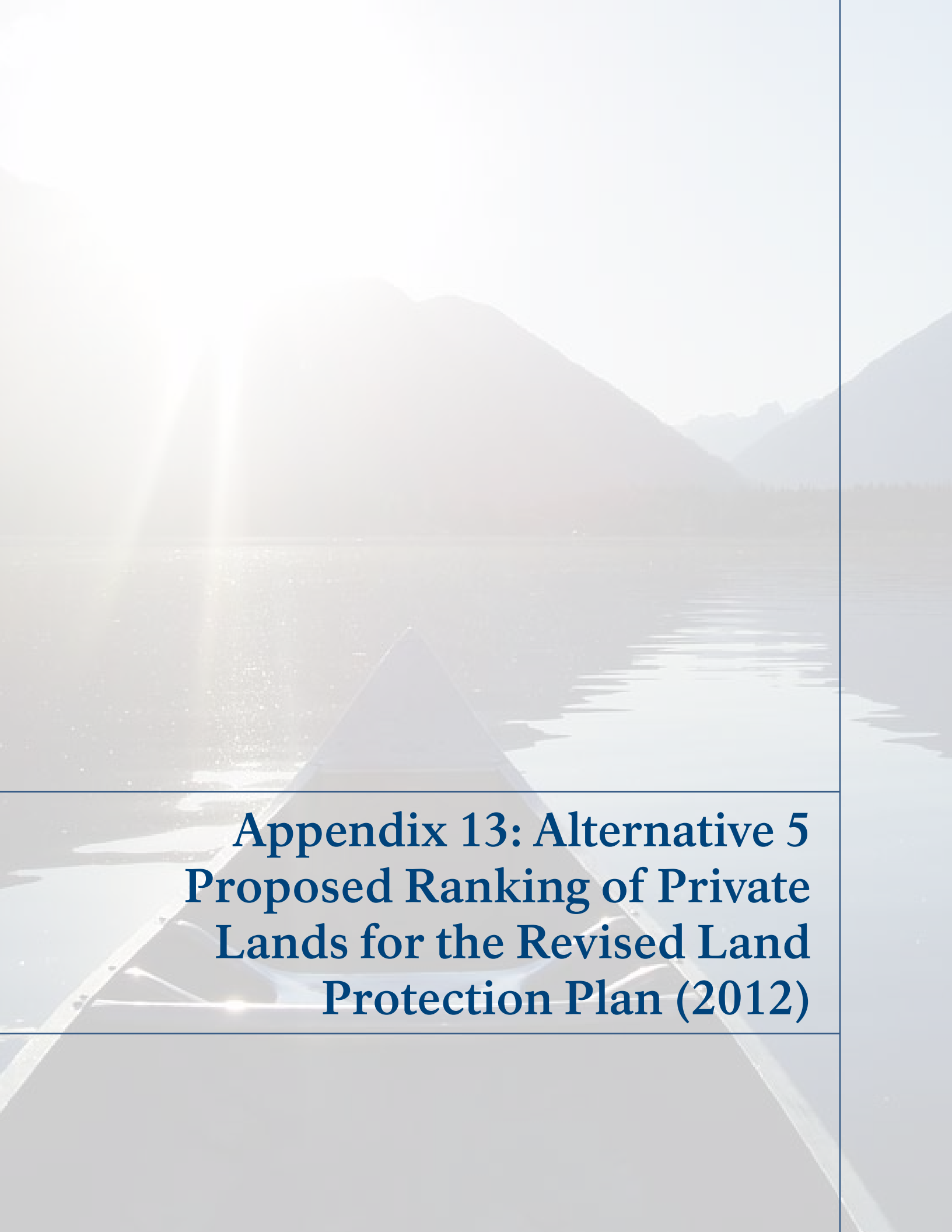
Tract	Name	Acres	Priority
04-121	Clark, Judith	6.62	High
04-124	McLean, Mark A	0.58	Medium
04-127	Griffiths, William S., et al	0.20	Low
04-128	Bridges, Jon	0.16	Medium
04-130	Pearl, Warren L.	0.36	Medium
04-131	Parks, Terry V.	0.21	Low
04-136	Davis, Lewis V., et ux	0.20	Low
04-137	StewFam LLC	0.18	Low
04-139	Glenn, Nicholas A.	0.91	Low
04-143	Sherman, Angela C.	0.33	Low
04-144	Breeze, William E.	0.28	Medium
04-145	Freeman, Lillian A., et al	0.22	Medium
04-147	Hubbard, Duane L., et ux	0.20	Medium
04-148	Dinwiddie, Randall R.	0.70	High
04-149	Stehekin Joint Venture LLC	0.24	Medium
04-150	Dinwiddie, Randall R., et ux	0.24	Medium
04-153	Libbey, Caroline L.	0.20	Low
04-154	Buehler, Walter E., et al, Trustees	0.53	Medium
04-155	Bohn, Willis C., et al, Trustees	0.32	Medium
04-156	Liberty, Janet L., et al	0.64	Medium
04-157	First United Methodist Church	0.55	Medium
04-158	Higgins, Ben C., et al	0.48	Medium
04-162	Morehead, Harriet O., Trustee	0.55	Low
04-163	Hazell, Marjorie J.	0.71	Low
04-165	Menefee, Jill D., et al	0.56	Medium
04-166	Blackburn, Ovidia L., et al	0.66	Low
04-169	Parks, Terry	0.42	Low
04-172	Parks, Terry	0.72	Low
04-173	Blackburn, Ovidia L., et al	0.75	Low
04-177	Kelly, Patrick J., et al	0.48	Low
04-178	Goodwin, Richard H., Jr., et al	0.48	Low
04-179	Gaukroger, James G.	0.55	Low
04-180	Gaukroger, Robin R.	0.55	Low
04-181	Parks, Terry	0.03	Low
04-183	Griffith, Jimmy E., et al	0.18	Low
04-184	Gordon, Carole B., Custodian	0.48	Medium
04-186	Skidz LLC	0.21	Medium
04-187	Davis, Lewis V., et ux	0.35	High

Tract	Name	Acres	Priority
04-188	Parks, Terry	2.98	High
04-189	Noble, Daniel, et ux	0.22	Medium
04-190	Courtney, Cragg, et ux, Trustees	0.18	Low
04-191	Libbey, Caroline	0.38	Low
04-192	Karapostoles, Caitlin, et al	1.00	Low
04-193	Parsons, Jeffrey L., et ux	1.18	Low
04-194	Courtney, Mistaya M. (CP)	0.48	Low
04-195	Theubet, James H., Trustee	0.48	Low
04-197	Kelly, William L., et ux, Trustees	0.48	Low
04-198	Seemiller, Joseph	0.48	Low
04-199	Griffith, Frederick L., et al	0.48	Low
05-102	Kelly, William L., et ux, Trustees	1.68	Medium
05-104	Gans, William C., Jr., et al	2.00	Medium
05-107	Sherer, Wesley, M., et ux	4.05	Medium
05-109	Raymond, Charles F., et ux	1.52	Medium
05-111	Raymond, Charles F., et ux	0.76	Low
05-112	Jacobson, Neal, et ux	0.76	Low
05-113	Weagent, Rodney W., et al	0.76	Medium
05-119	Story, Michael J., et ux	0.70	Low
05-120	Scutt, Ronald W., et ux, Trustees	0.76	Medium
05-121	Courtney, Cragg, et ux, Trustees	6.76	Medium
05-123	Sherer, Wesley, M., et ux	22.15	Medium
05-124	Morehead, Dwight T., et ux	0.21	Low
05-125	Courtney, Reed	0.41	Low
05-126	Denning, Michael	0.85	Low
05-127	Hudak, Renee Y., et al	0.85	Low
05-128	Ward , Norma V.	0.85	Medium
05-130	Courtney, Thomas H., et ux, trustees	0.43	Low
05-132	Courtney, Cragg, et ux, Trustees	7.15	Medium
05-133	Staley, James E., et al	0.85	Medium
05-135	Buehler, Thomas M., et al	27.65	Medium
05-136	Nielsen, Robert C., et ux	0.34	Low
05-140	Hayes, Adrienne, et al	2.13	Medium
05-141	Sargo, Herbert J., et al	2.17	Medium
05-142	Gans, William C., Jr., et al	2.48	Medium
05-144	Morehead, Lawrence E., et ux	0.21	Low
05-145	Story, Michael J., et ux	0.65	Low
05-147	Morehead, Harriet O., Trustee	0.42	Low

Tract	Name	Acres	Priority
05-150	Courtney, Thomas H., et ux, trustees	0.58	Low
05-157	Goodwin, Richard H., Jr., et al	2.99	Low
05-158	Gaskill, Karl B.	3.03	Low
05-159	Gaskill, Karl B.	1.21	Medium
05-160	Gaskill, Karl B.	1.65	Low
06-102	Fultz, Elizabeth R.	4.06	Medium
06-106	Ward, Vince, et ux	2.90	Medium
06-111	Peterson, Gail	0.21	Medium
06-113	Miles, Michael, R.	0.18	Medium
06-114	Stevens, John T., et ux	0.24	Low
06-116	Valenti, Ron, et ux	0.70	Medium
06-119	Peterson, B. Jean	6.70	Medium
06-120	Stevens, John C., et al.	0.32	Low
07-100	McConnell, Carolyn A.	4.36	Medium
07-105	Blomberg, John	0.50	Low
07-107	Courtney, James O., Trustee	1.12	Medium
07-109	Mundal, Anne S., et al	0.71	Medium
07-110	Walker, Allan E., III, et al, Trustees	0.68	Medium
07-114	Duke, Loretta	2.15	Low
07-115	Thompson, Laura J., et al	2.15	Medium
07-116	Neuzil Family Trust	1.60	Medium
07-121	Robbins, Jeffrey C., et ux	0.41	Low
07-122	Saulsbury, David, et ux	2.32	Medium
07-124	Lavender, Teresa	1.18	Low
07-125	Evans, Linda R., et al	2.48	Medium
07-127	Winkel, Alvy, et ux	2.18	Medium
07-130	Burhen, William S., et ux	2.00	Medium
07-131	Bingham, John R., et ux	0.97	Low
07-133	Winkel, Martin, et ux	6.19	High
07-134	Winkel, Alvy H., et ux	0.70	High
07-138	Scutt, Ronald W., et ux, Trustees	2.00	High
07-142	Scherer, Jonathan, et ux	9.95	High
07-145	Pitts, Edward D., et ux	0.97	Low
07-147	Pitts, Edward D., et ux	0.71	Low
07-149	Barnhart, Michael J.	0.61	Low
07-150	Barnhart, Michael J.	1.01	Low
07-153	Schmid, Walter D.	0.90	Low
07-157	Leader, Thomas W., et al	28.70	Medium

Tract	Name	Acres	Priority
07-166	Pitts, Donald, et ux	0.32	Low
07-168	Pitts, Edward D., et ux	0.47	Low
07-176	Leaf, Robert H., et al	2.48	Medium
07-177	Thompson Family Trust	0.64	Medium
07-179	Nawalinski, Thomas E., et ux	0.90	Low
07-184	Woodward, Douglas L.	0.80	Low
07-185	Lehman, Robert A., et ux, Trustees	0.97	Medium
07-186	Mitchell, Robert D., Jr., et al	3.53	Low
07-187	Parlette, Linda O'Neal, et al	0.10	Low
07-188	Unknown (Company Creek Road)	0.61	Low
07-189	Kurth, David W., et ux	0.58	Low
07-190	Morrison, Randy C.	0.53	Low
07-191	Garfoot, Wendy	3.00	Medium
07-192	Robbins, Jeffrey C., et ux	1.40	Medium
07-193	Courtney, James O.	2.99	Low
07-195	Courtney, Thomas H., et ux, trustees	3.02	Low
07-196	Courtney, Mark L.	2.01	Low
07-197	Courtney, Clifford G.	2.02	Low
07-198	Courtney, Clifford G.	2.02	Low
07-199	Danielson Stehekin Cabin Mgt, LLC	4.97	Medium
07-200	Bowles, Stephen B., et ux, Trustees	1.74	Medium
07-201	Ramos, Myra	3.00	Medium
07-202	Blomberg, John	0.09	Medium
08-101	Ray and Esther Courtney Family, LLC, et al	20.00	Medium
08-105	Courtney, Clifford G.	5.60	Medium

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A scenic landscape featuring a large body of water in the foreground, with mountains in the background. A bright sunburst effect is visible on the left side, casting light across the scene. The overall tone is soft and natural.

**Appendix 13: Alternative 5
Proposed Ranking of Private
Lands for the Revised Land
Protection Plan (2012)**



Canoeing on Lake Chelan.

APPENDIX 13: ALTERNATIVE 5 PROPOSED RANKING OF PRIVATE LANDS FOR THE REVISED LAND PROTECTION PLAN (2012)

Tract	Name	Acres	Priority
01-101	Barnhart, Michael J. et ux	8.38	Medium
01-102	McKellar, Richard V., et al	6.39	Low
01-103	Lewman, Darrel, et al	30.72	High
02-102	C& M I, LLC	0.70	Low
02-104	Kaminski, Perry	6.65	High
02-105	Pinnow, Edward M., et al	17.90	High
02-106	Kinman, Marilyn M.	0.30	Low
02-107	Kaminski, Perry	2.49	Low
02-108	Britt, James M., et us	2.35	Low
02-109	McMurry, John, et ux	6.28	Low
03-100	Stifter, Patricia	12.95	Medium
03-108	Stevens, John T., et ux	0.11	High
03-125	Courtney, Thomas H., et ux, trustees	1.00	Low
03-131	Purple Creek Corp.	0.16	High
04-100	Hegge, Gary L., et ux	1.73	Low
04-101	Hegge, Gary L., Trustee	1.73	Medium
04-102	Bouslaugh, Tom A., et ux	1.74	Low
04-104	Darvill, Virginia T., et al.	4.31	High
04-105	Ellis, James L., et ux	0.37	Medium
04-106	Bell, Lloyd	3.65	High
04-108	Bishop, James L., et ux	0.59	Medium
04-110	Petersen, Gregory H., et al	0.50	Medium
04-112	McGinness, Collin	4.09	High
04-114	Clark, James D.	1.69	Medium
04-115	Weavtel LLC	1.69	Low
04-116	Morse Resort Inc.	11.67	High
04-117	Heimbigner, Christine	0.14	Low
04-120	Blackburn, Ovidia L., et al	0.69	High
04-121	Clark, Judith	6.62	High
04-124	McLean, Mark A	0.58	Medium
04-127	Griffiths, William S., et al	0.20	Medium
04-128	Bridges, Jon	0.16	Medium
04-130	Pearl, Warren L.	0.36	Low
04-131	Parks, Terry V.	0.21	Low

Tract	Name	Acres	Priority
04-136	Davis, Lewis V., et ux	0.20	Medium
04-137	StewFam LLC	0.18	Medium
04-139	Glenn, Nicholas A.	0.91	Low
04-143	Sherman, Angela C.	0.33	Medium
04-144	Breeze, William E.	0.28	Medium
04-145	Freeman, Lillian A., et al	0.22	Medium
04-147	Hubbard, Duane L., et ux	0.20	Medium
04-148	Dinwiddie, Randall R.	0.70	Medium
04-149	Stehekin Joint Venture LLC	0.24	Medium
04-150	Dinwiddie, Randall R., et ux	0.24	Medium
04-153	Libbey, Caroline L.	0.20	Low
04-154	Buehler, Walter E., et al, Trustees	0.53	Medium
04-155	Bohn, Willis C., et al, Trustees	0.32	Medium
04-156	Liberty, Janet L., et al	0.64	Medium
04-157	First United Methodist Church	0.55	Low
04-158	Higgins, Ben C., et al	0.48	Medium
04-162	Morehead, Harriet O., Trustee	0.55	Low
04-163	Hazell, Marjorie J.	0.71	Low
04-165	Menefee, Jill D., et al	0.56	Medium
04-166	Blackburn, Ovidia L., et al	0.66	Low
04-169	Parks, Terry	0.42	Low
04-172	Parks, Terry	0.72	Low
04-173	Blackburn, Ovidia L., et al	0.75	Low
04-177	Kelly, Patrick J., et al	0.48	Medium
04-178	Goodwin, Richard H., Jr., et al	0.48	Low
04-179	Gaukroger, James G.	0.55	Low
04-180	Gaukroger, Robin R.	0.55	Low
04-181	Parks, Terry	0.03	Low
04-183	Griffith, Jimmy E., et al	0.18	Medium
04-184	Gordon, Carole B., Custodian	0.48	Medium
04-186	Skidz LLC	0.21	Low
04-187	Davis, Lewis V., et ux	0.35	Medium
04-188	Parks, Terry	2.98	Medium
04-189	Noble, Daniel, et ux	0.22	Medium
04-190	Courtney, Cragg, et ux, Trustees	0.18	Medium
04-191	Libbey, Caroline	0.38	Medium
04-192	Karapostoles, Caitlin, et al	1.00	Medium
04-193	Parsons, Jeffrey L., et ux	1.18	Medium

Tract	Name	Acres	Priority
04-194	Courtney, Mistaya M. (CP)	0.48	Low
04-195	Theubet, James H., Trustee	0.48	Medium
04-197	Kelly, William L., et ux, Trustees	0.48	Medium
04-198	Seemiller, Joseph	0.48	Low
04-199	Griffith, Frederick L., et al	0.48	Medium
05-102	Kelly, William L., et ux, Trustees	1.68	Low
05-104	Gans, William C., Jr., et al	2.00	Medium
05-107	Sherer, Wesley, M., et ux	4.05	Medium
05-109	Raymond, Charles F., et ux	1.52	Low
05-111	Raymond, Charles F., et ux	0.76	Low
05-112	Jacobson, Neal, et ux	0.76	Low
05-113	Weagent, Rodney W., et al	0.76	Low
05-119	Story, Michael J., et ux	0.70	Low
05-120	Scutt, Ronald W., et ux, Trustees	0.76	Low
05-121	Courtney, Cragg, et ux, Trustees	6.76	Medium
05-123	Sherer, Wesley, M., et ux	22.15	Medium
05-124	Morehead, Dwight T., et ux	0.21	Low
05-125	Courtney, Reed	0.41	Low
05-126	Denning, Michael	0.85	Low
05-127	Hudak, Renee Y., et al	0.85	Low
05-128	Ward, Norma V.	0.85	Medium
05-130	Courtney, Thomas H., et ux, trustees	0.43	Low
05-132	Courtney, Cragg, et ux, Trustees	7.15	Medium
05-133	Staley, James E., et al	0.85	Medium
05-135	Buehler, Thomas M., et al	27.65	High
05-136	Nielsen, Robert C., et ux	0.34	Medium
05-140	Carpenter, Adrienne, et al	2.13	Low
05-141	Sargo, Herbert J., et al	2.17	Medium
05-142	Gans, William C., Jr., et al	2.48	Medium
05-144	Morehead, Lawrence E., et ux	0.21	Low
05-145	Story, Michael J., et ux	0.65	Low
05-147	Morehead, Harriet O., Trustee	0.42	Medium
05-150	Courtney, Thomas H., et ux, trustees	0.58	Low
05-157	Goodwin, Richard H., Jr., et al	2.99	Low
05-158	Gaskill, Karl B.	3.03	Medium
05-159	Gaskill, Karl B.	1.21	Medium
05-160	Gaskill, Karl B.	1.65	High
06-102	Fultz, Elizabeth R.	4.06	Medium

Tract	Name	Acres	Priority
06-106	Ward, Vince, et ux	2.90	Low
06-111	Peterson, Gail	0.21	Low
06-113	Miles, Michael, R.	0.18	Medium
06-114	Stevens, John T., et ux	0.24	Low
06-116	Valenti, Ron, et ux	0.70	Medium
06-119	Peterson, B. Jean	6.70	Medium
06-120	Stevens, John C., et al	0.32	Low
07-100	McConnell, Carolyn A.	4.36	Medium
07-105	Blomberg, John	0.50	Low
07-107	Courtney, James O., Trustee	1.12	Low
07-109	Mundal, Anne S., et al	0.71	High
07-110	Walker, Allan E., III, et al, Trustees	0.68	High
07-114	Duke, Loretta	2.15	Low
07-115	Thompson, Laura J., et al	2.15	Low
07-116	Neuzil Living Trust	1.60	High
07-121	Robbins, Jeffrey C., et ux	0.41	Low
07-122	Saulsbury, David, et ux	2.32	Low
07-124	Lavender, Teresa	1.18	Medium
07-125	Evans, Linda R., et al	2.48	Medium
07-127	Winkel, Alvy, et ux	2.18	Medium
07-130	Burhen, William S., et ux	2.00	Medium
07-131	Bingham, John R., et ux	0.97	Medium
07-133	Winkel, Martin, et ux	6.19	Medium
07-134	Winkel, Alvy H., et ux	0.70	Medium
07-138	Scutt, Ronald W., et ux, Trustees	2.00	Medium
07-142	Scherer, Jonathan, et ux	9.95	Medium
07-145	Pitts, Edward D., et ux	0.97	Medium
07-147	Pitts, Edward D., et ux	0.71	Medium
07-149	Barnhart, Michael J.	0.61	High
07-150	Barnhart, Michael J.	1.01	High
07-153	Schmid, Walter D.	0.90	High
07-157	Leader, Thomas W., et al	28.70	High
07-166	Pitts, Donald, et ux	0.32	Low
07-168	Pitts, Edward D., et ux	0.47	Medium
07-176	Leaf, Robert H., et al	2.48	High
07-177	Thompson Family Trust	0.64	High
07-179	Nawalinski, Thomas E., et ux	0.90	High
07-184	Woodward, Douglas L.	0.80	High

Tract	Name	Acres	Priority
07-185	Lehman, Robert A., et ux, Trustees	0.97	High
07-186	Mitchell, Robert D., Jr., et al	3.53	Medium
07-187	Parlette, Linda O'Neal, et al	0.10	Low
07-188	Unknown (Company Creek Road)	0.61	Low
07-189	Kurth, David W., et ux	0.58	Medium
07-190	Morrison, Randy C.	0.53	Medium
07-191	Garfoot, Wendy	3.00	Medium
07-192	Robbins, Jeffrey C., et ux	1.40	Low
07-193	Courtney, James O.	2.99	Low
07-195	Courtney, Thomas H., et ux, trustees	3.02	Low
07-196	Courtney, Mark L.	2.01	Low
07-197	Courtney, Clifford G.	2.02	High
07-198	Courtney, Clifford G.	2.02	High
07-199	Danielson Stehekin Cabin Mgt, LLC	4.97	High
07-200	Bowles, Stephen B., et ux, Trustees	1.74	High
07-201	Ramos, Myra	3.00	High
07-202	Blomberg, John	0.09	Low
07-204	Robinson, Aaron D.	0.4	Medium
08-101	Ray and Esther Courtney Family, LLC, et al	20.00	High
08-105	Courtney, Clifford G.	5.60	Low

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Appendix 14: Revised 2010 Land Protection Plan



Hiking back to Stehekin across the North Cascades (Bender).

APPENDIX 14: REVISED 2010 LAND PROTECTION PLAN (DETACHED)

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**Appendix 15: Laws, Regulations,
and Policies Whitepaper**



The Stehekin River.

APPENDIX 15: LAWS, REGULATIONS, AND POLICIES WHITEPAPER

Select Laws, Regulations and Policies Concerning Flood Control and Erosion Prevention in the Lower Stehekin Valley, Lake Chelan National Recreation Area

Introduction

The Lower Stehekin Valley is located at the head of Lake Chelan in Chelan County Washington. Land ownership in the Lower Stehekin Valley includes a patchwork of public land managed by the National Park Service (NPS) as part of Lake Chelan National Recreation Area, and approximately 460 acres of private lands referred to as the Community of Stehekin. The Stehekin Community is an unincorporated settlement of year-round and summer homes and scattered tourism-related businesses. The Stehekin Community was founded in the late 1800's, and some of the residents who live there today are descendents of the original homesteaders to the area.

One common thread that binds the valley is the Stehekin River, a beautiful, free-flowing river that drains into upper Lake Chelan. The Stehekin River has meandered throughout the Lower Stehekin Valley over time immemorial, routinely changing its course in response to the dynamic conditions of the surrounding landscape it flows through. Those who first homesteaded in the area often settled in the floodplain because it was only flat, relatively fertile ground. This pattern of development continued for many years because there were relatively few notable floods and there was a general lack of regulatory oversight in the area.

In the early to middle 20th century the river channel was modified using available technology in order to mine gravel, remove logjams and to attempt to reduce the impacts of flooding and erosion on private property and government facilities. These efforts continued through the early years following designation of the area as a unit of the National Park Service. Since then, federal and state laws, regulations and policies have changed—generally moving away from permitting river manipulation toward encouraging greater protection of natural resources and recognizing the long-term fiscal impacts of ongoing manipulation. Since the creation of Lake Chelan NRA other significant legislation has been enacted by Congress and Washington State, further contributing to the complex body of federal, state and local laws, regulations and policies affecting Lake Chelan National Recreation Area and the private lands within the unit.

In the last 15 years, the Stehekin Valley has experienced a sustained increase in the magnitude and frequency of flooding. Houses have been damaged and destroyed, and areas that never flooded or eroded in the past are now threatened—even during relatively modest flows such as those that accompany spring snowmelt. These conditions present a considerable challenge to landowners and residents who live in the floodplain and are seeking solutions to protect their property. These circumstances also present a considerable challenge to the National Park Service, which must protect and manage an infrastructure of roads and facilities that are impacted by this dynamic river.

Any flood protection and erosion control work in or near water involves a complicated regulatory framework. The National Park Service, in consultation with various the various regulatory agencies, has compiled this whitepaper in an effort to inform all stakeholders about the laws, reg-

ulations and policies that may directly or indirectly affect actions along the river. This whitepaper is by no means a treatise on all relevant laws and policies. Rather, it is a starting point for fostering a collective discussion, understanding and awareness of the regulatory constraints governing flood protection and erosion control.

Enabling Legislation for Lake Chelan National Recreation Area

The Enabling Legislation for Lake Chelan National Recreation Area states:

In order to provide for the public outdoor recreation use and enjoyment of portions of the Stehekin River and Lake Chelan, together with surrounding lands, and for the conservation of the scenic, scientific, historic, and other values contributing to public enjoyment of such lands and waters. . . (Sec. 202, Public Law 90-544, October 2, 1968).

Relevance to Lake Chelan and Stehekin River

The enabling legislation for Lake Chelan NRA does not speak specifically to issues regarding flooding on the Stehekin River. Rather, it designates the National Park Service as the federal land management agency with administrative jurisdiction over the federal lands within the area, and it directs the NPS to. . . “utilize such statutory authorities pertaining to the administration of the national park system, and such statutory authorities otherwise available to him for the conservation and management of natural resources as he deems appropriate for recreation and preservation purposes and for resource development compatible therewith.” (Title IV, Administrative Provisions).

Title III, Section 301 of the Enabling Legislation authorizes the NPS to acquire lands by donation, purchase, or exchange as follows:

Within the boundaries of the park and recreation areas, the Secretary of the Interior. . . may acquire lands, waters, and interests therein by donation, purchase with donated or appropriated funds, or exchange, except that he may not acquire any such interests within the recreation areas without the consent of the owner, so long as the lands are devoted to uses compatible with the purposes of this Act.

The NPS has used this authority, in part, to acquire private lands adjacent to the Stehekin River in order to protect the river and its floodplain.

Section 301 of the Enabling Legislation also protects the rights of the private landowner by prohibiting the NPS from acquiring land “so long as the lands are devoted to uses compatible with the purposes of the enabling Act.” There is no statutory definition of a “compatible use” in the Enabling Legislation. Instead, the issue of compatibility is specifically addressed in the Land Protection Plan Elements of the 1995 General Management Plan for Lake Chelan NRA. These elements outline the criteria the NPS would consider to ensure private land uses are compatible with the purposes for which Lake Chelan NRA was established. The criteria are not intended to duplicate county zoning standards or other applicable land use practices that are the proper purview of Chelan County. Rather, the criteria are intended to guide park management and private landowners in determining which land use proposals and practices are incompatible with the purposes of Lake Chelan NRA. If incompatible uses are identified, they could subject the

property to potential acquisition via the use of federal eminent domain powers—but only when all other prudent and reasonable attempts to remove or mitigate the incompatibility have failed.

The NPS has never exercised eminent domain powers in Stehekin. However, the NPS does have the authority to do so if, for example, adverse flood protection and/or erosion control measures on private land substantially threaten the resources and values of Lake Chelan NRA, including the Stehekin River. Again, the NPS would only exercise such authority if all other prudent and reasonable attempts to remove or mitigate the incompatible use have failed.

National Park Service Organic Act of 1916

This law (and subsequent amendments) created the National Park Service and authorized it to manage lands under its jurisdiction as follows:

[The National Park Service] shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified. . . by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

Since 1916, Congress has established hundreds of areas of land and water as units of the National Park System. Today the system includes National Parks, National Monuments, National Seashores, National Lakeshores, National Historic Parks, Parkways, and National Recreation Areas, and National Recreation Areas, including Lake Chelan National Recreation Area.

Congress amended this Act on March 27, 1978 (the act expanding Redwoods National Park) with the addition:

The authorization of activities shall be construed in light of the high public value and integrity of the National Park System and shall not be exercised in degradation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress. (16 USC 1a-1)

The NPS Organic Act, as amended in 1978 (10 year after creation of Lake Chelan NRA) is significant to Lake Chelan NRA because Congress made it clear that all units of the system, including Lake Chelan NRA, are equally protected by law without regard to the various titles (e.g., National Park versus National Recreation Area). It further emphasized that while each unit of the System is to be managed according to its specific enabling legislation, each unit is also subject to the purposes and mandates established by the Organic Act to the extent that those mandates do not conflict with the provisions of the units enabling legislation.

Relevance to Lake Chelan and Stehekin River

The NPS Organic Act and subsequent laws related to the Nation Park System further clarify that the NPS does not have the discretion to authorize activities that are incompatible with, or would otherwise impair, the recreational, scenic, scientific, historic, and other values of Lake Chelan NRA, including Lake Chelan and the Stehekin River.

Appropriations Bill for the Department of Interior, H.R. 1977, Title I, Section 117

Congress, in response to the identified need in the Lake Chelan GMP/EIS for legislation to authorize the NPS to maintain the Company Creek Road, provided the following authorization:

Notwithstanding Public Law 90-544, as amended, the National Park Service is authorized to expend appropriated funds for maintenance and repair of the Company Creek Road in the Lake Chelan National Recreation Area: Provided that appropriated funds shall not be expended for the purpose of improving the property of private individuals unless specifically authorized by law.

Relevance to Lake Chelan and Stehekin River

This law authorizes, but does not mandate, the NPS to maintain the Company Creek and repair it in the event of flood damage. The law specifically prohibits the NPS from spending money to “improve” private property; this includes spending NPS funds to protect private property from impacts caused by flooding.

The current General Management Plan for Lake Chelan NRA provides the following criteria for determining whether or not the NPS would take action to protect public roads from flooding:

1. There are no feasible alternatives;
2. Funds are available;
3. The actions will have less impacts than other alternatives;
4. The actions are permitted by county, state, and other federal agencies.

To date the NPS has successfully worked within these criteria to repair and maintain roads in the Lower Stehekin Valley, including the Upper Company Creek Road. But given the consistent increase in flood frequency and intensity experienced in the past decade, foreseeable circumstances could arise (e.g., lack of funds or severe flood damage) in which these criteria could no longer be met and the NPS would be forced to abandon maintaining the Upper Company Creek Road.

National Park Service Management Policies 2006

Management of Lake Chelan National Recreation area must be guided by the Constitution, public laws, proclamations, Executive Orders, regulations and directives of the Secretary of the Interior. This collective legal and regulatory framework has various ambiguities and details not addressed by Congress, the President and/or the Secretary of the Interior. Therefore, like other federal state and local agencies the NPS develops policy to interpret ambiguities and provide an objective, consistent framework for all management decisions. The NPS Management Policies are periodically updated, and NPS *Management Policies 2006* is the latest version. Completed after extensive public and agency review and comment, this document applies to all units in the national park system, including Lake Chelan National Recreation Area. The following service wide policies regarding §4.6 Water Resources Management, apply to potential erosion and flood control measures in Lake Chelan NRA:

Water Quality, §4.6.3

The pollution of surface waters and groundwaters by both point and nonpoint sources can impair the natural functioning of aquatic and terrestrial ecosystems and diminish the utility of park waters for visitor use and enjoyment. The Service will determine the quality of park surface and groundwater resources and avoid, whenever possible, the pollution of park waters by human activities occurring within and outside the parks. The Service will:

- work with appropriate governmental bodies to obtain the highest possible standards available under the Clean Water Act for the protection for park waters;
- take all necessary actions to maintain or restore the quality of surface waters and groundwaters within the parks, consistent with the Clean Water Act and all other applicable federal, state, and local laws and regulations; and
- enter into agreements with other agencies and governing bodies, as appropriate, to secure their cooperation in maintaining or restoring the quality of park water resources.

Floodplains, §4.6.4

In managing floodplains on park lands, the National Park Service will (1) manage for the preservation of floodplain values; (2) minimize potentially hazardous conditions associated with flooding; and (3) comply with the NPS Organic Act and all other federal laws and executive orders related to the management of activities in flood-prone areas, including Executive Order 11988 (Floodplain Management), the National Environmental Policy Act, applicable provisions of the Clean Water Act, and the Rivers and Harbors Appropriation Act of 1899. Specifically, the Service will:

- protect, preserve, and restore the natural resources and functions of floodplains;
- avoid the long- and short-term environmental effects associated with the occupancy and modification of floodplains; and
- avoid direct and indirect support of floodplain development and actions that could adversely affect the natural resources and functions of floodplains or increase flood risks.

When it is not practicable to locate or relocate development or inappropriate human activities to a site outside and not affecting the floodplain, the Service will:

- prepare and approve a statement of findings, in accordance with procedures described in Director's Order 77-2 (Floodplain Management);
- use nonstructural measures as much as practicable to reduce hazards to human life and property while minimizing the impact to the natural resources of floodplains; and
- ensure that structures and facilities are designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60).

Wetlands, §4.6.5

The Service will manage wetlands in compliance with NPS mandates and the requirements of Executive Order 11990 (Protection of Wetlands), the Clean Water Act, the Rivers and Harbors Appropriation Act of 1899, and the procedures described in Director's Order 77-1 (Wetland Pro-

tection). The Service will (1) provide leadership and take action to prevent the destruction, loss, or degradation of wetlands; (2) preserve and enhance the natural and beneficial values of wetlands; and (3) avoid direct and indirect support of new construction in wetlands unless there are no practicable alternatives and the proposed action includes all practicable measures to minimize harm to wetlands. The Service will implement a “no net loss of wetlands” policy. In addition, the Service will strive to achieve a longer term goal of net gain of wetlands across the national park system through restoration of previously degraded or destroyed wetlands.

When natural wetland characteristics or functions have been degraded or lost due to previous or ongoing human actions, the Service will, to the extent practicable, restore them to predisturbance conditions. The Service will conduct or obtain parkwide wetland inventories to help ensure proper planning with respect to the management and protection of wetland resources. Additional, more detailed wetland inventories will be conducted in areas that are proposed for development or are otherwise susceptible to degradation or loss due to human activities.

In managing floodplains on park lands, the National Park Service will (1) manage for the preservation of floodplain values; (2) minimize potentially hazardous conditions associated with flooding; and (3) comply with the NPS Organic Act and all other federal laws related to the management of activities in flood-prone areas. Specifically, the Service will:

- protect, preserve, and restore the natural resources and functions of floodplains;
- avoid the long- and short-term environmental effects associated with the occupancy and modification of floodplains; and
- avoid direct and indirect support of floodplain development and actions that could adversely affect the natural resources and functions of floodplains or increase flood risks.

When it is not practicable to locate or relocate development or inappropriate human activities in a site outside and not affecting the floodplain, the Service will:

- prepare and approve a statement of findings. . . ;
- use nonstructural measures as much as practicable to reduce hazards to human life and property while minimizing the impact to the natural resources of floodplains; and
- ensure that structures and facilities are designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60).

When practicable, the Service will not simply protect but will seek to enhance natural wetland values by using them for educational, recreational, scientific, and similar purposes that do not disrupt natural wetland functions. For proposed new development or other new activities, plans, or programs that are either located in or otherwise could have adverse impacts on wetlands, the Service will employ the following sequence:

- Avoid adverse wetland impacts to the extent practicable.
- Minimize impacts that cannot be avoided.
- Compensate for remaining unavoidable adverse wetland impacts by restoring wetlands that have been previously destroyed or degraded.

Compensation for wetland impacts or losses will require that at least one acre of wetlands be restored for each acre destroyed or degraded.

Actions proposed by the Park Service that have the potential to cause adverse impacts on wetlands must be addressed in an environmental assessment or an environmental impact statement. If the preferred alternative will result in adverse impacts on wetlands, a statement of findings must be prepared and approved in accordance with Director's Order #77-1: Wetland Protection.

Watershed and Stream Processes, §4.6.6

The Service will manage watersheds as complete hydrologic systems and minimize human-caused disturbance to the natural upland processes that deliver water, sediment, and woody debris to streams. These processes include runoff, erosion and disturbance to vegetation and soil caused by fire, insects, meteorological events, and mass movements.

The Service will manage streams to protect stream processes that create habitat features such as floodplains, riparian systems, woody debris accumulations, terraces, gravel bars, riffles, and pools. Stream processes include flooding, stream migration, and associated erosion and deposition.

The Service will protect watershed and stream features primarily by avoiding impacts on watershed and riparian vegetation and by allowing natural fluvial processes to proceed unimpeded. When conflicts between infrastructure (such as bridges and pipeline crossings) and stream processes are unavoidable, NPS managers will first consider relocating or redesigning facilities rather than manipulating streams. Where stream manipulation is unavoidable, managers will use techniques that are visually nonobtrusive and that protect natural processes to the greatest extent practicable.

General Management Plan, Lake Chelan National Recreation Area (NPS 1995)

The 1995 General Management Plan for Lake Chelan National Recreation Area (NPS, 1995) provides the most site-specific policy guidance to the NPS for administration of Lake Chelan NRA. The General Management Plan (GMP) provides guidance on managing visitor use, natural and cultural resources, development and operation of Lake Chelan NRA according to the previously cited enabling legislation for Lake Chelan NRA, the Organic Act, and other laws and regulations affecting management of the NRA. The following sections of the 1995 GMP and its associated Implementation Plans provide the policy guidance relevant to flood and erosion control measures (page numbers provided for reference):

- The Park Service would not manipulate the Stehekin River to protect federal property except roads and bridges according to the following criteria. Existing public roads would be protected in erosion/river conflict zones only if (1) there are no feasible alternatives, (2) funds are available, (3) proposed actions would have lesser impacts than other alternatives, and (4) the proposed actions are permitted by the county, state, and other federal agencies. No new road construction would be proposed in active river/erosion conflict zones (p. 20).
- The Park Service would not manipulate the river to protect private property. No actions would be taken to prevent private owners from manipulating the river on their land to protect private property unless such actions would significantly harm recreation area resources or were in violation of local, state, or federal ordinances, regulations or laws (p.20).

- The National Park Service would manipulate woody debris in the Stehekin River or its tributaries only to protect public roads and bridges. . . Woody debris would not be removed from the river system in any case. The Park Service would not remove or manipulate woody debris on public land or water to protect private property (p. 23)
- The Company Creek Road would be maintained in its current alignment and condition. Three erosion control systems along the upper Company Creek road would be removed and replaced. The structures would be designed to keep the road from eroding during frequently recurring flood events (i.e., 10- to 25-year recurrence interval), and they would be made from rock, soil, and native vegetation (p.34).
- *Sand, Rock, and Gravel Plan:* Sand, rock, and gravel will be conserved and recycled whenever possible. . . To ensure conservation of sand, rock, and gravel, the National Park Service proposes to limit the use of in-park material to 1,400 cubic yards per year: 1,200 cubic yards for NPS use and 200 cubic yards per year for private use over a proposed 10-year excavation cycle. . . In the event of a large flood, the remaining 10-year stockpile could be used in one year. . . The superintendent will have the option to exceed the established limit in the event of an emergency such as a major flood (pp.3, 10, 11).
- **Transportation Plan:** Erosion control systems along the Upper Company Creek Road will be removed and replaced, designed to keep the road from eroding during frequently recurring flood events (i.e., 10- to 25-year recurrence interval), and will be made from rock, soil, and native vegetation. . . public roads will be protected in active river erosion zones only if (1) there are no feasible alternatives; (2) funds are available; (3) the actions will have less impacts than other alternatives; and (4) the actions are permitted by county, state, and other federal agencies (p.9).
- **Stehekin Landing and Valley Development Concept Plan:** The natural character of the lake and river edge on public lands (which includes areas within 200 feet of the lake and river shoreline) will be restored (p.1).

Clean Water Act, as Amended

The “Clean Water Act” refers to several pieces of legislation including the Water Pollution Control Act Amendments of 1972 (Public Law 92-500), the Clean Water Act Amendments of 1977, and the Water Quality Act (Clean Water Act) of 1987. The goal of the Clean Water Act is to make Nation’s waters fishable, swimmable and drinkable by restoring and maintaining the chemical, physical and biological integrity of the waters of the United States. The Clean Water Act is far reaching. This discussion focuses specifically on Sections 404 and 401 of the Clean Water Act, since those sections would partially govern actions on the Stehekin River, its tributaries or adjacent wetlands.

Section 404 of the Clean Water Act

Section 404 of the Clean Water Act authorizes the Secretary of the Army, acting through the Army Corps of Engineers, to issue permits for the discharge of dredged or fill materials into waters of the U.S. The Corps must base its permit decisions on guidelines developed by the Environmental Protection Agency in conjunction with the Corps. EPA has the authority to veto any permit granted by the corps. The Corps issues either General (or “Nationwide”) Permits or Individual permits, depending upon the nature of the proposed work. Nationwide permits are issued for smaller projects involving less potential for impact to waters of the United States than individual permits.

Section 401 Water Quality Certification

Authority for administration of Section 401 in Washington State is delegated to the Department of Ecology. A water quality certification is required for any activities that (a) might result in a discharge of dredge or fill material into water or non-isolated wetlands; or (b) involve excavation in water or non-isolated wetlands and require a federal permit or license. The 401 Certification can cover both the construction and operation of the proposed project. Issuance of a 401 Certificate means that the Department of Ecology anticipates that the applicant's project will comply with state water quality standards and other aquatic resource protection requirements under Ecology's authority. Conditions of the 401 Certification become conditions of the permit issued by the Corps.

The Department of Ecology has already reviewed and approved, denied or partially denied the various Nationwide permits issued by the Corps. If a specific nationwide permit has already been approved, no further 401 Certification review by Ecology is required. If a nationwide permit has been partially denied, then an individual certification or Letter of Verification from Ecology may be required. If a nationwide permit has been denied, then an individual certification is required for all activities under that nationwide permit.

Relevance to Stehekin River and Lake Chelan

Lake Chelan, the Stehekin River and its tributaries, and adjacent wetlands are all waters of the United States and thus regulated in part under Section 404 of the Clean Water Act. Proposals for flood protection and/or erosion control that may affect these waters must obtain a 404 permit and/or 401 water quality certification before proceeding. In Washington State, a Joint Aquatic Resources Permit Application (JARPA) initiates the Corps' review under Section 404, and Ecology's review for shoreline, floodplain and 401 certification requirements. Both the Corps and Ecology can place conditions on permit applications as they relate to these programs.

Contacts

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Internet Links

More information on Nationwide permits can be obtained online at: http://www.usace.army.mil/cw/cecwo/reg/nationwide_permits.htm

Wild and Scenic Rivers Act

The National Wild and Scenic Rivers Act of 1968 established a national policy that certain selected rivers of the nation and their immediate environments shall be preserved and protected for the benefit and enjoyment of present and future generations. The Act specifically preserves designated rivers (or river segments) and their adjacent environments if they are free-flowing and “. . .possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. . .” Rivers, or sections of rivers designated under the Act must be preserved in their “free-flowing condition” and cannot be dammed or otherwise modified in such a manner that would adversely affect the “outstandingly remarkable values” which contribute to designation.

The Act provides three levels of designation for rivers or river sections: wild rivers, scenic rivers and/or recreational rivers. Wild river areas are considered the most primitive and pristine; they must be unpolluted, free of impoundments and generally inaccessible (except by trail), with undeveloped watersheds and shorelines. Scenic rivers must also be free of impoundments and have largely primitive shorelines, but can be accessible in places by roads. Recreational rivers or sections of rivers can be readily accessible by road, may have some shoreline development, and may have undergone some impoundment or diversion in the past.

Rivers can be added to the national Wild and Scenic Rivers System in one of two ways.

The traditional way is for Congress to pass Wild and Scenic legislation that is signed into law by the President (similar to wilderness). The other way is for the Governor of a state to petition the Secretary of the Interior to add a river to the system.

Wild and Scenic designation does not affect a private landowners’ ability to develop privately owned lands within the river corridor. On federally owned land, however, future development along a designated wild, scenic or recreational river is allowed as long as it is consistent with the river’s classification, and does not harm the values which contributed to designation.

Relevance to Stehekin River and Lake Chelan

The Stehekin River and its tributaries have never been designated as part of the Wild and Scenic Rivers System. In addition, neither the Stehekin River nor any of its tributaries are part of the Washington state Scenic Rivers System. Therefore, currently the only way the river could be included in the system is via affirmative congressional action, and no action is believed pending or contemplated by Congress as of this writing.

As an internal matter the NPS in 2002 evaluated the Stehekin River and its tributaries for its eligibility for inclusion in the National Wild and Scenic Rivers System, and determined the entire watershed of the Stehekin River is eligible for designation (Finlayson, 2002). The eligibility analysis was prompted by management guidance in the 1995 General Management Plan for Lake Chelan

NRA, and the miscellaneous provisions of a 1991 Consent Decree¹ between the Secretary of the Interior and the North Cascades Conservation Council. A brief summary of the eligibility report follows, along with its implications for river-related management actions on the part of the NPS.

The eligibility analysis used two criteria to evaluate the river's eligibility in accordance with the Act: (1) the "Free-flowing" condition of the river; and (2) the river's "Outstandingly Remarkable Values" including fish, wildlife, vegetation, prehistoric and historic resources, geology, scenery and recreation. The "Free-flowing" criterion was evaluated by dividing the river into three segments in light of differences in human activity and development along its shoreline. Segment 1 extends from the mouth of the Stehekin River to High Bridge (the segment within Lake Chelan NRA); segment 2 extends from High bridge to Cottonwood Camp; and segment 3 from Cottonwood Campground to the headwaters. To evaluate the "outstandingly remarkable values" criterion, all three segments were considered collectively.

All three segments of the Stehekin River were determined to be eligible for inclusion in the Wild and Scenic Rivers System due to its generally free-flowing condition and outstandingly remarkable values, including wildlife, fish, prehistoric, historic, geologic, scenic and recreational resources. The river's vegetation, however, was found to be exceptional but not sufficiently unusual to contribute to eligibility. Segment 1 was classified as "Recreational" due to higher levels of development and road/bridge accessibility. Segment 2 was classified as "Scenic" in light of very limited road accessibility and shoreline development. Segment 3 was classified as "Wild" because except for a few trails it is completely undeveloped.

The Stehekin River Eligibility Report places the Stehekin River in the category of an "Agency Identified, 5(d)(1) Study River". This administrative determination carries no direct legal authority, but does lay the foundation for future designation of the river should the U.S. Congress choose to do so. The eligibility finding does, however, influence NPS management actions that could potentially affect the river's "Free-flowing" characteristics or the various "Outstandingly Remarkable Values" that contribute to its eligibility. In accordance with guidance from the Interagency Wild and Scenic Rivers Coordinating Council, and Section 4.3.4 of NPS *Management Policies 2006*, the NPS must avoid taking management actions that would adversely affect the "Free-flowing Condition" and "Outstandingly Remarkable Values" that qualify the river for inclusion in the National Wild and Scenic Rivers System.

Rivers and Harbors Act

Various sections of the Rivers and Harbors Act of 1899 prevent unauthorized obstruction or alteration of any navigable water of the United States. The most frequently exercised authority is contained in Section 10 (33 U.S.C. 403) which covers construction, excavation, or deposition of materials in, over, or under such navigable waters, or any work which would affect the course, location, condition, or capacity of those waters.

The jurisdiction of the Rivers and Harbors Act of 1899 includes all navigable waters of the United States, defined in 33 CFR Part 329 as, "those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce." (The Clean Water Act also uses the term "navigable waters"; however, the term "navigable waters" in section 404 of the Clean Water Act generally

¹ A judgment whereby the defendant agrees to stop the activity that was asserted to be illegal, without admitting wrongdoing or guilt.

encompasses Section 10 waters plus their tributaries and adjacent wetlands and isolated waters where the use, degradation or destruction of such waters could affect interstate or foreign commerce.)

The Secretary of the Army, acting through the Army Corps of Engineers, is authorized to issue Section 10 permits. The basic form of authorization used by Corps is the individual permit. In Washington, the process for obtaining a Section 10 permit begins with submittal of a Joint Aquatic Resources Permit Application. Once a complete application is received by the Corps, the formal review process begins. This process involves a public notice and evaluation of the impacts of the project and all comments received. The permit decision document includes a discussion of the environmental impacts of the project, the findings of the public interest review process, and any special evaluation required by the type of activity.

Relevance to Stehekin River and Lake Chelan

The Corps has designated Lake Chelan as a navigable water, so a Section 10 Permit is required for any actions that could obstruct or otherwise affect navigation on Lake Chelan proper. The Corps has not designated the Stehekin River as a navigable river. Instead, the Corps considers the Stehekin River as a “traditional navigable water” (pers. comm. Debbie Knaub, ACOE, 8/30/07). As a “traditional navigable water”, the Corps does not regulate the Stehekin River under Section 10 of the Rivers and Harbors Act. The Corps does, however, regulate the Stehekin River, its tributaries and adjacent wetlands under Section 404 of the Clean Water Act.

Contact

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Endangered Species Act, as Amended

The purpose of the ESA is to protect and recover imperiled species and the ecosystems upon which they depend. It is administered by the Interior Department’s U.S. Fish and Wildlife Service (FWS) and the Commerce Department’s National Marine Fisheries Service (NMFS). The FWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine species such as salmon and whales.

Under the ESA, species may be listed as either “endangered” or “threatened.” Endangered means a species is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. All species of plants and animals, except pest insects and non-native species, are eligible for listing as endangered or threatened.

The ESA protects listed species and their habitats by prohibiting the “take” of listed animals and the interstate or international trade in listed plants and animals, including their parts and products, except under federal permit. Such permits generally are available only for certain conservation and scientific purposes. Take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” Through regulations, the

term “harm” is defined as “an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.” Listed plants are not protected from take, although it is illegal to collect or maliciously harm them on federal lands.

Section 7 of the ESA requires all federal agencies including the NPS to use their legal authorities to promote the conservation purposes of the law. This section also requires federal agencies to consult with the FWS or NMFS to ensure that actions they authorize, fund, or carry out will not jeopardize listed species.

Section 10 of the ESA provides relief to private landowners who want to develop land inhabited by listed species. Landowners can receive a permit for the take of a listed species that may occur incidental to otherwise legal activities, provided they have developed an approved habitat conservation plan (HCP). HCPs include an assessment of the likely impacts on the species from the proposed action, the steps that will be taken to minimize and mitigate those impacts, and the funding available to carry out those steps. When the FWS approves the HCP, the landowner can apply for an “incidental take” permit, which allows him/her to proceed with the proposed action. HCPs benefit not only the landowners but also the species by securing and managing important habitat.

Washington State-Listed Species

Washington State has various administrative codes that are somewhat analogous to the U.S. Endangered Species Act. The state maintains a “Species of Concern List” that includes species native to Washington and listed as Endangered, Threatened, or Sensitive, or as Candidates. The designations of Endangered, Threatened, and Sensitive species are legally established in Washington Administrative Code 232-12-297, Endangered, threatened, and sensitive wildlife species classification. Candidate species are established by WDFW policy. Washington Administrative Code 232-12-011 provides that wildlife classified as protected shall not be hunted or fished.

Relevance to Stehekin River and Lake Chelan

Several federal and state-listed species are believed to be present in the Lower Stehekin Valley within Lake Chelan NRA (table I). NPS Management Policies require the agency to preserve state-listed species in a manner similar to that of federally listed species, so those species currently listed under the Washington State Species of Concern List are also provided in table I.

Bull trout (Threatened) are the only federally listed species of fish historically found within the Stehekin River; however, the last confirmed catch of bull trout was in 1957 (Brown 1984). Once a tremendous attraction for anglers, bull trout may be extirpated because they have not been documented for 50 years despite numerous surveys.

In accordance with the Endangered Species Act, the NPS is required to consult with the U.S. Fish and Wildlife Service regarding any action that may affect a listed species. Private landowners are generally exempt from the Endangered Species Act unless their actions harm a listed species or require approval from a federal agency. For example, a private landowner may be required to develop a Biological Evaluation (i.e., an analysis of potential adverse effects to federally listed species) in conjunction with a 404 permit application depending upon the nature of the proposed action. This requirement is necessary because the Army Corps of Engineers cannot knowingly issue a permit that may violate the Endangered Species Act.

Table 1: Washington State and Federal endangered (E), threatened (T), candidate (C) and other sensitive species for which there is suitable habitat in the Lower Stehekin Valley.

Common Name	Scientific Name	Status	
		Federal	State
Gray Wolf*	<i>Canus lupus</i>	E	E
Grizzly Bear*	<i>Ursus arctos</i>	T	E
Canada Lynx*	<i>Lynx canadensis</i>	T	T
Pacific Fisher*	<i>Martes pennanti pacifica</i>	C	E
California Wolverine*	<i>Gulo gulo luteus</i>		C
Western Gray Squirrel	<i>Sciurus griseus griseus</i>		T
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>		C
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	T
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	T	E
Northern Goshawk	<i>Accipiter gentilis</i>		C
Golden Eagle	<i>Aquila chrysaetos</i>		C
Merlin	<i>Falco columbarius</i>		C
Flammulated Owl*	<i>Otus flammeolus</i>		C
Vaux's Swift*	<i>Chaetura vauxi</i>		C
Lewis' Woodpecker*	<i>Melanerpes lewis</i>		C
Black-backed Woodpecker*	<i>Picoides albolarvatus</i>		C
Pileated Woodpecker	<i>Dryocopus pileatus</i>		C
Bull Trout*	<i>Salvelinus confluentus</i>	T	
Western Toad	<i>Bufo boreas</i>		C
Columbia Spotted Frog*	<i>Rana luteiventris</i>	C	C

**Species unlikely to be present (or extirpated); these species are not tolerant of human activity (e.g., residential development, motorized vehicle use) or they lack sufficient habitat.*

Regional Contact:

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Internet Links

More information on the Endangered Species Act can be obtained online at: <http://www.fws.gov/endangered>.

Washington State Hydraulic Code

A Hydraulic Project Approval (HPA) from the Department of Fish and Wildlife under 75.20 RCW is required if a project includes construction or other work, that will use, divert, obstruct, or change the natural flow or bed of any fresh or salt water of the state. The purpose of this law is to ensure that construction or other related activities are done in a manner to prevent damage to the state's fish, shellfish, and their habitat. By applying for and following the provisions of the HPA issued under Chapter 77.55 RCW, most construction activities that affect the bed or flow of state waters can be allowed with little or no adverse impact on fish or shellfish. More information is available online at: <http://www.wdfw.wa.gov/hab/hpapage.htm>

Relevance to Stehekin River and Lake Chelan

Generally speaking, work below the Ordinary High Water Mark in the Stehekin River (or its tributaries) requires an HPA. In some instances, this requirement extends to dry channels and upland areas adjacent to water if the action has the potential to affect fish or fish habitat. For example, felling of trees from the bank into the Stehekin River, or removing a logjam, typically require an HPA.

Contact

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Washington State Floodplain Management Act

The Washington State Floodplain Management Act (Flood Plain Management Chapter 86.16 RCW; Chapter 173-158 Flood Plain Management WAC) governs development, including fills, grading, in stream restoration, bank stabilization and other structures that occur within Flood Plain and Shoreline jurisdictions. The state Flood Plain Management Code requires a permit, typically issued by the local government, for any development as well as filling or grading activities within the 100 year floodplain. Proposed projects are reviewed and conditions imposed on any permits issued to reduce the potential for damage from floodwater. Permits are required for any development as well as for filling or grading activities in the floodplain. State law requires that local entities have a local floodplain ordinance that meets or exceeds National Flood Insurance Program (NFIP) requirements. Ecology has approval authority over these ordinances.

In Washington, communities with designated floodways must restrict land uses in the floodways by prohibiting the construction or reconstruction of residential structures except for:

- Repairs, reconstruction, or improvements to a structure which do not increase the ground floor area;
- Repairs, reconstruction, or improvements to a structure the cost of which does not exceed fifty percent of the market value of the structure either before the repair, reconstruction, or improvement is started or if the structure has been damaged, and is being restored, before the damage occurred; and

- Work done on structures to comply with existing health, sanitary, or safety codes which have been identified by the local code enforcement or building official and are the minimum necessary to assure safe living conditions shall not be included in the fifty percent determination.

A residential dwelling located partially within a designated floodway is considered totally within a designated floodway and must comply with floodplain management regulations. Exemptions to the prohibitions include existing farmhouses in designated floodways that meet the provisions of WAC 173-158-075, or to residential dwellings other than farmhouses that meet the depth and velocity and erosion analysis provisions of WAC 173-158-076, or to structures identified as historical places.

When a regulatory floodway for a stream has not been designated, the Stehekin Community may require that applicants for new construction and substantial improvements reasonably utilize the best available information from a federal, state, or other source to:

- Consider the cumulative effect of existing, proposed and anticipated future development; and
- Determine that the increase in the water surface elevation of the base flood will not be more than one foot at any point in the Stehekin Community.

Building and development near streams without a designated floodway shall comply with the requirements of 44 CFR 60.3 (b)(3) and (4), and (c)(10) of the NFIP regulations

Agencies and Responsibilities

The Department of Ecology is responsible for coordinating the flood plain management regulation requirements of the National Flood Insurance Program. Local governments participating in the National Flood Insurance Program (NFIP) administered by the Federal Emergency Management Agency (FEMA) are required to review proposed development projects to determine if they are in identified floodplains as shown on the FEMA maps. If a project is located in a mapped 100-year floodplain (A or V zone), the local government must require that a permit be obtained prior to development.

While the local government (in this case Chelan County) issues the permit, Ecology has the authority to examine, approve or reject designs and plans for any structure or works, public or private, to be erected, built, reconstructed or modified along the banks, over the channel, over or across the floodway of any stream or body of water in Washington. Also, any other development, including filling and grading, must be reviewed and permitted by the local government. Ecology may also review proposed actions that are initiated under the Shoreline Management Act.

Other Ecology responsibilities under the Flood Plain Management Code include:

- Provide guidance and assistance to local governments in development and amendment of their flood plain management ordinances;
- Provide technical assistance to local governments in the administration of their flood plain management ordinances;
- Provide assistance to local governments in enforcement actions against any individual or individuals performing activities within the flood plain that are not in compliance with local, state, or federal flood plain management requirements;
- Establish minimum state requirements that equal minimum federal requirements for the national flood insurance program;

- Assist counties, cities, and towns in identifying the location of the one hundred year flood plain, and petitioning the federal government to alter its designations of where the one hundred year flood plain is located if the federally recognized location of the one hundred year flood plain is found to be inaccurate;
- Assist communities in developing effective flood hazard management plans that reduce flood hazards and minimize environmental degradation;
- Support communities in implementing flood damage reduction projects;
- Conduct community evaluation visits to monitor their floodplain management programs and assure compliance with federal and state regulations;
- Provide training to communities in floodplain management methods and procedures;
- Provide materials and methods to improve public awareness of flood hazards;
- Evaluate flood characteristics to develop recommendations on repairing or replacing substantially damaged residential structures located in regulatory floodway. Replacement or repair can only be recommended where:
 - * Flood depths cannot exceed more than three feet; flood velocities cannot exceed more than three feet per second.
 - * No evidence of flood-related erosion. Flood erosion will be determined by location of the project site in relationship to channel migration boundaries adopted by the local government. Absent channel migration boundaries, flood erosion will be determined by evidence of existing overflow channels and bank erosion; and
- At the request of local government, the department will prepare a report of findings and recommendations for local government concurrence on repair or replacement of substantially damaged residential structures located in the regulatory floodway. Without a recommendation from the department for the repair or replacement of a substantially damaged residential structure located in the regulatory floodway, no repair or replacement is allowed.

Legal Authority

- Chapter 173-158 Flood Plain Management WAC
- Chapter 86.16 Flood Plain Management RCW
- Title 42, Ch 50, S 4001 et seq USC
- Title 44, Ch I, S 60.3 CFR

Relevance to Lake Chelan and Stehekin River

Portions of Lake Chelan National Recreation Area and the Stehekin Community are within the 100-year floodplain of the Stehekin River. Chelan County has an Ecology-approved floodplain management ordinance administered under County Code Chapter 3.20, Flood Hazard Development. The Chapter prohibits encroachments, including fill and other development, unless hydrologic and hydraulic analysis done by a registered professional engineer shows the encroachment will not result in any increase in flood levels during a 100-year flood event. The Stehekin River FEMA-approved flood plain study included a floodway designation. Structures within the floodway with damage greater than 50 percent market value cannot be replaced.

Chelan County also regulates structures in frequently flooded overlay district, which they define as the 100-year floodplain (Chapter 11.84 Chelan County Code). This section restricts development within the floodway including:

1. New lots may be created within frequently flooded areas, provided:
 - * A designated buildable area in each lot is provided for outside the floodway and is identified on the face of the final plat, short plat or binding site plan mylar;
 - * All improvements, including parking areas, are located outside the floodway;
 - * Roads necessary to access permitted improvements may cross the floodway if no reasonable route exists outside the floodway; and
 - * Open space lots may be located within the one hundred-year floodplain.
2. No residential structures may be built or placed within a designated floodway.

Contact

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Washington State Shoreline Management Act

Development within Shoreline jurisdiction may require shoreline development permits including conditional use, substantial development and variance. Each local government has development regulations in its Shoreline Master Program. The local government shoreline regulations identify the “conditional uses,” i.e., uses that are not preferred but may be permitted when specified conditions are met. Shoreline Conditional Use Permits are sent to Ecology for approval or disapproval. Ecology may add its own conditions during its review process.

A Shoreline Substantial Development Permit is a written permit issued by local government for development on shorelines. All non-exempt developments and uses exceeding \$5,718 fair market value as defined in RCW 90.58.030(3) and WAC 173-27-030(8) may require this permit. After completion of the local process the permits are sent to Ecology for filing but Ecology does not have authority to approve or deny them.

Agencies and Responsibilities

The local government and Washington Department of Ecology are responsible for managing and regulating development along state shorelines. All permit applications start at the local level but some require Ecology approval also. The local government then supplies the information to the Washington Department of Ecology.

Shoreline Conditional Use and Variance Permits are sent to Ecology for approval or disapproval. Ecology may add its own conditions during its review process. The state Shoreline regulations (173-27-160 WAC) establish criteria for reviewing conditional use permits. Conditional uses may be authorized provided that the applicant demonstrates all of the following:

- That the proposed use is consistent with the policies of RCW 90.58.020 and the master program;
- That the proposed use will not interfere with the normal public use of public shorelines;
- That the proposed use of the site and design of the project is compatible with other authorized uses within the area and with uses planned for the area under the comprehensive plan and shoreline master program;
- That the proposed use will cause no significant adverse effects to the shoreline environment in which it is to be located; and
- That the public interest suffers no substantial detrimental effect.
- The cumulative impact of additional requests for like actions in the area must be considered. For example, if conditional use permits were granted for other developments in the area where similar circumstances exist, the total of the conditional uses shall also remain consistent with the policies of RCW 90.58.020 (Shoreline Management Act) and shall not produce substantial adverse effects to the shoreline environment.
- Other uses which are not classified or set forth in the applicable master program may be authorized as conditional uses provided the applicant can demonstrate consistency with the requirements of this section and the requirements for conditional uses contained in the master program.

Internet Links

Chapter 173-27 WAC: <http://apps.leg.wa.gov/WAC/default.aspx?cite=173-27&full=true>

Chapter 90.58 RCW: <http://apps.leg.wa.gov/rcw/default.aspx?cite=90.58&full=true>

Shoreline Management Act home page: <http://www.ecy.wa.gov/programs/sea/SMA/index.html>

Shorelines Hearings Board: <http://www.eho.wa.gov/Boards/SHB.asp>

Relevance to Stehekin River and Lake Chelan

Under Chelan County's Shoreline Master Program, shoreline conditional use, substantial development and variance permits may be required for bank stabilization projects. Excavation of > 250 yd³ within 200 yards of shorelines of state significance (e.g., Stehekin River and Lake Chelan) may require a substantial development permit.

The Stehekin River and upper Lake Chelan have Conservancy Environment shoreline designation. In Chelan County's Shoreline Master Program Conservancy is defined as:

7.2.280.5 CONSERVANCY ENVIRONMENT – An area characterized by a potential for diffuse outdoor recreation activities timber harvesting on a sustained yield basis, passive agricultural uses such as pasture and range lands, and other related development.

Activities permitted in the Conservancy designation under the Chelan County Shoreline Master Program are:

- Agriculture permitted in the Conservancy designation cannot involve major construction or other activities which substantially change the character of the environment (Section 12.3.1).
- Timber harvesting is subject to Washington Department of Natural Resources Forest Practices Regulation. Within Shorelines only selective commercial timber harvest, a maximum of 30

percent merchantable trees in any ten year period may be permitted (Section 14.1.2). In the Conservancy Environment designation, roads must be maintained to minimize erosion, or be permanently closed, water barred, reforested, or planted and seeded with appropriate ground cover (Section 14.3.2).

- Mining operations may be permitted in conformance with WDFW Hydraulic Permit and WDNR mining regulations.
- Single family residences with lot size and height restrictions (Section 16.1.2, 16.3.2).
- Multi-family residences may be permitted as Planned Development with restrictions on height (35 feet), setback (common line from OHWM), and parking lots.
- Only water-related and water-dependent commercial development may be permitted.
- Shoreline protection and structures (e.g., bulkheads and docks) may be permitted provided they don't substantially change the character of the environment and are part of a project defined as water dependent or water related and project would be not be feasible without the structures.
- Channelization of streams is prohibited except as provided in RCW 90.58.030 (3) (e) (Shoreline Management Act). There is no provision under this section of the Act that would allow channelization of the Stehekin River.
- Land filling is prohibited (Section 22.3) except it may be permitted when:
 - * Fill is landward of the OHWM and does not affect aquatic habitat or organisms and water quality.
 - * Needed to provide a minimum single-family residence building site where there would be no ability to build even given variances, the property is not more than 70 percent below the OHWM, there is public sewer or adequate on-site sewage treatment area, the property landward of the OHWM is owned by the land owner, the residence is < 2000 square feet, the land fill waterward of the OHWM follows the natural shoreline contours and is the minimum necessary to provide a buildable site. This provision mostly applies to Lake Chelan where water levels fluctuate due to dam operations.
 - * Water dependent use that is recreational in nature and could not occur except by land filling.
- Dredging may be permitted to accommodate water dependent uses (Section 23.3) provided spoils are placed landward of OHWM and where they won't cause environmental harm (e.g., avoid wetlands).
- Public roads and bridges may be permitted where it is necessary to cross water and roads are setback from OHWM (Section 26.3).
- Low intensity recreational uses such as nature trails, unimproved beaches, semi-developed campgrounds allowing vehicle access (Section 28.3).

Chelan County Code also includes geologic hazards overlay district where a development permit may be denied based upon an evaluation of the inability of to reduce risks associated with the geologically hazardous areas which include channel erosion and migration. Performance standards to be utilized include:

1. Construction methods should be used which minimize risks to structures and do not increase the risk to the site, or to adjacent properties and their structures, from the geologic hazard.

Development shall not increase instability or create a hazard to the site or adjacent properties, or result in a significant increase in sedimentation or erosion.

2. Site planning should minimize disruption of existing topography and vegetation, and should incorporate opportunities for phased clearing.

Other important information

Chelan County has received grant money from Ecology to update their Shoreline Master Program. Under the revised Shoreline Management regulations, Chelan County is required to map channel migration zones (CMZ). Within the channel migration zone, development or structures are limited to those which won't interfere with channel migration and won't require future bank stabilization, dikes or other control structures. Channel migration regulations are mostly addressed under the flood hazard reduction provisions of the state Shoreline Management regulations:

Flood hazard provisions:

- WAC 173-26-221(3)(b): Establishing general principle that SMP should limit development and shoreline modifications that would result in interference with the process of channel migration that may cause significant adverse impacts to property or public improvements and or result in a net loss of ecological functions associated with the rivers and streams.
- WAC 173-26-221(3)(b)(i) - (vii): Describes more specific flood hazard prevention principles, including encouragement to plan for and facilitate removal of artificial restrictions to natural channel migration.
- WAC 173-26-221(3)(c)(i): Standard generally prohibiting new development in shoreline jurisdiction where it would require new dikes or levees within the channel migration zone. Includes list of specific developments that may be appropriate exceptions to the standard.

Modifications and Use provisions:

- WAC 173-26-231(3): Fills must protect shoreline ecological functions, including channel migration processes.
- WAC 173-26-231(3)(f): Requiring conditional use permit for disposal of dredge material on shorelands or wetlands within CMZs.
- WAC 173-26-241(3)(ii)(E): Requiring conditional use permit for mining within channel migration zone.

Since Ecology has provided funding for the Stehekin River flood management plan (FCAAP grant) and the Shoreline Master Program update (Shoreline grant), Ecology's role in coordination between the two activities will be important and necessary.

Regional Contacts

Shoreline Master Program and Update

Clynda Case, Shoreline Programmer
Washington Department of Ecology
Central Regional Office
15 West Yakima Ave., Suite 200

Yakima, WA 98902-3401
clca461@ecy.wa.gov
(509)457-7125

Shoreline Permit Review, Wetlands, Critical Areas

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gagr461@ecy.wa.gov
(509) 454-4260

Washington State Environmental Policy Act

The Washington State Environmental Policy Act (SEPA) provides a way to identify possible environmental impacts that may result from governmental decisions. These decisions may be related to issuing permits for private projects, constructing public facilities, or adopting regulations, policies or plans. Information provided during the SEPA review process helps agency decision-makers, applicants, and the public understand how a proposal will affect the environment. This information can be used to change a proposal to reduce likely impacts, or to condition or deny a proposal when adverse environmental impacts are identified.

In most cases, one state or local agency will be designated as the “SEPA lead agency”. This agency is responsible for evaluating the proposal and determining if the proposal is likely to impact the environment. For most private projects, the SEPA lead agency will be the city or county where the project is located.

Any proposal that requires a state or local agency decision to license, fund, or undertake a project, or the proposed adoption of a policy, plan, or program can trigger environmental impact analysis under SEPA (See WAC 197-11-704 for a complete definition of agency action). SEPA is a process, not a permit. A schematic describing the SEPA process is provided in attachment I of WAC 197-11-704. The SEPA lead agency will review the environmental checklist and may request additional information or special studies.

Internet Links

The State Environmental Policy Act Home Page <http://www.ecy.wa.gov/programs/sea/sepa/e-review.html>

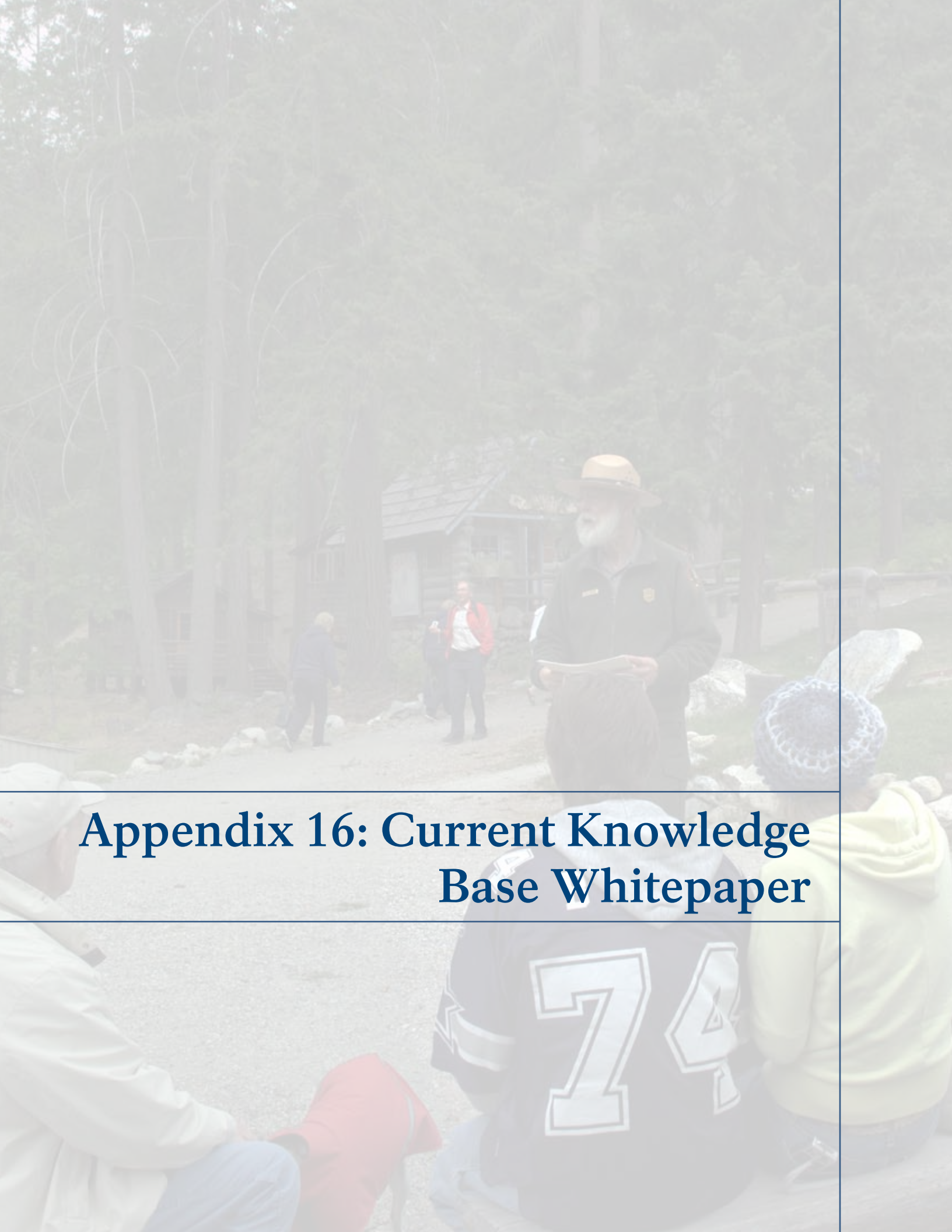
Statewide Contact

Washington Department of Ecology, SEPA Unit
Headquarters
SEPA Unit
PO Box 47703
Olympia, WA 98504-7703
Website: <http://www.ecy.wa.gov/programs/sea/sepa/e-review.html>

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Appendix 16: Current Knowledge Base Whitepaper



A Ranger shares information about Lake Chelan National Recreation Area with visitors at the Golden West Visitor Center (Michael Silverman).

**APPENDIX 16: CURRENT KNOWLEDGE BASE
WHITEPAPER (DETACHED)**

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**Appendix 17: Draft Wetlands and
Floodplains Statement of Findings**



The view from Coon Lake Overlook (Slotznick).

Introduction

This Statement of Findings (SOF) is a required part of the Stehekin River Corridor Implementation Plan Final Environmental Impact Statement (SRCIP FEIS). The SRCIP was written to address new flood and erosion conditions brought by the passage of three 100-year floods in the past 15 years. These floods caused significant damage to NPS infrastructure and private property. They also compromised water quality and scenic resources by incorporating cabins and septic systems into the river.

The Stehekin River is the focal point of Lake Chelan NRA, and includes a wide, active floodplain in the lower valley between Lake Chelan and the boundary with North Cascades National Park (Figures 1 and 2). This area includes extensive riverine wetlands along the river and in old river channels, as well as areas seasonally flooded by Lake Chelan. Executive Orders 11988 (Floodplain Management) and 11990 (protection of Wetlands) require the NPS to evaluate likely impacts of actions that impact floodplains and wetlands. NPS Director's Order #77-2 (Floodplain Management) and #77-1 (Wetland Protection; NPS 2002a) provide policy and procedural guidance for complying with these orders, and include a requirement for disclosure of all proposed impacts to floodplains and wetlands, as well as mitigation measures to offset impacts.

This SOF pertains to the NPS preferred Alternative 5, of the SRCIP FEIS, which is focused on protecting resources and planning for sustainable NPS administrative facilities, including public access. While all major actions in this plan follow NPS policy to enhance natural floodplain and wetland values, several actions in the preferred alternative would impact these areas, while several others would restore their function. Actions that would likely impact floodplains and wetlands include installation of erosion protection measures along the river to protect the Stehekin Valley Road, a change in management of large wood at the river mouth, and in McGregor Meadows, installation of grade control structures and a new access road. Several new recreational opportunities, including a Lower Valley Trail and footbridge over the Stehekin River and river access point near the river mouth are also proposed. These actions will occur in or near the floodplain and/or forested and riverine wetlands.

Impacts from these actions are mitigated to some extent by both general management approaches and specific actions in the SRCIP. The plan embraces the concept of floodplain utilization, which allows floodwater to occupy floodplains by rejecting unsustainable management practices such as levee construction and dredging. It also takes a more conservative and practical approach to floodplain management that recognizes the channel migration zone as the appropriate regulatory floodplain for a steep, active mountain river. Specific actions that enhance floodplain and wetland values include the proposed relocation of 1.9 miles of the main Stehekin Valley Road out of the floodplain in and near McGregor Meadows, and restoration of wetlands and riparian zones at three sites in the valley. The preferred alternative would preclude further encroachment of the road on the floodplain at McGregor Meadows by eliminating the need for future increases in road height and erosion control structures. Road relocation would leave only two sections of the main Stehekin Valley Road in the floodplain; about one mile at the river mouth and several hundred feet at Frog Island. Relocation of the NPS maintenance buildings, fuel storage, and three housing units near Harlequin Bridge would enhance floodplain values and bring the facilities into compliance with NPS policy and guidelines.

This SOF documents compliance with the Director's Orders and NPS policy and guidelines regarding floodplains and wetlands, and discloses potential impacts from the SRCIP preferred alternative.

Figure 1: Location of the SRCIP Project on the Floor of the Lower Stehekin Valley

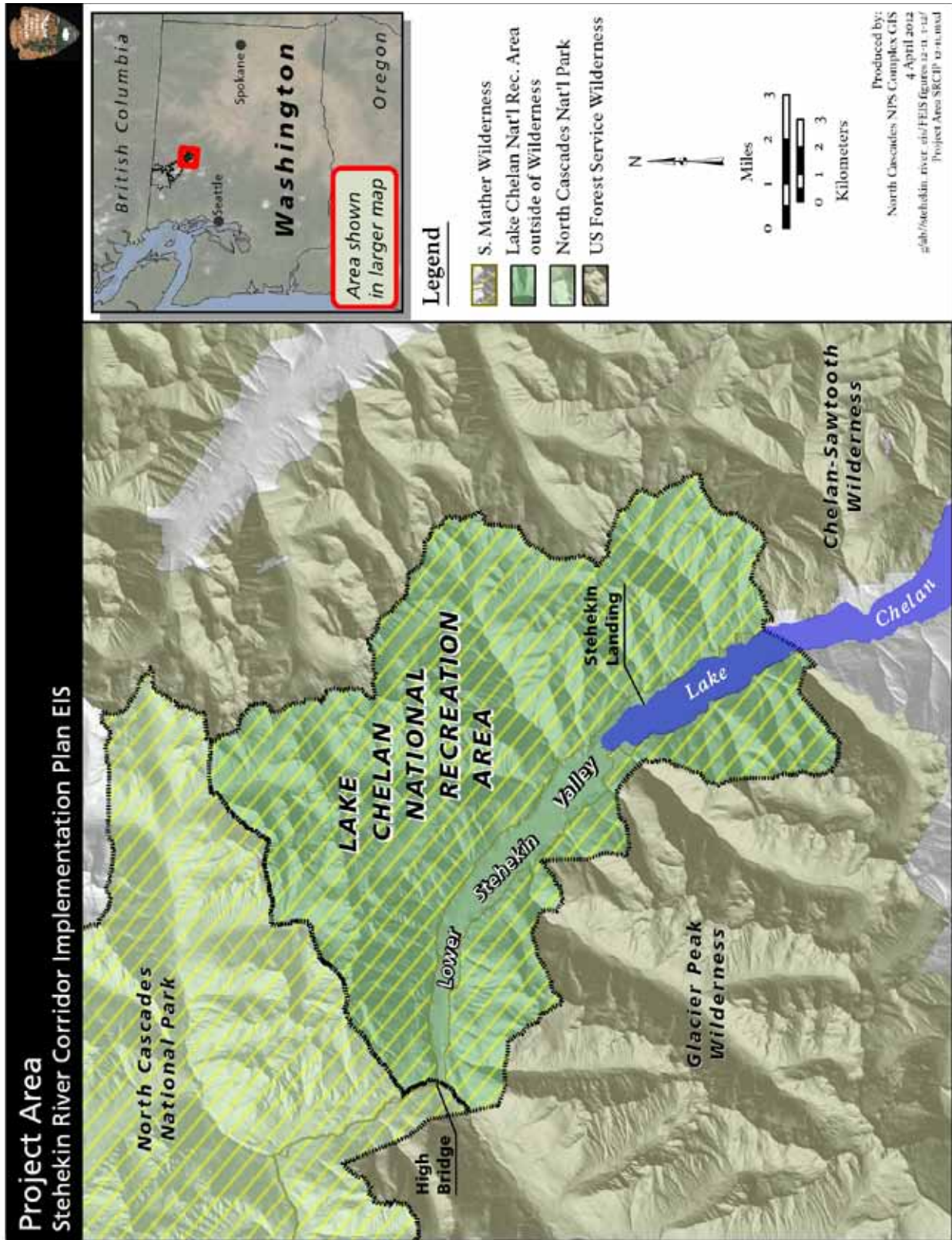
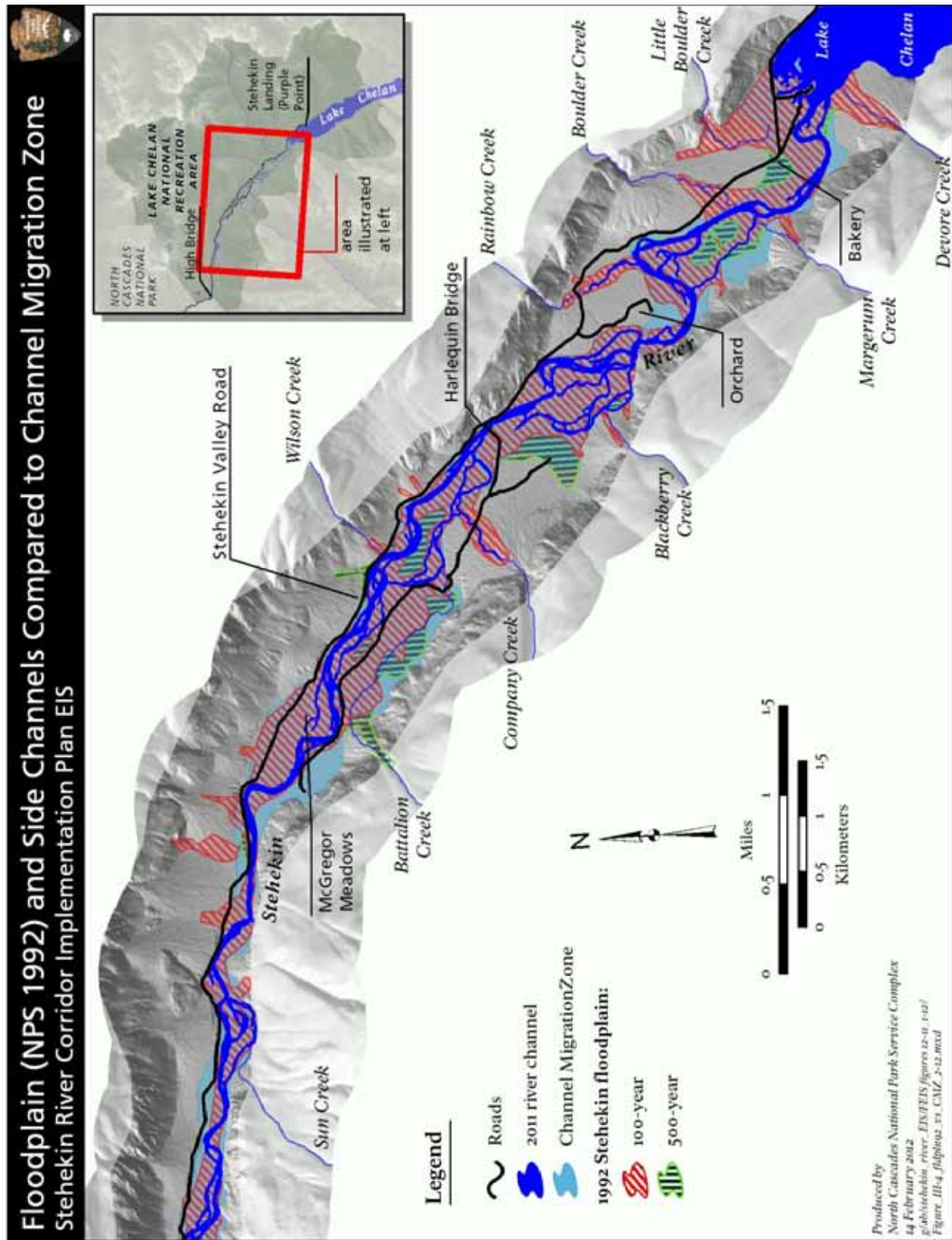


Figure 2: Channel Migration Zone and Regulatory Floodplains in the Lower Stehekin Valley



Site Description

The project area for the SRCIP FEIS includes the Lower Stehekin Valley, from High Bridge to the head of Lake Chelan, including Weaver Point (Figure 1). The Stehekin River is the largest tributary to 50 mile long Lake Chelan, the third deepest lake in North America at 1,486 feet, more than 350 feet below sea level. The lake is known for its clarity and cold water temperature, and along with Stehekin Valley, for its remarkable scenery.

Lake Chelan NRA includes over 400 acres of private land, about 200 acres of which lies within the channel migration zone of the Stehekin River. All of the project area is outside designated wilderness.

Floodplain Conditions

The lower Stehekin River is flood-prone because of the circular shape of its watershed, steep slopes within the watershed, and the location of the headwaters on the wet Pacific Crest (Figures 1 and 2). Water delivered from three main tributaries merges in narrow bedrock box canyons above the lower valley. There is no storage of wood, gravel, or water within the canyons, except for potential debris dams, which adds a hazardous element to flooding in the lower valley.

The Stehekin River is also flood-prone because it can flood at two times each year. The headwaters of the Agnes Creek tributary and the main Stehekin River are far enough to the west to be within a rain-on-snow zone. Heavy, warm November and December rainfall trigger rapid snowmelt and flooding on these tributaries. The entire watershed receives most of its precipitation in the winter as snow, and warm spring temperatures and rain can trigger rapid snowmelt and flooding. Unlike fall flood peaks, which typically pass within a few days, spring floods are smaller, but last for several weeks between May and June.

Prior to the late 20th century, the Stehekin River was dominated by spring snowmelt flooding, like most east-slope Cascade Rivers. Since the 1970s, however, the Stehekin River has become prone to large fall rain-on-snow floods, which rise quickly and occur from mid-October through December (Figure 3). Hydrologic data collected on the river since 1911 confirm the significance of this shift, as analyzed by the U.S. Geological Survey (USGS). The passage of large fall floods in 1995, 2003 and 2006 has led to significant changes in the Stehekin River channel, and redefined the boundaries for the 100-year floodplain. As a result, recreational and administrative facilities and developments once thought to be safe from the river may become threatened by flooding and bank erosion, while other sites in the floodplain have already been compromised by larger, more frequent floods.

In the past 15 years, the Stehekin River has had the three largest floods on record (Table 1). The November 1995 and 2006 events were 100-year floods, while the October 2003 event (25,000 cfs), has a recurrence interval estimated by the USGS at 100 - 500 years. In addition to these exceptionally large floods, smaller but still significant fall events occurred in 1989 and 1990 and other significant spring floods passed in 1997 and 1999.

Figure 3: Magnitude and Timing of the Annual Peak Flood on the Stehekin River.

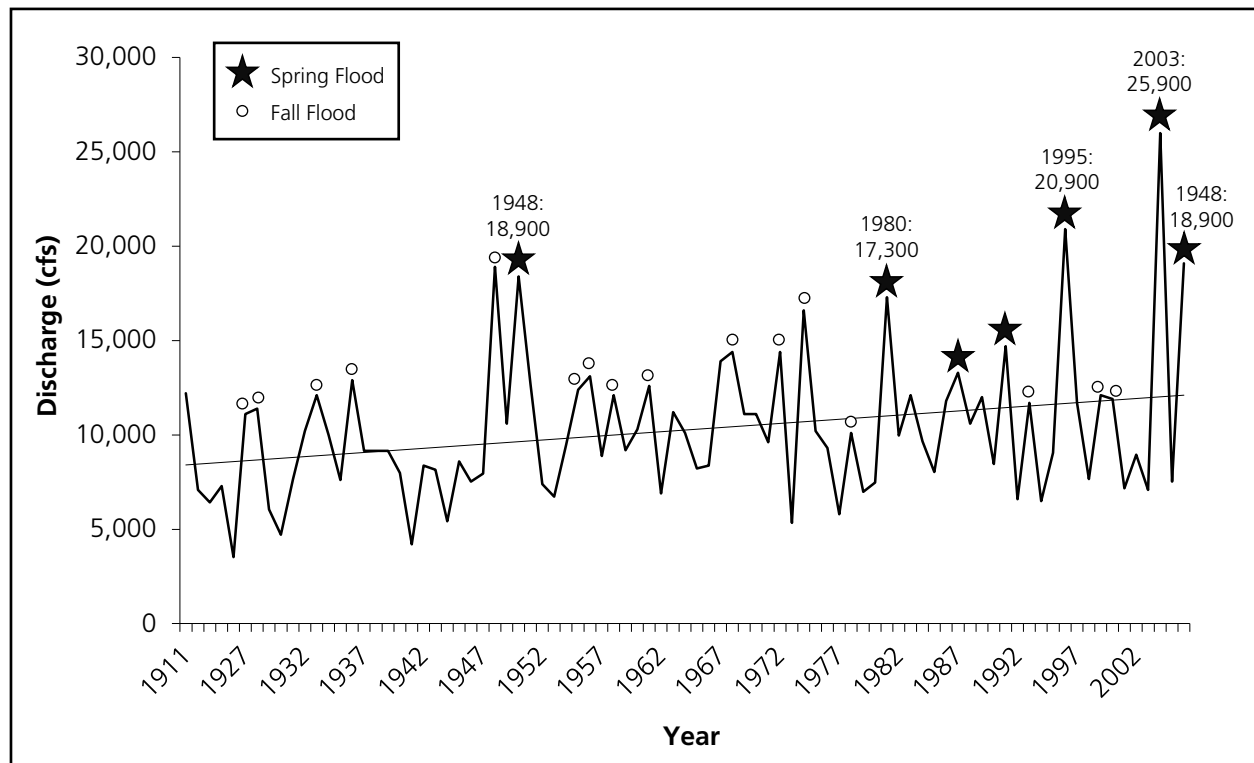


Table 1: Largest Floods on Record for the Stehekin River.

Date	Discharge (cfs)
October 20, 2003	25,600
November 29, 1995	21,000
November 7, 2006	19,100
May 29, 1948	18,900
June 20, 1950	18,400
December 26, 1981	17,300
June 16, 1974	16,600
November 24, 1990	14,700
June 2, 1969	14,400
June 10, 1972	14,400

Stehekin Valley Floodplain and Landforms

The Stehekin River floodplain is located along the floor of the Stehekin Valley in a deep glacial canyon, with peaks rising more than 7,000 feet above the river. The valley floor contains a long lateral moraine, debris cones from small tributaries, alluvial fans from three larger tributaries, and the Stehekin River and its floodplain. The terraces are comprised of gravel, cobbles, and boulders and are crossed by numerous old flood channels. Debris cones have slopes steeper than ten degrees and are covered with boulders, levees, and unstable channels at junctions with the Stehekin River floodplain.

Boulder, Rainbow, and Company Creeks deposited extensive alluvial fans on the Stehekin Valley floor. Parts of these landforms are above active parts of the fans, and are called fan terraces. Fan terraces represent stable sites above the floodplain and active alluvial fan surfaces. Due to the shift toward fall flooding, the alluvial fans have become less active because the headwaters for these tributaries are located in a more arid climate farther east of the Stehekin River headwaters.

Areas of sediment and large wood storage in the lower valley are marked by channel instability and wide floodplains. These deposition zones occur at McGregor Meadows, where valley width increases three-fold, where the river meets the backwater zone above the lake, and between the alluvial fans. Between deposition zones, the floodplain and river channel are relatively narrow on the upstream edge of the three alluvial fans. Within these areas the channel is stable, and there is relatively little storage of wood, gravel, or water. McGregor Meadows is the most unstable of the five deposition zones in the lower valley, and due to the steep gradient in this reach presents the most management challenges.

Small, steep, straight tributaries to the Stehekin River carry debris flows during large precipitation events. Debris flows occur about once every 25 years or so, and are often triggered by summer cloud-bursts, which are an unexpected but important contributor to flood hazards in the valley.

Wetlands

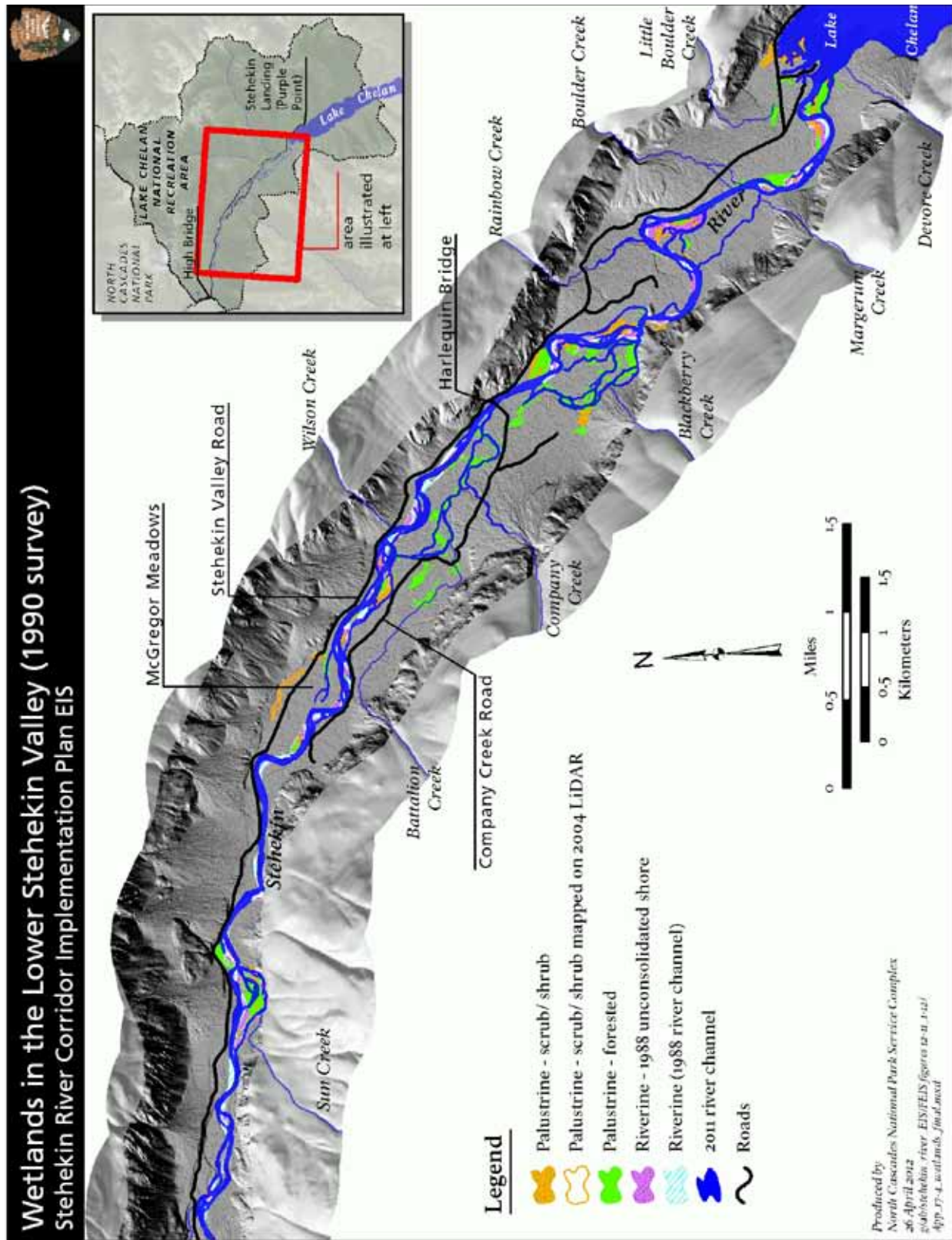
A wetland inventory was completed for the lower Stehekin Valley in 1990 for the General Management Plan (GMP; Figure 4). Mapping included field observations and pre-existing data such as National Wetlands Inventory maps, soil surveys, topographic maps, ortho-rectified aerial photography (1988), and the Stehekin Valley Habitat Types map (NPS 1993b in NPS 1995a:178). These inventories were supplemented by FHWA contractor surveys of wetlands along the Stehekin Valley road above Harlequin Bridge for this plan (FHWA 2011).

Previous surveys have included as wetlands those areas that have at least one of the following characteristics: hydrophytic soil types, hydrophytic vegetation, and/or hydrology (wet soil characteristics, wetland-dependent vegetation, and/or the presence of water). Wetlands within Lake Chelan NRA were classified according to the system developed by the United States Fish and Wildlife Service (USFWS) (Cowardin et al. 1979). These wetlands are first characterized by what kind of water they are associated with and then by the type of vegetation or substrate. In the lower Stehekin Valley wetlands fall into one of three categories: palustrine (wet vegetated areas), riverine (river or stream channels), or lacustrine (associated with a lake).

Palustrine wetlands are those freshwater areas not associated with lakes, but rather with persistent groundwater. Palustrine wetlands include all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and some saltwater wetlands. Palustrine wetlands include those areas called marshes, bogs, fens, and prairies as well as shallow permanent or intermittent ponds. Palustrine wetlands are further classified as forested, emergent wetland persistent, and scrub-shrub wetlands (Cowardin et al. 1979).

Based on the GMP (NPS 1995), palustrine wetlands cover approximately 159 acres within the lower Stehekin Valley (Figure 4). About 139 acres of this total are forested wetland, and the remaining 20 acres are scrub-shrub wetland. These areas may shift rapidly during flooding, depending on the erosive forces of the Stehekin River as the river changes course within its channel migration zone. The largest wetlands are a matrix of about 65 acres of palustrine forest and shrub

Figure 4: Wetlands in the Lower Stehekin Valley



and scrub wetlands on the right bank of the river near the mouth of Blackberry Creek. Other extensive wetlands occur at the head of Lake Chelan, along lower Coon Creek, and on the right bank of the Stehekin River from just above Harlequin Bridge to upper Company Creek Road (Figure 4).

Riverine wetlands include all wetlands and deepwater habitats contained within a channel, except for wetlands dominated by trees, shrubs, persistent emergent plants, emergent mosses, or lichens and those near saltwater. Water is usually, but not always, flowing in the channel and these wetlands may also be surrounded on their floodplain by other kinds of palustrine wetlands (Cowardin et al. 1979).

Based on the GMP (NPS 1995a:178), within the Stehekin Valley, riverine wetlands are comprised of unconsolidated shore (88 acres) and open-water riverine habitat (167 acres). Similar to the palustrine wetlands, riverine wetlands change frequently, depending on the location of the Stehekin River and its associated side channels and tributaries. For example, of the Weaver Point palustrine forested wetlands mapped in 1988 (8.7 acres), approximately half an acre had been converted to riverine wetland by 2006.

Most wetlands within Lake Chelan NRA remain undisturbed; however, according to the GMP, about 11 acres are affected by development (excluding roads). At the time of the GMP, there were eight private and two NPS buildings located within wetlands. A portion of the Stehekin Valley Road crosses a wetland at the lower end of McGregor Meadows, and the Company Creek Road crosses wetlands at the NPS Maintenance Area and just north of the hydropower station at Company Creek.

Major wetlands within the project area include shoreline areas along the Stehekin River and the open-water channel of the Stehekin River, where some proposed actions, such as the installation of rock barbs, may occur. The Stehekin Valley Road traverses several wetlands between Lake Chelan and Milepost 9.2. In addition to the installation of 6-8 rock barbs in riverine wetland, the other impact from the SRCIP to wetlands would occur in McGregor Meadows.

McGregor Meadows is a former agriculture site located between the road and the river. A 5.5-acre clearing is surrounded by a mixed conifer-deciduous stand. The low-lying meadow and its surrounding forest lie within the channel migration zone of the Stehekin River (Figure 4). Accumulation of about 50,000 cubic yards of gravel since 2000 have led to channel changes that are increasing the rate of conversion from upland to wetland and riverine habitats. For example, in 1993, just over 3 acres of palustrine forested wetlands were mapped within McGregor Meadows. An additional 0.75 acres were classified as scrub-shrub palustrine wetlands and approximately seven acres as riverine, unconsolidated shoreline. Much has changed in the intervening years. Flooding in 2003 and 2006 has left substantial accretions of sand and gravel over the forested upper part of the greater McGregor Meadows, and has scoured much of the meadows themselves, as well as the Stehekin Valley Road. A large logjam has formed at the head of No Name Creek, a side channel of the Stehekin River (Figure 6). The GMP did not include the length of No Name Creek in its palustrine-forested habitat. July 2007 (leaf-on) and February 2004 (leaf-off) imagery shows that there is approximately 8.7 acres of wetlands along the creek. The logjam has contributed another 1.9 acres to the wetlands. The scrub-shrub wetland habitat has been washed away, and the river occupies what was unconsolidated shoreline in 1988 (NPS 1995f).

The existing road into McGregor Meadows traverses a forested wetland as it enters the floodplain from the south. This wetland was not described in the 1993 inventory, but with the recent

channel aggradation and flooding, former river channels have become enlarged and are now classified as palustrine shrub-scrub wetland. This wetland is located at the base of a glacial moraine and likely occupies an old river channel. It covers about 4 acres, and ranges in width from 50-80 feet (Figure 4). It is fed by groundwater from the hillslope above, as well as by two intermittent surface streams and flood water from the river during peak flow events. The wetland does not have standing water throughout the year, and typically dries out for several months in the late summer. Tree species in and near the wetland include red alder (*Alnus rubra*) and bigleaf maple (*Acer macrophyllum*). Shrub species include red osier dogwood and vine maple, while ground cover includes bracken fern, horsetail, and grasses.

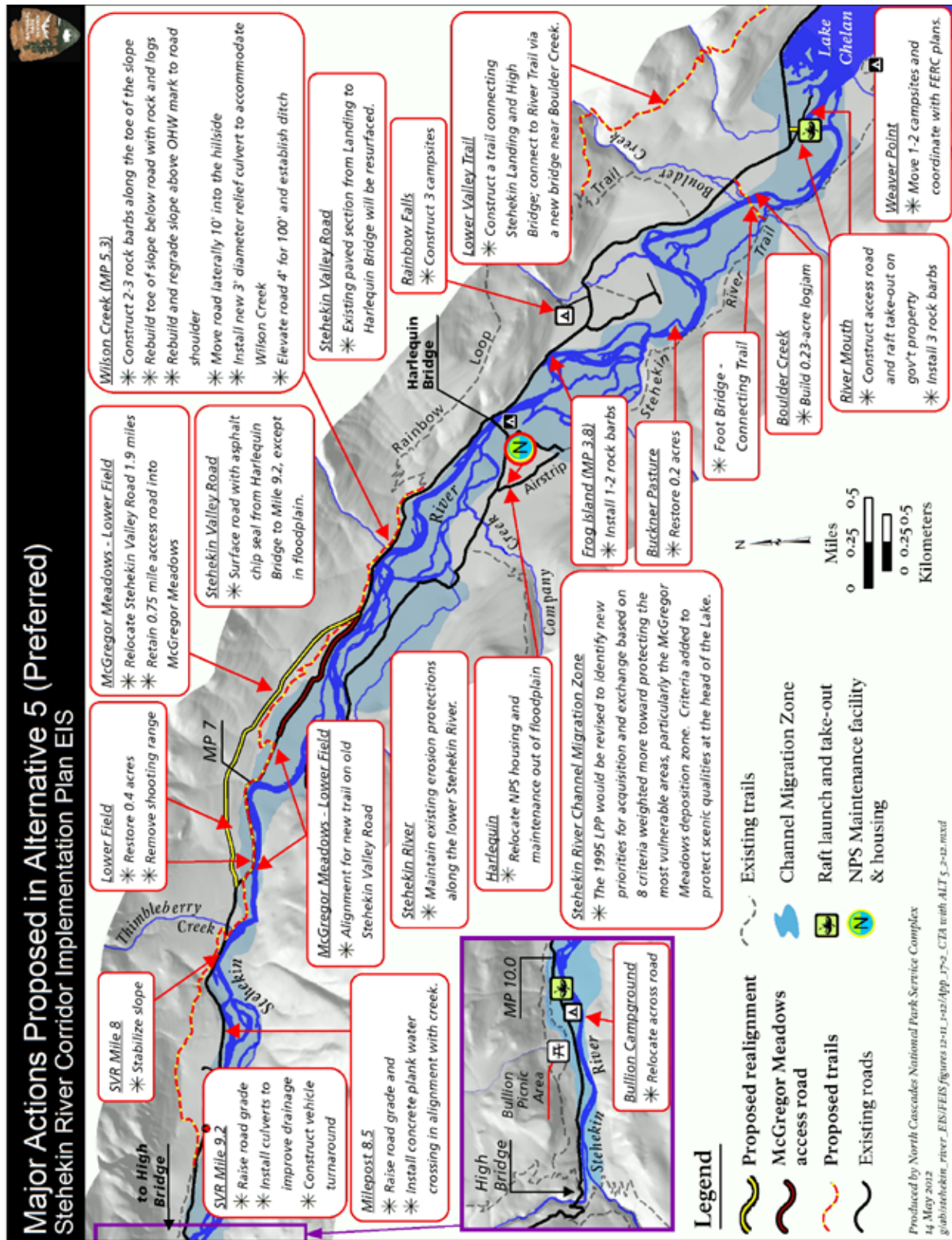
Proposed Actions

Under the preferred alternative, new management actions that could adversely affect the Stehekin River floodplain and wetlands (Figure 5) include:

1. **Erosion Protection Measures:** In Alternative 5, new erosion protection measures would be installed at four sites along the main river channel. These sites include the river mouth, Boulder Creek, Frog Island, and Wilson Creek (Figure 5). Impacts to floodplain and wetland values are relatively minor at three of the sites because they are located at the edge of the channel migration zone. Impacts to floodplains at the river mouth bank stabilization site, however, are moderate and long term because it is located within the channel migration zone. Work at this site would involve construction of a small logjam, installation of three rock barbs, removal of about 100 feet of rip-rap, and dense replanting with native shrubs. The erosion and flooding issues at this site are directly influenced by operation of the Lake Chelan hydroelectric project. Seasonal increases in the lake level result in a backwater effect that extends at least $\frac{1}{4}$ mile up the river. The 6-8 rock barbs and two logjams proposed for these sites add to a growing number of structures along the lower Stehekin River in two main depositional zones.
2. **Placement of Fill to Elevate the Stehekin Valley Road at two Sites.** In the preferred alternative the main valley road would be elevated 3-4 feet near Mileposts 8.5 and 9.2. At both sites drainage problems are associated with side streams that flood onto and follow the main road, which is at or below grade at both sites. Flooding leads to significant deposition of sand and silt and when culverts are plugged and to erosion of road fill and surface gravel. At Milepost 9.2 FHWA has designed a concrete plank low-water crossing to allow an unnamed intermittent stream to cross the road, while at Milepost 8.5 a vented, box culvert would be installed at the stream crossing, and a new 100 feet long channel would be constructed to connect the stream to the Stehekin River. Placement of fill at both sites is on the edge of the floodplain in areas that typically are not flooded by the Stehekin River, and would therefore have minimal impact on floodplain or wetland values.
3. **Large Woody Debris Management:** Changes to the management of large woody debris on the lower 0.25 mile of the Stehekin River are proposed in Alternative 5. This area is within the backwater influence zone of Lake Chelan, and has seen a large increase in the volume of large wood (Appendix 16; Chelan Public Utilities District 2001). In this area, extensive accumulation of logs is influenced by unnatural manipulation of the Lake Chelan surface elevation.

Proposed changes in management would allow for limited administrative and private use of large wood from the tops of logjams in the backwater zone below Boulder Creek. Conditions of use would include (1) wood taken only above ordinary high water mark, (2) removal could not destabilize logjams, and (3) all wood removed stays in the channel migration zone

Figure 5: Major Actions in SRCIP / FEIS Alternative 5 (Preferred).



for restoration or erosion management. This change would allow the NPS some management flexibility when faced with threats to water quality by flooding of several dozen private cabins and drainfields.

4. Install Grade Control Structures in Lower McGregor Meadows. In keeping with the SRCIP floodplain management approach of floodplain utilization, and to prevent the river from cutting a permanent new path down the road, Alternative 5 proposes to install 1,000 linear feet of grade control structures beneath the road and several driveways at the lower end of McGregor Meadows (Figure 6). These structures would be designed to prevent the river from cutting major new channels down this road system, which is the only access to 15 private parcels. Grade control structures are beneficial because they spread water across the floodplain, limit head-cutting of side channels, and provide some stability to frequently flooded roads. Impacts include restricting the development of new channels, but since they would be constructed primarily beneath existing roads there would be little disturbance to floodplain or riparian vegetation.
5. Construct Reroute Access Connector to McGregor Meadows from Reroute. A road 940 - 1,200 feet long and 12 feet wide from the proposed reroute to McGregor Meadows would be built to allow continued access for private residents back down into McGregor Meadows (Figure 6). At its lower end, the road would cross about 300 feet of the floodplain and 0.2 acres (5 percent) of a small palustrine shrub scrub wetland. To avoid impacts to flooding of private property in this area, and to maintain wetland function, the road would be built at grade and would therefore be subject to periodic flooding.
6. Encourage Relocation of Private Property from the Floodplain onto Alluvial Fans: Proposed revisions to the 1995 Lake Chelan NRA Land Protection Plan would encourage relocation of private property from flood-prone sites in the channel migration zone to sites on tributary alluvial fans. Over the long term, removal of development from flood-prone areas would greatly enhance floodplain values by precluding incorporation of septic systems and other debris into the river during flooding.

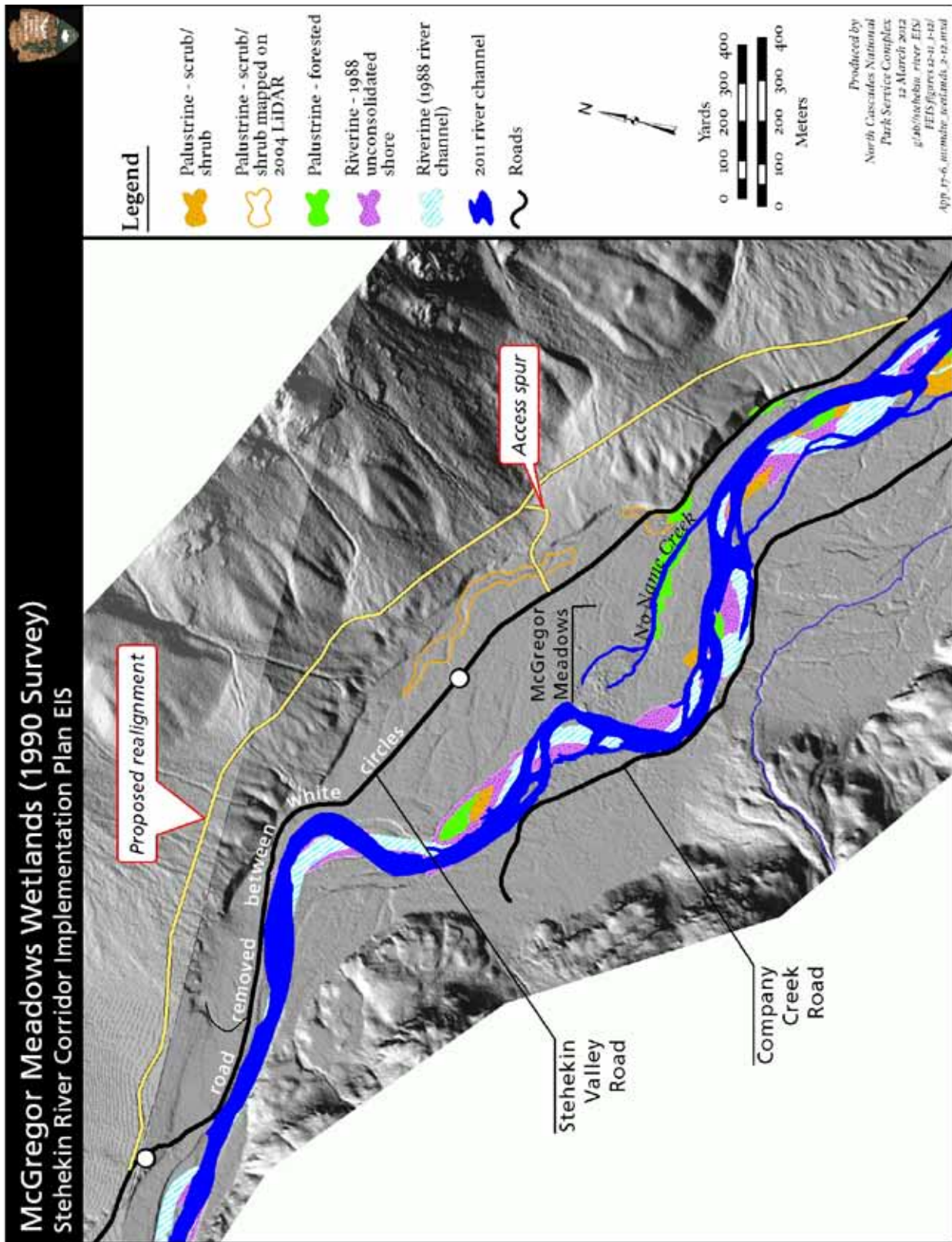
The NPS proposes to concentrate some future private development out of the Stehekin River channel migration zone onto alluvial fans and terraces above the river floodplain. Twenty-nine acres on these landforms are identified for exchange with private developed land in the floodplain near river. Occupation of alluvial fans, while not ideal, represents a more sustainable site, given the flood-prone nature of the Stehekin River. Further, a 25% decline in snowpack in the last 50 years has led to decreased spring flood magnitude on these east-side tributary alluvial fans

7. New Recreational Opportunities: A new river access point would be provided near the Stehekin River mouth, which would require construction of 300-foot-long access road in the floodplain and a 30-foot-long ramp down a steep cut bank. The Lower Valley Trail would be constructed in a single complete project to connect Stehekin Landing with High Bridge using sections of existing trail (6.9 miles) and construction of new trail (6.3 miles) some of which would be in the channel migration zone. A 150-foot-long foot bridge over the Stehekin River would connect the Lower Valley Trail to the existing River Trail, potentially taking advantage of existing concrete bridge abutments in a stable reach of the river.

Cumulative Effects

The actions described above would contribute to cumulative effects from existing floodplain and wetland impacts in lower Stehekin Valley. There are currently 208 acres of private land in the

Figure 6: Proposed Actions in McGregor Meadows: In Preferred Alternative, 0.8 miles of Road would be Removed Between White Circles.



Note: Palustrine Scrub Shrub Wetlands in orange.

channel migration zone, which includes the floodplain, as well as NPS developments. About 70 percent of the parcels in the floodplain have structures. The NPS expects additional future private development within the channel migration zone, which it does not regulate, but the revised Land Protection Plan should steer some future and existing development to areas outside of the floodplain. It is difficult to determine how many acres would be affected since NPS acquisition/exchange is on a willing seller basis.

In the preferred alternative, actions at three sites along the Stehekin River would install 6-8 new rock barbs. This would increase the number of barbs in the lower 12 miles of the river from the 30 that already exist. In terms of the amount of river shoreline impacted by erosion management structures, the preferred alternative would increase the amount from the current 6.5 percent to 8.3 percent. Other management alternatives proposed in the SRCIP would result in larger increases in the number of barbs and of affected shoreline.

Several other stretches of the Stehekin Valley Road and Company Creek Road would remain adjacent to the Stehekin River and would be protected by rock barbs and bioengineering. While the preferred alternative would relocate 1.9 miles of the Stehekin Valley Road from the floodplain, about 0.5 miles would remain near Lake Chelan (Figure 6). Much of the upper Company Creek Road would remain in the channel migration zone and is protected by 11 rock barbs and a 400 foot long levee constructed by the NPS in 1980 (Figure 6). The levee prevents some floodwater from entering the upper ends of former river channels now occupied by beaver ponds. These wetlands, however, are fed by surface streams and groundwater from the hillside and floodwater gets around the levee to enter the majority of these old channels. Impacts from the existing and proposed structures are provided in a reach analysis (Appendix 4) and in the SRCIP FEIS.

Development currently impacts about 11 of the 414 acres in the lower Stehekin Valley. The preferred alternative would create 0.514 acres of new wetland, but would restore 4.6 acres for a net gain of about 4.1 acres. Restoration of the area near the NPS maintenance facility would restore some function to one of the largest palustrine wetlands in the valley.

Why Proposed Actions are Located in Floodplains and Wetlands

The proposed actions under the preferred alternative call for removal of current NPS facilities from the floodplain and channel migration zone, except for areas of the Stehekin Valley Road that cannot be relocated and actions that would protect the road. While private development would remain in the floodplain, the revised Land Protection Plan would provide a mechanism for removal of those most threatened. It is beyond the scope of this plan or the 1995 General Management Plan to remove all development from the floodplain. In addition to private development, some NPS facilities would remain in the floodplain, and some private and public development would remain on alluvial fans and debris cones in different parts of the valley.

Actions that would occur in the floodplain include installation of erosion protection measures and rock barbs at three sites along the Stehekin Valley Road. In these cases, the road is between the river and the steep valley wall. Moving the road out of the floodplain and/or away from river conflicts would require blasting and/or heavy excavation work across cliffs or unstable slopes, cause major impacts to undisturbed wetlands, or to sensitive species.

A major goal of the proposed plan is to allow large floods to occupy the floodplain (floodplain utilization), thereby reducing flood and erosion damage to all areas in the lower valley. The NPS has considered but rejected alternatives involving large scale levee construction or channel

dredging due to cost, sustainability, and impacts to floodplain values. The Boulder Creek logjam and grade control structure (avulsion sill) and the McGregor Meadows grade control structures are designed to maintain sheet flow in extensive floodplain areas, including some private development. More than a dozen similar structures have been installed on both sides of the river in McGregor Meadows since the 1995 flood.

A change in management of large woody debris in the river mouth area acknowledges the incredible build-up of wood in the last 25 years and the effect of lake level manipulation on wood accumulation. This shift in policy also recognizes the impact flooding can have on water quality in this area, and the value of using wood in restoration and erosion management projects.

There are recreation sites currently in, or proposed to be in, the floodplain. Harlequin Campground is the largest camp in Lake Chelan NRA and is located in the floodplain. The site is low relative to the river and typically floods in both the spring and fall. NPS relocated the vault toilet to high ground in 2009, but the campsites remain in a regulatory floodplain. Flooding at the site occurs over a period of days or hours. Under the SRCIP, the Harlequin Campground group site would be closed during seasonal flooding. Alternative group camping would be available at the Purple Point Horse Camp.

It is not feasible to construct the river access point and access road out of the floodplain. The 300-foot-long access road would follow the route of an old road, and require removal of few trees. Construction of this river access point would give visitors a place to exit the river without disturbing private land owners or additional riparian areas in the floodplain. The river access point would provide access to the head of Lake Chelan for non-motorized boats. About 200 feet of the existing road on public land would be closed and restored.

Most of the Company Creek Road near Harlequin Bridge and above the Company Creek alluvial fan is also within the 100-year floodplain. In the preferred alternative, floodwaters would be able to overtop riverbanks, except in the vicinity of the existing 400-foot long Company Creek levee. The current height of the levee along the Company Creek Road is 4-6 feet above the road. It continues to take pressure off the Company Creek Road by keeping floodwater from a small part of the floodplain. (The 1995 GMP and associated Floodplains Statement of Findings calls for maintaining the Company Creek Road in its existing location.)

There are no other viable options to locate the Reroute Access Connector off of the reroute due to steep slopes at other locations. The wetland impacted at the lower end of the connector is a long, linear feature that also could not be avoided by locating the connector at another nearby location.

Investigation of Alternative Sites

In analysis for the Draft and Final EIS, the NPS considered but rejected numerous other alternatives for each of the action sites mentioned above.

At Frog Island and Wilson Creek, moving the road away from the eroding bank would require substantial blasting and/or heavy excavation work on steep valley walls, leading to potential slope instability and rock fall hazards. Therefore the road is proposed to remain in place and not be rerouted on the valley wall. Proposed actions at Boulder Creek are also located on the edge of the channel migration zone. At this site, the proposed grade control structure (avulsion sill) and extended logjam would be on the edge of the Boulder Creek alluvial fan. No other sites were considered because no other location offers the same advantages.

No other options exist for the location of the river access point on federal land. Dense private development and a lack of existing access roads eliminated other sites for consideration.

Use of large woody debris from other parts of the Stehekin River is considered in the SRCIP under Alternative 4, where woody debris could be manipulated (under the same conditions as the preferred alternative) and taken from areas below the Bullion raft launch, including at McGregor Meadows.

Relocation of private property to alluvial fans and alluvial fan terraces, while not ideal, is much less hazardous than retaining development in the floodplain. This is particularly true in McGregor Meadows where the potential exists for a major channel avulsion. Most of the valley floor is within the floodplain, and the NPS can only offer land for exchange that was once private. Alluvial fans and alluvial fan terraces are one of the most stable landforms in the Lower Stehekin Valley; because they are out of the reach of the main river, they are the best location for safe and sustainable development in the valley. No exchange properties are proposed in the most active parts of the alluvial fans.

Several options were initially considered for relocating the Stehekin Valley Road out of the floodplain at McGregor Meadows. Among these included rerouting the road along the Company Creek Road on the opposite side of the river. Reasons for rejecting this option included that major sections of the Company Creek Road are also within the floodplain and this reroute would have required a new bridge and approaches. Instead, the preferred reroute crosses several debris cones, which are prone to debris flows and snow avalanches, which occur less frequently than flooding along the existing road.

Description of Site-Specific Flood Risk

Recurrence Interval of Flooding

Information on flood recurrence intervals comes from USGS stream gauge data collected since 1911. The results from the most recent USGS Log Pearson III analysis of the gauge data are summarized in Table 2. The recurrence interval for flooding on the Stehekin River varies by the time of year and type of flood (Table 2). When spring and fall events are combined, as is typically done by federal agencies, the '100 year flood' has a discharge of about 21,400 cfs. When the spring and fall flood populations are considered separately, the 100 year fall event discharge is 33,500 cfs, and the 20,000 cfs discharge occurs about once every ten years.

Hydraulics of Flooding (Site Depth and Velocity)

Several models were used to characterize floodplain hydraulic conditions and hazards. These include a HEC2 floodplain model and map constructed by the NPS (Riedel 1993), 2-D models constructed by the NPS Water Resources Division at two sites, a 2001 Chelan PUD model of the backwater effect of Lake Chelan, and a 2012 NPS HECRAS model. These models were calibrated with recordings of flood heights from the 1995, 2003, and 2006 floods. These models are supplemented by a more than 30 years of river monitoring by the NPS and a study of paleo peak flows (Jarrett 1996).

The hydraulic models used to characterize hydraulic conditions use 21,400 cfs as the 100-year discharge. This SOF does not consider the higher 100-year discharge (Table 2) due to a small

Table 2: Comparison of Two Approaches for Determining Flood Magnitude and Frequency on the Stehekin River by the U.S. Geological Survey Using a Log Pearson III Analysis.

Recurrence interval (probability in given year)	Discharge (cfs) for combined fall and spring floods (# events 85)	Discharge (cfs) for spring floods alone (# events = 70)	Discharge (cfs) for fall floods alone (#events = 16)
10 - year (0.1)	14,950	13,740	21,360 cfs
20 -year (0.04)	17,560	15,100	26,220 cfs
50 - year (0.02)	19,490	16,190	29,850 cfs
100 - year (0.01)	21,400	17,910	33,490 cfs

number of fall peak annual events and because FEMA and other federal agencies have not adopted this approach. Flood conditions in the main areas where NPS roads and visitor use facilities such as camps and trails are within the floodplain (including all regulatory floodplains) are summarized in Table 3.

About 0.5 miles of the Stehekin Valley Road, a popular tourist site (Stehekin Valley Bakery), and several dozen private cabins are located in the floodplain near the river mouth. Flood conditions at this site are not severe (Table 3) due to the wide floodplain and a low stream gradient. Lake Chelan exerts a strong backwater effect on the lower Stehekin River that extends ¼ mile above the lake and raises the 100 year flood about 0.5 feet (Chelan PUD 2001). Fill placed along the left bank for the Silver Bay development and logjams in some side channels are thought to raise the elevation of the water surface in this area an additional foot.

Table 3: Site Specific 100–Year Recurrence Interval Flood Conditions for Parts of the Stehekin River Floodplain Occupied by NPS Facilities, Visitors, or Private Residents.

Site	Main Channel Depth and Velocity	Side Channel Depth and Velocity	Overbank Depth and Velocity
McGregor Meadows Road on floodplain (left bank) ¹	5-6 feet 12 feet/second	6 feet 4-5 feet/second	2 feet 3 feet/second
Upper Company Creek Road floodplain (right bank)	5-6 feet 12 feet/second	2 feet 2 feet/second	1-2 feet 1–2 feet/second
Harlequin Camp ² (right bank)	9 feet 9-10 feet/second	4-5 feet 2-3 feet/second	3 feet 2-3 feet/second
NPS Maintenance Area ³ (right bank)	9 feet 9-10 feet/second	4-5 feet 2-3 feet/second	1-2 feet 2-3 feet/second
SV Road at Frog Island (station 107 left bank)	4.5 feet 4 feet/second	no side channel on left bank	1-2 feet 1-2 feet/second
SV Road at River Mouth (station 40 left bank)	6-7 feet 6 feet/second	5-6 feet 3-4 feet/second	1-2 feet 2 feet/second

¹ overbank flow is increasingly concentrated at the lower end of this area in channels and in No Name Creek
² popular site usually not occupied in fall flood season
³ although the preferred alternative proposes to remove these facilities, this would not occur before 2018.

At Frog Island, where the Stehekin Valley Road is on the edge of the floodplain and erosion management structures are proposed, conditions during the 100-year flood would include water depths on the road of 1-2 feet, with velocity of approximately 1-2 feet/second. This is an important site since it connects the upper valley to the lower valley.

The NPS maintenance area is located on the right bank of the river, and has been flooded during each of the last three large floods. Flooding damaged the road into the facility as well as several maintenance shops and storage rooms, where floodwater depths reached 1-2 feet in buildings during the 2003 flood. This site is isolated from the Stehekin Valley Road by a major side channel of the river, where 100-year flood flow velocity and depth prohibit vehicle traffic. There is currently a back road out of the floodplain at this site that leads onto the Company Creek alluvial fan.

Harlequin Campground is the largest in the valley and is also located on the right bank of the river just below Harlequin Bridge. Flood flow depths at this site are three feet and it is adjacent to the river where main channel flood velocity is 9-10 feet/second with a depth of 9-10 feet. This popular site is usually not occupied in fall flooding, and the proposed Rainbow Falls campground and an existing campground near Stehekin Landing would be available during seasonal flooding.

The Stehekin Valley Road would be relocated out the floodplain, but a trail, access road, and private driveways and development would remain in floodplain on both sides of the river near McGregor Meadows (Figures 5 and 6). Flow depths in overbank areas are on the order of 2-3 feet, although main channel aggradation is sending more flow into the floodplain, and as a result side channels such as No Name Creek and others are carrying an increasing amount of the flow. Depth in these side channels, particularly on the left bank (McGregor Meadows side) reaches as much as six feet.

Along the proposed reroute, severe rainfall could trigger debris flows that inundate parts of several debris cones with water, mud and boulders to depths of five feet or more (Figure 6). Debris flow events are thought to occur about once every 25 years on a given system, although flooding occurs more frequently.

Time Required for Flooding to Occur (Amount of Warning Time Possible)

The amount of time required for warning of possible flooding in the lower Stehekin Valley ranges from a few hours to a day, depending on the nature of the flood hazard. The largest floods on the Stehekin River can take a week or more to build. During fall floods the Stehekin River can go from 10,000 to 20,000 cfs in a matter of hours, but the flood crest passes within one day. Most flood peaks occur at night or in the early morning, when most hazardous sites are unoccupied, but people are also more unsuspecting. The National Weather Service has developed a flood warning system for the valley. Since the 2003 flood, Stehekin Valley residents and visitors have the ability to view flood forecasts specifically for the Stehekin River on the internet. There is also a call-in system established by the NPS.

Spring floods take weeks to build, providing ample warning time for most events. Heavy spring rain or high temperatures on a large, late, melting snow pack can bring peak events within days. River discharge for the largest spring events are 14,000-15,000 cfs.

There is the possibility that a natural log or landslide dam could form in the canyons in the upper Stehekin River, and release a large, somewhat unexpected flood event in the lower valley. Such an event has not been recorded in the last 100 years, nor has it been identified by deposits or landforms in the valley.

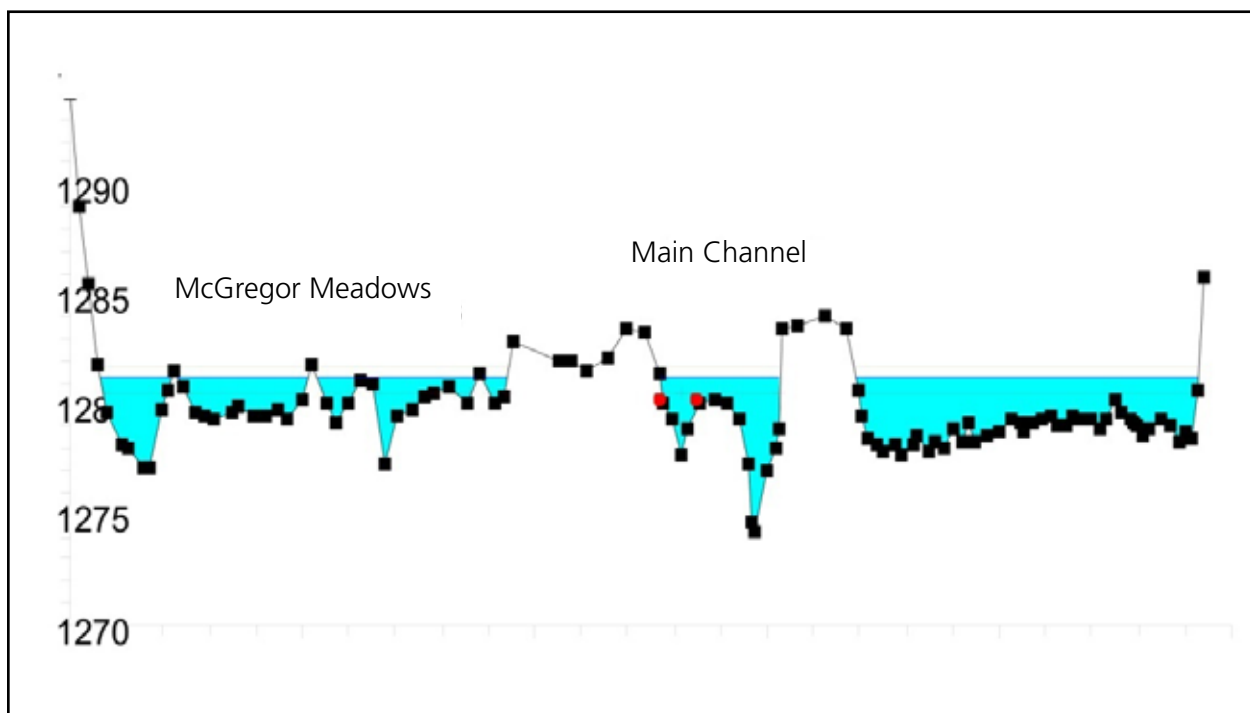
Summer debris flows from small steep canyons can rise from intense thunderstorms in a few hours. These occur primarily on the north side of the valley where most development is located. On the steep debris flow canyons and debris cones along the proposed reroute, there may be only an hour or less of warning time.

Opportunity for Evacuation of the Site in the Event of Flooding

Evacuations of the Stehekin River floodplain would involve the public, valley residents, and NPS employees. In McGregor Meadows, people would move to the new access spur road toward the reroute, which would rapidly take them out of the floodplain and to the relocated Stehekin Valley Road. From there the road would provide access to Stehekin Landing, although it would also pass through the floodplain at Frog Island and near the river mouth.

Along the upper Company Creek Road, there is a small piece of high ground across from McGregor Meadows. The Company Creek alluvial fan terrace is above the highest flood levels, but would be isolated down valley by flooding at Harlequin Bridge. Flooding of the Stehekin Valley Road at the river mouth would temporarily cut-off the valley from the Stehekin Landing. During extensive flooding, the Stehekin Valley Road and Company Creek Road also would cross hazards at debris cones and bridges. Harlequin Campground would be seasonally closed during fall and spring flooding.

Figure 7: Cross-Section through McGregor Meadows looking Downstream with the Elevation of the 100-year Flood in Blue. Data from 2011 NPS - FHWA Hydraulic Model.



Geomorphic Considerations (Erosion, Sediment Deposition, Channel Adjustments)

Geomorphic considerations are outlined in a white paper prepared for the SRCIP (Riedel 2008). The Stehekin River is remarkable for the dramatic changes it undergoes in the lower valley. Above McGregor Meadows, the river transports small boulders, but within seven miles the river is stilled by the deep water of Lake Chelan. Superimposed on this pattern is a series of net wood and gravel transport and deposition zones.

Gradient is steep in reaches with straight, narrow channels where the river encounters the large tributary alluvial fans of Company, Rainbow and Boulder creeks. The relatively straight, steep reaches are net transport zones for sediment and large wood, and as a result are areas of relative channel stability. Wood and sediment storage zones between these reaches are characterized by the existence of massive log jams, multiple side channels, and channel instability. Within these unstable zones, erosion on the outside of river bends since 1962 ranges from ten to more than 200 feet.

Dense private development occurs in two deposition zones. At McGregor Meadows, an increase in floodplain width and decrease in stream gradient led to massive gravel deposition in the 2003 flood. At the river mouth, gravel and wood deposition is influenced by the lake backwater zone. Bank erosion and increases in floodplain width are occurring at both sites.

Annual total sediment load of the Stehekin River is estimated at 32,000 cubic yards/year; with about 17 percent or 5,600 cubic yards/year, transported along the bed of the river as gravel. Larger quantities of sediment move in waves during large flood events causing aggradation and channel instability in deposition zones (Riedel 2008).

Impacts to Wetlands from the Preferred Alternative 5

A summary of wetland impacts from the preferred alternative is shown in Table 4. The impacts would occur from several of the actions described above and would result in short-term localized negligible to moderate adverse effects on wetlands during construction and long-term negligible to moderate long-term impacts once implementation is complete. These impacts would be associated with specific areas and are described below, but would generally include adverse impacts from excavation for culverts, the McGregor Meadows access spur, and installation of erosion protection measures at three sites.

Road Rehabilitation

Several old culverts would be replaced with larger ones and several other new culverts would be placed along the reroute on the Stehekin Valley Road between Harlequin Bridge and the end of the road paving project at Milepost 9.2 (Table 4). These sites include ditch relief culverts (spaced approximately every 500 feet on the existing road and every 300 - 350 feet on the reroute) as well as culverts for perennial or intermittent streams.

Most of the impacts for culvert installation on the reroute would affect 'non-wetland waterways,' or intermittent first and second order streams. These sites are seasonally wet during snowmelt and periods of prolonged rainfall. They lack wetland soils, vegetation, or standing water. During

Table 4: SRCIP Adverse Impacts to Wetlands by Alternative

Site	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Adverse Impacts					
Culvert installation perennial and intermittent creeks	Two 60 inch culverts (Wilson Ck) Two 30 inch culverts (Milepost 8.5)	Same as Alternative 1 plus seven 60 inch culverts for reroute, one 72-inch culvert and two 36-inch culverts Low-water crossing (Milepost 8.5) Low-water crossing (Milepost 9.2)	Same as Alternative 2	Same as Alternative 1	Same as Alternative 2 except there would be a box culvert instead of a low-water crossing at Milepost 8.5
Wilson Creek	Log-cribbing 0.21 ac	Rock barbs (see below)	Logjam (see below)	Rock barbs (see below)	Same as Alternative 2
McGregor Meadows Grade Raise	0.2 ac	N/A	N/A	0.2 ac	N/A
Milepost 8.5 culvert	0.02 ac	0.02 ac	0.02 ac	0.02 ac	Same as Alternative 2
Barbs / Logjams (adverse)	0	6 - 8 barbs 0.45 - 0.59 ac Barbs 0.21 River mouth 0.07 - 0.14 Frog Island 0.14 - 0.21 Wilson Ck Logjams 0.01 River mouth 0.02 Boulder Ck	4 barbs 0.58 ac Barbs 0.14 Weaver Pt 0.14 Lower Field Logjams 0.02 Weaver Pt 0.17 River mouth 0.02 Boulder Ck 0.03 Frog Island 0.06 Wilson Ck	16 - 17 barbs 1.17 - 1.24 ac Barbs 0.14 Weaver Pt 0.21 River mouth 0.07 - 0.14 Frog Island 0.21 Wilson Ck 0.14 Lower Field 0.14 Milepost 7.0 0.21 Milepost 9.2 Logjams 0.02 Weaver Pt 0.01 River mouth 0.02 Boulder Ck	Same as Alternative 2
Reroute Access Connector	N/A	N/A	N/A	N/A	0.1 ac
Former Skinny Wilson Homestead	N/A	N/A	N/A	N/A	0.05 ac
Total	0.43 ac	0.5 ac	0.6 ac	1.4 ac	0.65 ac
<i>*The culvert work would not impact wetlands, but would affect ephemeral stream channels.</i>					

summer months these stream beds run dry and any water flowing from bedrock canyons above is underground in the coarse glacial gravels and debris flow deposits.

Excavation near the exposed ends of the culverts for rip-rap rundowns and ongoing maintenance could affect palustrine forested wetlands where these were located at perennial or intermittent drainages. Approximately seven perennial or intermittent drainages occur in the project area along the proposed reroute. Except for those on the reroute and at Milepost 5.3 (Wilson Creek), Milepost 8.5, Milepost 9.2, and Thimbleberry Creek, most culverts are or would be designed for snowmelt rather than for intermittent or perennial streams. Actions associated with culverts would have short-term minor adverse effects from construction, coupled with long-term negligible adverse effects from periodically cleaning out the culverts to maintain them. Ongoing repair of flood damage on the road would have minor long-term adverse impacts from introducing gravel into the river and adjacent wetlands.

Removal of more than one million gallons of water from the Stehekin River over a three-month period for road construction and paving would result in negligible adverse effects on riverine wetlands. Locations along the river were selected to avoid existing riparian vegetation or adverse effects on water flow in the Stehekin River. Intake screens would be used to avoid uptake of organic or mineral elements.

Erosion Protection Measures

Streambank stabilization and erosion prevention measures at four sites would result in minor to moderate adverse impacts to palustrine shrub scrub wetland (Table 4). Some of the affected areas are riverine wetlands, including Frog Island and Boulder Creek. Stehekin River mouth and Wilson Creek sites, where steep river cut-banks intersect upland forest, currently have no riparian zone. Adverse effects from initial construction of the barbs and logjams would be minimized over time by restoration and bioengineering associated with barbs and would result in short-term localized minor adverse impacts where located at the edge of the channel migration zone (Frog Island, Wilson Creek, and Boulder Creek), and moderate adverse effects where located within the channel migration zone (River Mouth).

Large Woody Debris

Collection of large woody debris from logjams in the lower one-half mile of the Stehekin River would affect some riverine wetland (riparian) areas adjacent to the Stehekin River through compaction and potential vegetation disturbance and sedimentation. Depending on the type of equipment used, the scale of removal, the success of mitigation measures, and access to the site, effects would be short term and negligible to minor.

Reroute Access Connector

The lower 80 linear feet of the 950-foot long road that would connect McGregor Meadows to the reroute would cross a small wetland that occupies an ancient river channel. This palustrine-scrub-shrub wetland covers about 4 acres and the proposed access road would impact approximately 0.10 acres (3 percent). Impacts associated with the road would be long-term and minor to moderate because the road would be built at grade and would not impede water flowing into or out of the wetland. Primary impacts would be from removal of native vegetation and soils and replacement of these with large rocks and coarse gravel to form the road base (Figure 6).

Justification for Wetland Impacts

The preferred alternative would impact 0.65 acres of wetland because other options are limited for the two major actions to address flooding and erosion issues in the SRCIP. Riverbank modifications at two sites are unavoidable because the road is currently at the edge of the channel migration zone, and road relocation away from the river is limited by steep valley walls, cliffs, and rock falls. Rock barbs proposed for the Stehekin River mouth would have a larger impact on floodplain processes since they would be located in the middle of the channel migration zone. This site, however, includes a high bank and the only practical place for the NPS to build a needed river access point to avoid continuing impacts to private property. In addition, river avulsion at this site could threaten water quality by flooding of private cabins and septic systems, many of which are not raised. Ultimately, a major avulsion could threaten the Stehekin Valley Road. At all of these sites, installation of rock barbs would impact about 0.02 acres of the river bed, but would be accompanied by riparian restoration. At the river mouth access point, installation of rock barbs and bioengineering would replace about 100 feet of rip rap currently at the site.

The other main wetland impact is the 950 feet long Reroute Access Connector, which would cross a narrow wetland and about 300 feet of the floodplain. The road would impact about 0.14 acres of a palustrine shrub scrub wetland. No other site is available for the spur road because of steep slopes and unstable soils. Other possible alignments would involve substantial cut and fill and a much larger area of disturbance that could lead to sedimentation in the wetland. This project was included in the FEIS because of public concern over access to private property following proposed NPS relocation of the main road out of McGregor Meadows. There are currently 15 private parcels on approximately 35 acres that would be serviced by the spur road, which would also provide a rapid means of escape to higher ground for residents.

It is not possible for the Stehekin Valley Road to avoid crossing tributary streams. Therefore, localized impacts would occur from installation of larger culverts at about a dozen current stream crossings. At approximately seven sites on the 1.9 mile long McGregor Meadows reroute the culverts would be new, while at the other sites, larger culverts (Milepost 5.3), a box culvert with an opening top (Milepost 8.5), and a concrete plank ford (Milepost 9.2) would improve drainage beneath the Stehekin Valley Road.

Description and Explanation of Flood Risk Mitigation

The SRCIP includes only a few specific measures to reduce hazards to human life and property because all action alternatives propose to remove NPS facilities from regulatory floodplains. Relocation of the main Stehekin Valley Road around McGregor Meadows and the Lower Field will, however, expose those traveling along this road reroute to debris flow and snow avalanche hazards. These events typically occur during the winter and fall, when visitation is low. The NPS would mitigate these hazards by placing interpretive and warning signs at selected pullouts. These signs would inform people about the nature of the hazards and what precautions to take during periods of heavy rainfall. These precautions would include avoidance of bridges and culverts during periods of heavy rainfall and no parking within areas, where small streams are likely to carry debris flows.

These signs would be located along the road reroute and would have a negligible impact to the natural resources of the floodplain. Parts of the Stehekin Valley and Company Creek roads, one camp, and trails would remain within the floodplain, however.

Actions proposed in the preferred alternative at several sites would enhance floodplain values and reduce flood hazard. These include restoration of riparian zones at McGregor Meadows, Lower Field, and Buckner Homestead hayfield and pasture, and removal of parts of the Stehekin Valley Road, fuel storage facilities, the NPS Maintenance area, and three NPS housing units from regulatory floodplains.

In this plan the NPS structures and facilities would be removed from the channel migration zone. Roads, trails, and campgrounds that remain in the floodplain would remain subject to periodic flooding. Chelan County enforces the National Flood Insurance Program on the more than 400 acres of private land in Lake Chelan NRA. Private structures and facilities would, however, remain within the regulatory floodplain, within standards and criteria of the National Flood Insurance Program (44 CFR 60) administered by Chelan County.

Description and Explanation of Floodplain and Wetland Mitigation Plans in the Preferred Alternative

The SRCIP would provide general benefits to floodplains and wetlands by focusing management on the Stehekin River channel migration zone, rather than on static floodplain boundaries, and by embracing the concept of floodplain utilization. This approach would allow floodwater to spread across the floodplain to benefit floodplain and wetland functions. It rejects the unsustainable and ecologically damaging practices of dredging and levee construction. In addition, Alternative 5 would mitigate 0.65 acres of new impacts to wetlands with restoration of about 4.6 acres of wetland, which results in a net gain of about 4 acres of wetland with the potential for more as the river is allowed to occupy more of its channel migration zone. Combined, the actions proposed in the SRCIP would also improve the function of larger riparian wetland systems (Table 5). Specific restoration actions include:

1. **Removal of the NPS Maintenance Facility, Fuel Storage, and Housing from the Floodplain:** Because the maintenance area and fuel storage facility are class I and class II actions, respectively, and are within regulatory floodplains, they continue to have adverse effects on floodplains and wetlands. Relocation of this 5 acre site would result in major beneficial effects by removal of development from a 2-acre open-water palustrine wetland and adjacent floodplain, as well as by reducing the potential for water pollution from fuel storage, vehicles, and other machinery (Figure 8).

The primary goals of restoration at this site would include removal of old cars, culverts and other material from the wetland, and replanting of disturbed areas with native wetland species. This project would be funded as part of the phased development of a new maintenance compound and housing area relocation, scheduled to begin in 2018.

2. **Rerouting the Stehekin Valley Road:** About 1.9 miles of the Stehekin Valley Road would be rerouted out of the floodplain around McGregor Meadows and the Lower Field (Figure 6). About 0.8 miles of the existing road would be obliterated, allowing the river to utilize this section of the floodplain, and to eventually create new riparian habitat and wetlands. This would result in about 1.46 acres of restored floodplain beneath the former road. Flooding and erosion at the lower end of the existing route into McGregor Meadows are projected to become worse, and ultimately it is expected that all of the private land owners would use the 950-foot long, 12-foot wide Reroute Access Connector. Future potential abandonment of additional sections of road in this area would provide additional opportunities for wetlands to expand or be created.

Table 5: SRCIP Beneficial Impacts to Wetlands by Alternative

Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 (preferred)
Bioengineering Barbs and Logjams (beneficial)	0	0.5 acres	0.6 acres	1.17 - 1.31 acres	Same as Alternative 2
Riparian Restoration (beneficial)	1.5 acres Restoration Maintenance area: 1.5 acres	4.1 acres Restoration Maintenance area: 1.5 acres Road reroute 1.46 acres River mouth: 0.07 acres Wilson Creek: 0.21 acres Buckner: 0.34 acres Lower Field: 0.36 acres Frog Island: 0.21 acres	3.9 acres Restoration Same as Alternative 2 except: Road reroute: 1.0 acres Weaver Point: 0.18 acres	2.9 acres Restoration Same as Alternative 2 except for road reroute	Same as Alternative 2
Total Beneficial (Bioengineering, Restoration)	1.5 acres	4.6 acres	4.5 acres	4.1 acres	Same as Alternative 2

Removal of the road at the upper end of McGregor Meadows would allow flood water to move into the head of the wetland impacted by the spur road, and prevent water from following the road instead (Figure 6). Therefore the reroute will improve function of the wetland, and the spur access road crossing the lower end of the wetland will be built at grade to allow water to flow unimpeded to lower parts of the wetland.

Restoration actions, including obliteration of 0.8 miles of road in the floodplain and riparian revegetation in the Lower Field, which would occur in the two years following approval of a Record of Decision on this plan.

3. Restoration and Bioengineering: Riparian restoration and/or bioengineering (layered planting associated with rock barbs or logjams) would enhance floodplain and wetland function along the banks of the river at five sites, including more extensive restoration at the Lower Field (Figure 6) and Buckner Homestead hayfield and pasture (Figure 9). Maps and description for the rock barbs and bioengineering at Wilson Creek, Frog Island and the river mouth are provided in the FEIS and Table 4. Several of these sites currently have no riparian vegetation, and the river mouth project would also replace 100 feet of rip rap with dense planting of native shrubs and a rock barb.

Figure 8: Wetlands Near the NPS Maintenance Compound That Would Be Restored Once the Facility is Relocated. Restoration benefits would include improved flow of water into and through the area, removal of old equipment, and replanting of riparian species.

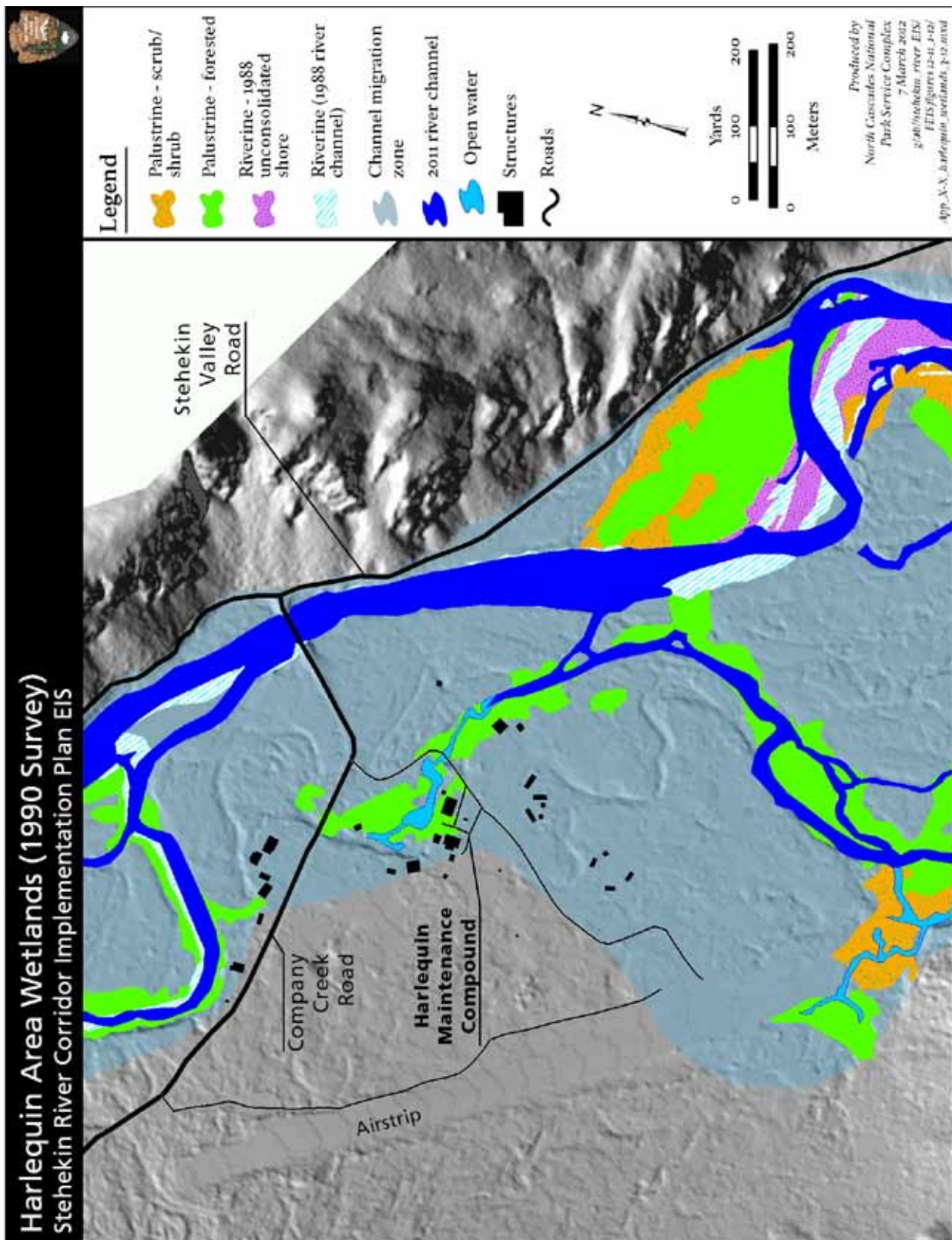
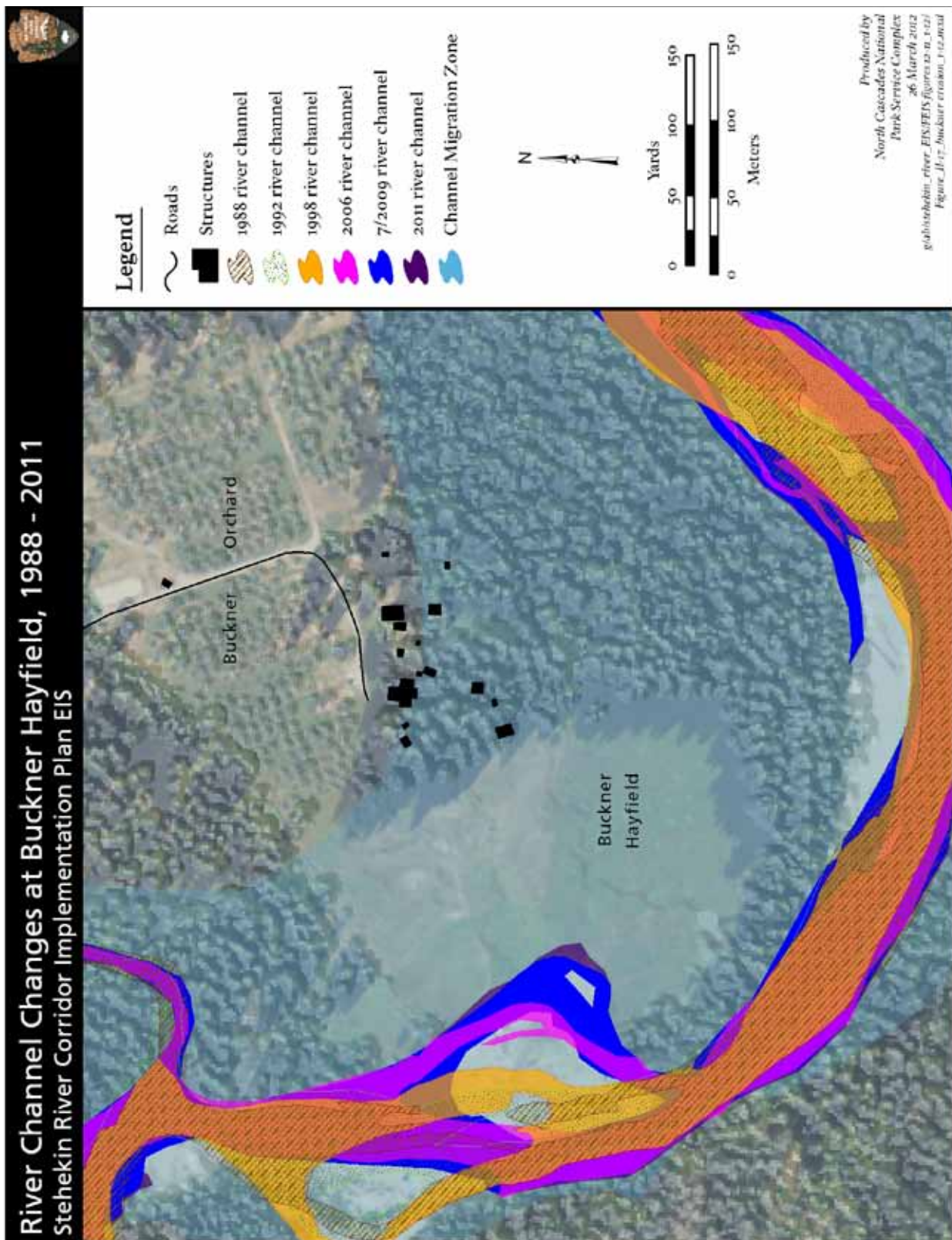


Figure 9: Location of Proposed Riparian Restoration at Buckner Homestead Hayfield and Pasture. The project would focus on a 300 feet x 30 feet area at the west end of the field where erosion by the river is greatest.



The Lower Field, Wilson Creek, and Frog Island riparian restoration would be funded as part of the implementation of the proposed road project by FHWA. Large scale maps of these actions are provided in Chapter 2 of the FEIS while impacts and restoration areas are shown in Table 4. Proposals have not been developed to fund the riparian restoration at the proposed river access point or Buckner Homestead hayfield and pasture. Pending signature of the SRCIP Record of Decision, funding proposals would be developed.

4. Exchange and/or Acquisition of Private Property: An important part of the SRCIP is revision to the 1995 Land Protection Plan (LPP), which guides land exchange and acquisition within Lake Chelan NRA. The LPP is the primary tool for alleviating one of the major threats to the floodplain and riparian wetlands – cabins and septic drain-fields that could be inundated by Stehekin River flooding. The revised 2012 LPP focuses on removing development from the most threatened areas, in McGregor Meadows and in high flood hazard areas on debris cones. Removal of development in these areas would likely affect about 10-20 acres over the next 20 years, based on recent rates of NPS private land exchange/acquisition.

Future opportunities to restore natural floodplain conditions by removing development is uncertain because this action would continue to be initiated by willing sellers and is based on the availability of funds allocated from Congress through the Land and Water Conservation Fund. There is currently \$900,000 available and several private landowners have indicated interest.

Summary

This statement of findings accompanies a FEIS for the Stehekin River Corridor Implementation Plan and associated actions carried over from the 1995 LACH General Management Plan. The SRCIP was developed in response to recent major floods and resultant channel changes on the lower Stehekin River that have intensified flood and erosion threats to NPS facilities and natural resources within Lake Chelan NRA.

The major actions under the SRCIP preferred alternative would result in both adverse and beneficial impacts to floodplains and wetlands. Proposed actions would adversely affect 0.65 acres of palustrine wetlands, while restoration would result in improvements to 4.6 acres of riverine and forested wetlands. The net increase in wetlands of 4 acres in the lower Stehekin Valley results in the SRCIP being in compliance with NPS Director's Order #77-2 (Wetland Protection; NPS 2002a) by achieving 'no net loss' of wetland acreage.

The SRCIP preferred alternative proposes to allow limited large woody debris procurement on the lower 0.5 mile of the river above Lake Chelan (below Boulder Creek). This proposal recognizes the threat posed to the road and water quality by the unnatural conditions in the Lake Chelan backwater zone, which has resulted in channel aggradation and the massive build-up of large wood since 1980. Log removal would be allowed from the tops of large logjams with NPS permitting approval, as long as the jam was not destabilized and as long as the removed wood stays in the channel migration zone for restoration projects. Logjam manipulation would also continue to be allowed under specific emergency circumstances in this backwater zone, and the NPS would continue to assist private landowners with technical support for maintenance of the 1948 channel project.

Installation of rock barbs to protect the Stehekin Valley Road at three sites would result in an increase in the total amount of riverbank modified on the Stehekin River from 6.5-8.3%. At two

of these sites, however, the barbs would be located at the edge of the channel migration zone, where their impact on river migration and the creation of new floodplains and wetlands is minor. Near the Stehekin River mouth the installation of rock barbs in the middle of the channel migration zone are designed to replace 100 feet of rip rap at the site and to accommodate installation of a river access point. These structures would also provide some protection from a major river avulsion that could impact water quality by increased erosion and flooding of private cabins and septic systems.

Removal of about 0.8 miles of the Stehekin Valley Road from the floodplain at McGregor Meadows would result in the potential for new wetlands to be created in this extensive, low lying area. Relocation of the NPS maintenance and fuel-storage facilities would bring these facilities into compliance with their regulatory floodplains and NPS Director's Order #77-2 (Floodplain Management Guideline). The preferred alternative would preclude further encroachment of the road on the floodplain at McGregor Meadows by eliminating the need for future increases in road height and erosion control structures. Placement of fill in this area to elevate the road would raise flood water elevations by 0.5 ft.

Harlequin Campground, some trails, and about 0.5 miles of the main Stehekin Valley Road and about 1.7 miles of the Company Creek Road would remain in the floodplain because practical alternatives do not exist. Flood hazards associated with continued occupation of these sites are not substantial due to adequate warning times and relatively low flood water depth and velocity.

The primary adverse impacts to the floodplain would continue to be impacts from retaining the 400-foot-long Company Creek levee, which inhibits floodplain utilization; from erosion protection measures installed over time along the river; and from allowing the road to remain adjacent to the floodplain and/or channel migration zone where reroutes cannot be undertaken. Impacts to floodplain values would also be offset by several proposed management actions. These include (1) removal of the maintenance area from the floodplain, (2) rerouting the Stehekin Valley Road out of McGregor Meadows, (3) removal of private development from the floodplain through land exchange/purchase from willing sellers to improve public safety and so that homes and septic systems do not become incorporated in logjams in future flood events, and (4) restoration of riparian areas in several locations in conjunction with the creation of new recreational opportunities.

Conclusion

Floodplain and wetland values would be impacted by several actions proposed in the SRCIP FEIS. These impacts would also be mitigated, to some extent, by several actions that enhance floodplain values. These include removal of NPS housing, maintenance buildings, and fuel storage from the floodplain, relocation of 1.9 miles of the Stehekin Valley Road from the floodplain, restoration of two riparian areas, and a re-vamped Land Protection Plan that proposes the removal of private development via willing seller land exchanges before that development is claimed by the river. For facilities that remain in the floodplain, flood hazards are relatively minor (depth < three feet, velocity < three ft/second) and advance warning of hours to days is likely.

Wetlands as defined by the Cowardin system would be impacted at several sites in the preferred alternative on a total of 0.65 acres. No practical alternative exists for avoiding the small wetland that would be crossed by the proposed Reroute Access Connector. Most affected smaller wetlands are located where new, larger culverts would be installed beneath the Stehekin Valley Road

or along the McGregor Meadows reroute. Mitigation for wetlands impacts would also occur at several other sites where a total of 4.6 acres of wetland would be restored. The net increase in wetlands of approximately 4 acres in the lower Stehekin Valley would allow the SRCIP to be in compliance with NPS Director's Order #77-1 (Wetland Protection; NPS 2002a) by achieving 'no net loss' of wetland acreage. Future removal of more roads in this area when no longer needed could also result in additional benefits to wetlands.

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**Appendix 18: Estimates of Gravel
Accumulation in Two Reaches of
the Stehekin River**



Sunset in Stehekin.

APPENDIX 18: ESTIMATES OF GRAVEL ACCUMULATION IN TWO REACHES OF THE STEHEKIN RIVER

Estimates of gravel accumulations in two reaches of the Stehekin River were calculated in order to evaluate the basic cost of dredging the Stehekin River. The lower reach is defined as the river mouth (river kilometer 0) to river kilometer 1. Cross-sections from a survey done in 1999 by the Chelan County Public Utility District (PUD) were resurveyed in 2009. Four cross-sections were chosen as a basis of comparison of gravel accumulation in the lower kilometer of the river. Based on this data, in a ten year period it is estimated that 59,000 cubic yards of gravel accumulated in this lower reach. The upper reach is defined as just above the McGregor Meadows logjam to river kilometer 11. Gravel accumulation was estimated by comparing cross-sectional data done by the U.S. Geological Survey (USGS) in 1986 to a White Shield Inc. survey done in 2007. In a 21-year period it is estimated that 44,000 cubic yards of gravel accumulated in this reach.

This brings the total gravel accumulation to 103,000 cubic yards when these two sections of the river are combined. We note these are overall high estimates since incision was not accounted for in this study. Pebble counts done in 2007 estimated the mean grain size at 2.6 inches at river kilometer 1, 3.5 inches at river kilometer 10, and 5.9 inches at river kilometer 11. A potential gravel storage area is the Company Creek Gravel Pit, but current policy limits the footprint of the gravel pit to two acres, which is too small to accept 103,000 cubic yards of material. When this estimate of gravel was given to the Army Corps of Engineers, they calculated that the one-time cost of dredging the Stehekin River would cost around 12.5 million dollars. Therefore the maintenance of the dredging option on the decadal scale would cost millions of dollars to maintain and was thus not considered one of the preferred alternatives.

Below is a description of the data used in this study and the assumptions and calculations made in order to estimate gravel accumulation in the Stehekin River for these two reaches.

Cross-section Data

The lower reach in this study is defined as the river mouth (kilometer 0) to one kilometer up river (figure 1). In this section of the river, surveys were conducted Chelan County PUD in October of 1999 and again in March of 2009. Both surveys are tied to the USGS Purple Point Gage, located in upper Lake Chelan. The vertical datum for both surveys is the USC and GS Datum at Lake Chelan (NAVD 88) and the horizontal datum is NAD 83. The locations of cross-sections in this lower reach are provided in figure 2 while the cross-sections follow in figures 3-6.

The upper reach of this study is defined as river kilometer ten to 11, in the McGregor Meadows section of the Stehekin Valley (figure 1). Surveys were conducted by the USGS in 1986 and again in 2007 by White Shield Inc. The 1986 USGS survey used vertical datum NGVD 29, while the 2007 survey used the current vertical datum of NAVD 88. Thus an adjustment of 3.82 feet is added to each data point in the 1986 survey in order to compare it to the 2007 survey. This adjustment figure is based on calibrations done by White Shield Inc. relating to gage stations in the valley (White Shield Inc. 2007). Horizontal datum for both surveys is NAD 83. The locations of cross-sections in this upper reach are provided in figure 7 while the cross-sections follow in figures 8-11.

Figure 1: The Location of the Two Reaches Evaluated for Gravel Accumulation on the Stehekin River

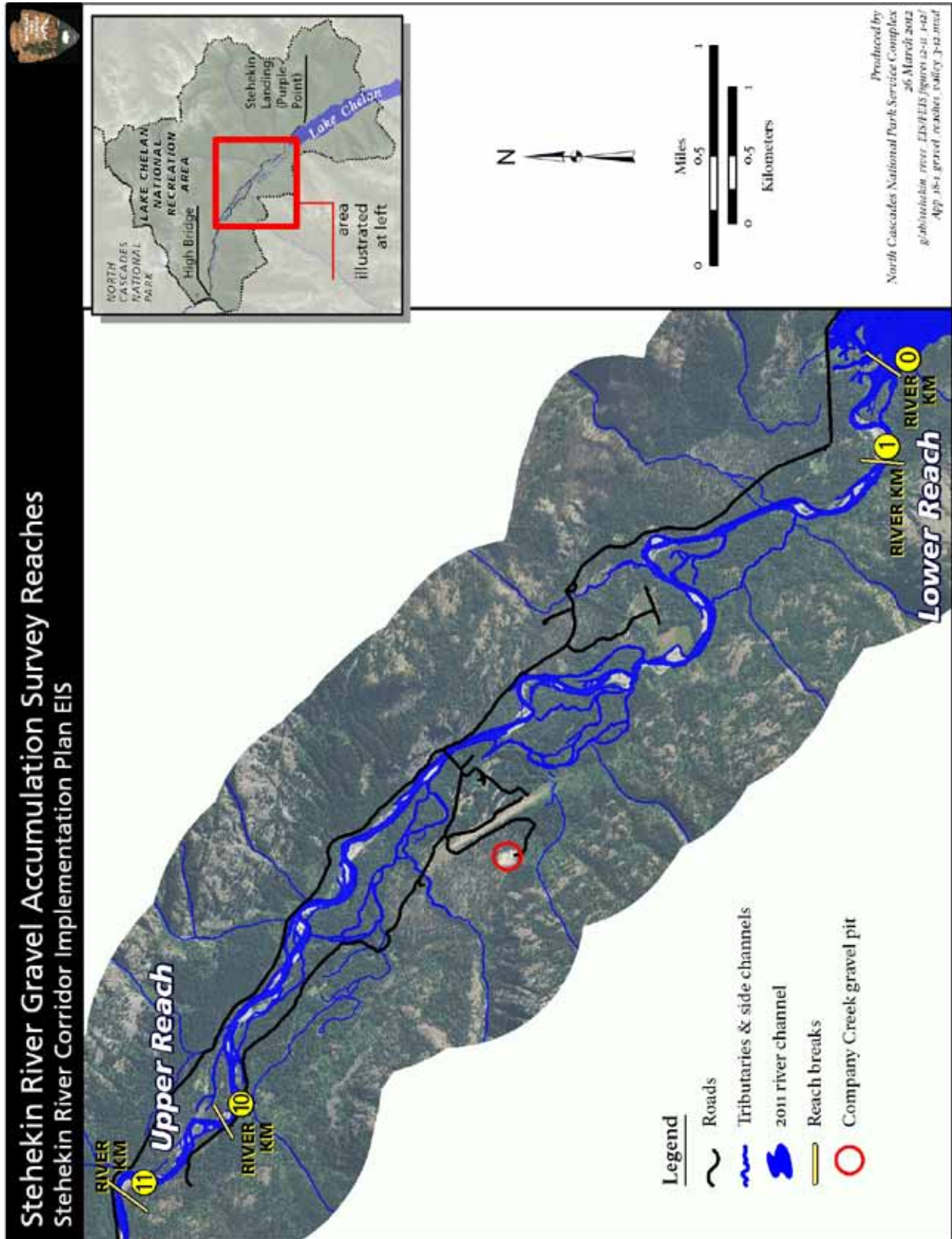
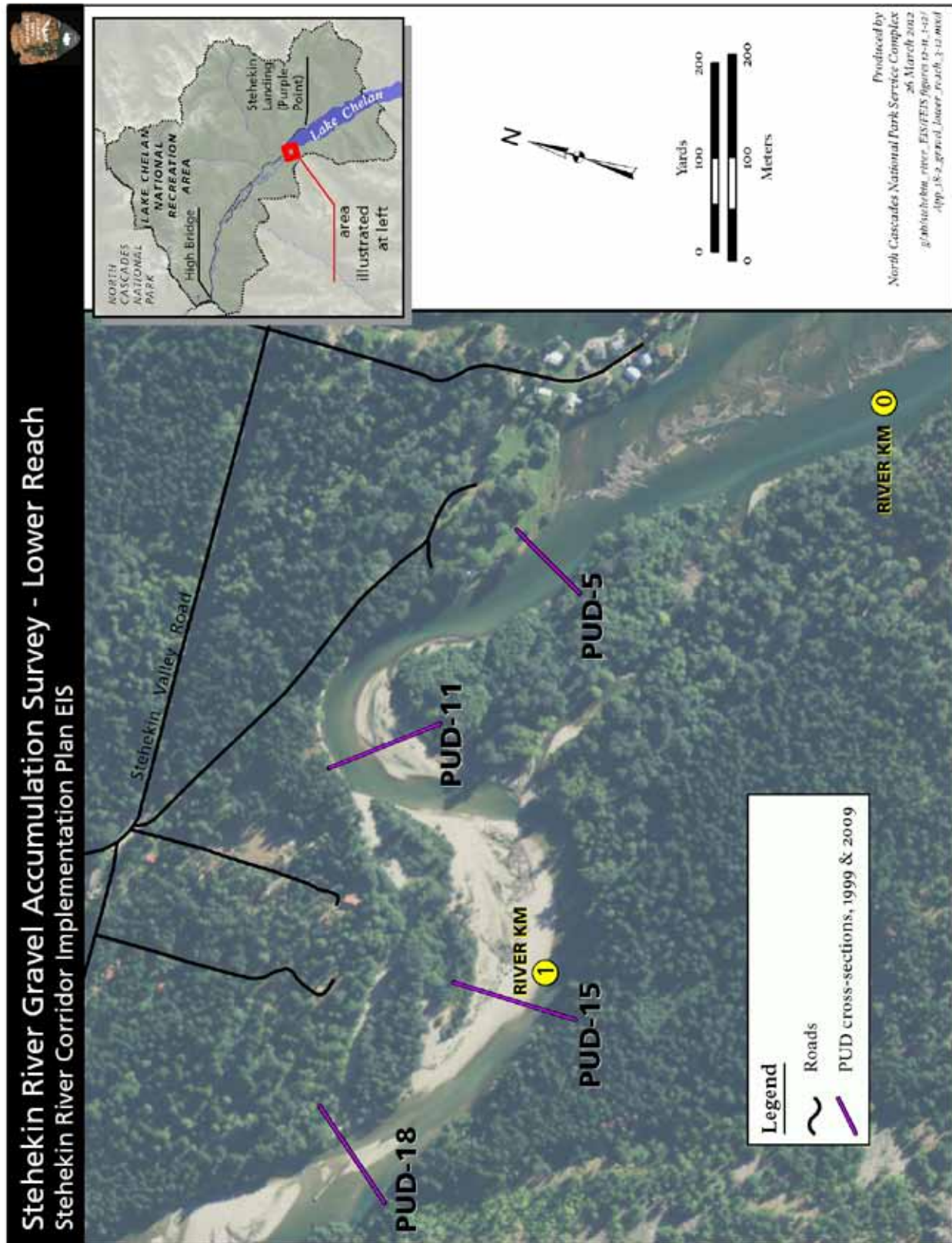


Figure 2: The Locations of Cross-Sections in the Lower Kilometer of the Stehekin River



Calculations of Gravel Accumulation

Lower Reach

At the mouth of the river, PUD-5 shows an average increase of 1.5 feet of gravel over the ten-year period (figure 3). For PUD-11 incomplete data was provided for the 1999 survey, as shown in figure 4. The main channel has clearly incised close to the left bank since the 1999 survey with concomitant lateral growth of a “point” gravel bar. The average gravel accumulation was estimated at 2.3 feet across the channel. For PUD-15, slight erosion has occurred at the right bank of the river with minor deposition across the left bank gravel bar of 0.8 feet (figure 5). The final section of the lower reach is at PUD-18 (figure 6). The cross-section data clearly shows this section accumulated gravel in the last ten years. The average accumulation across the channel was three feet.

Between river kilometer 0 and 1, we will assume that that average gravel accumulation shown in the cross-sections, 1.9 feet, is constant over this 2,900 foot stretch of river. By approximating the area of the channel to be a trapezoid that consist of one rectangle 250 feet by 1.9 feet (main channel) and two triangles each five feet long (edges of channel), this section has an estimated volume of 59,000 cubic yards of gravel accumulated in the 21-year period. Pebble counts done in this section of the river in 2007 estimated the mean grain size to be 2.6 inches.

Figure 3: Cross-section PUD-5 in the 1999 and 2009 Surveys

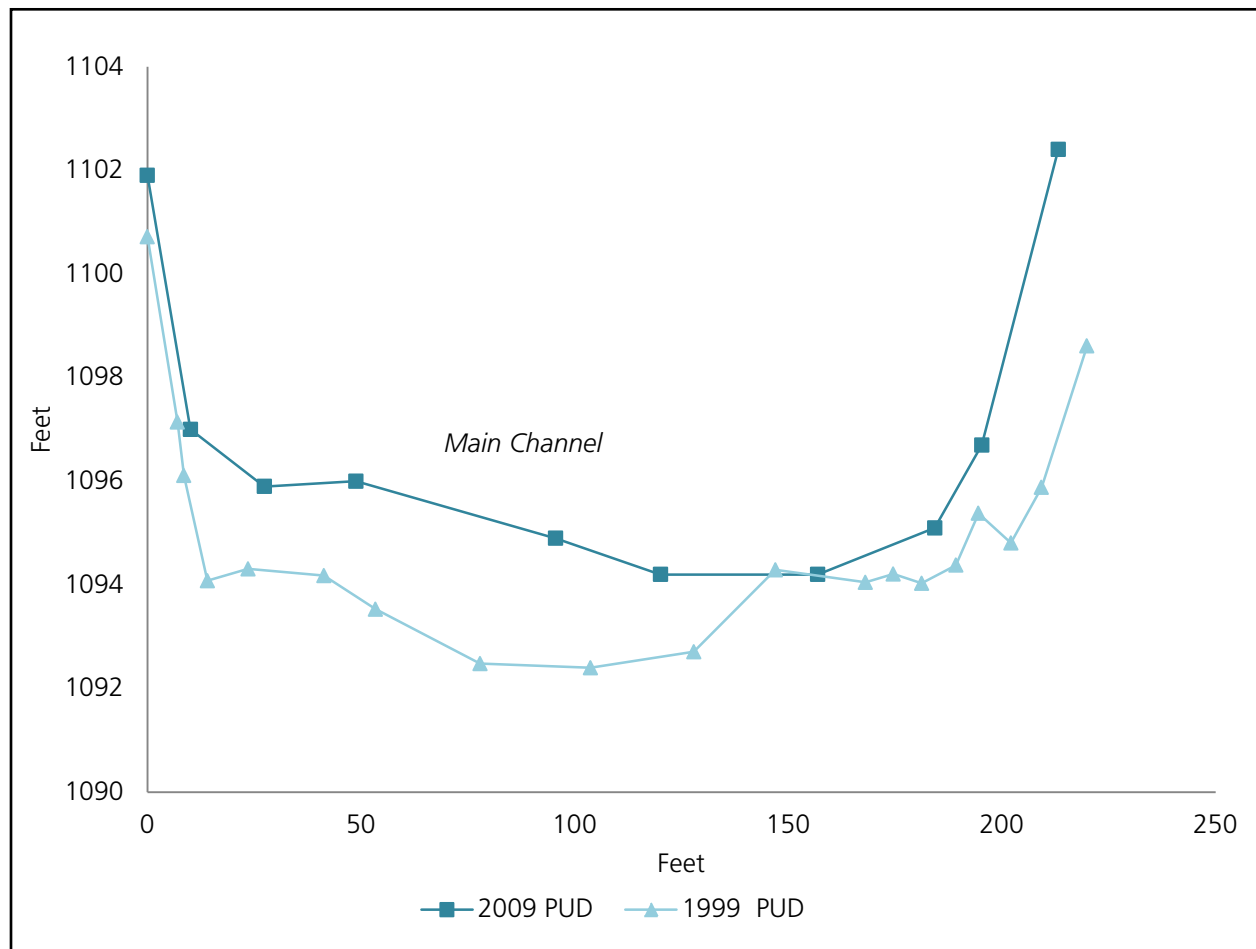


Figure 4: Cross-section PUD-11 in the 1999 and 2009 Surveys

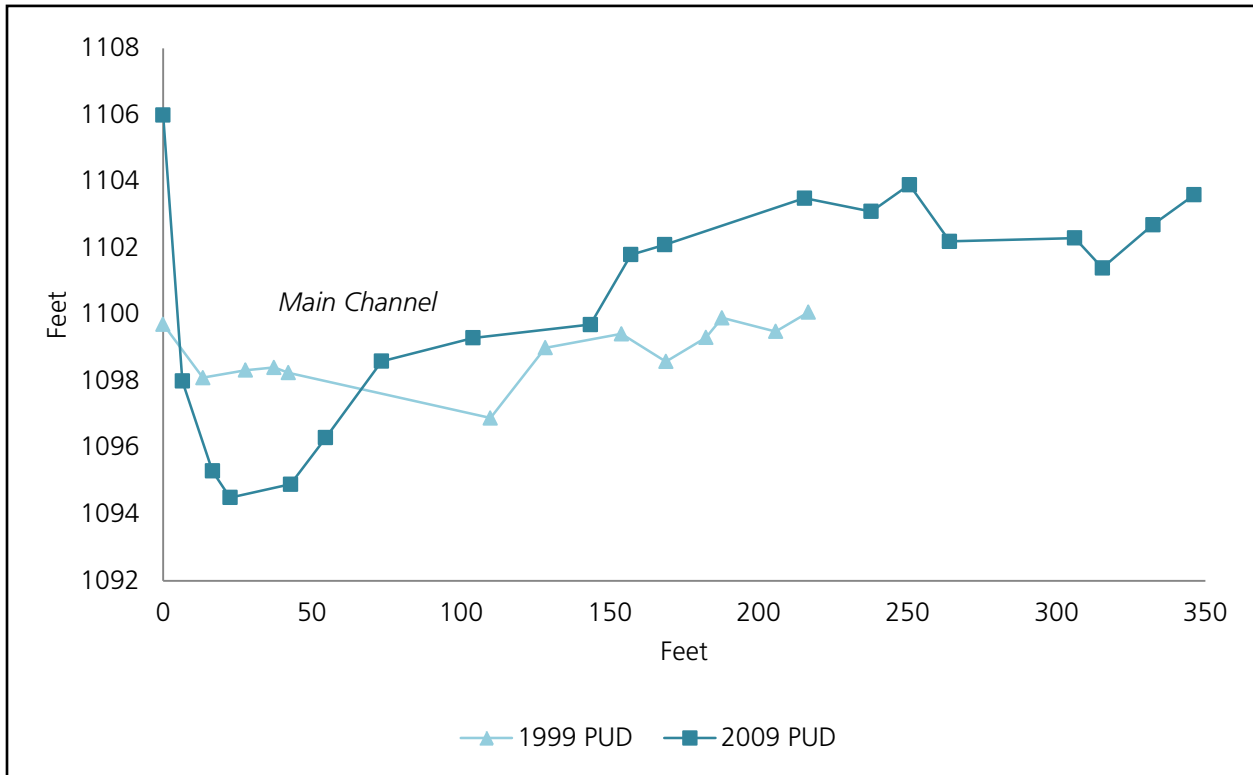


Figure 5: Cross-section PUD-15 in the 1999 and 2009 Surveys

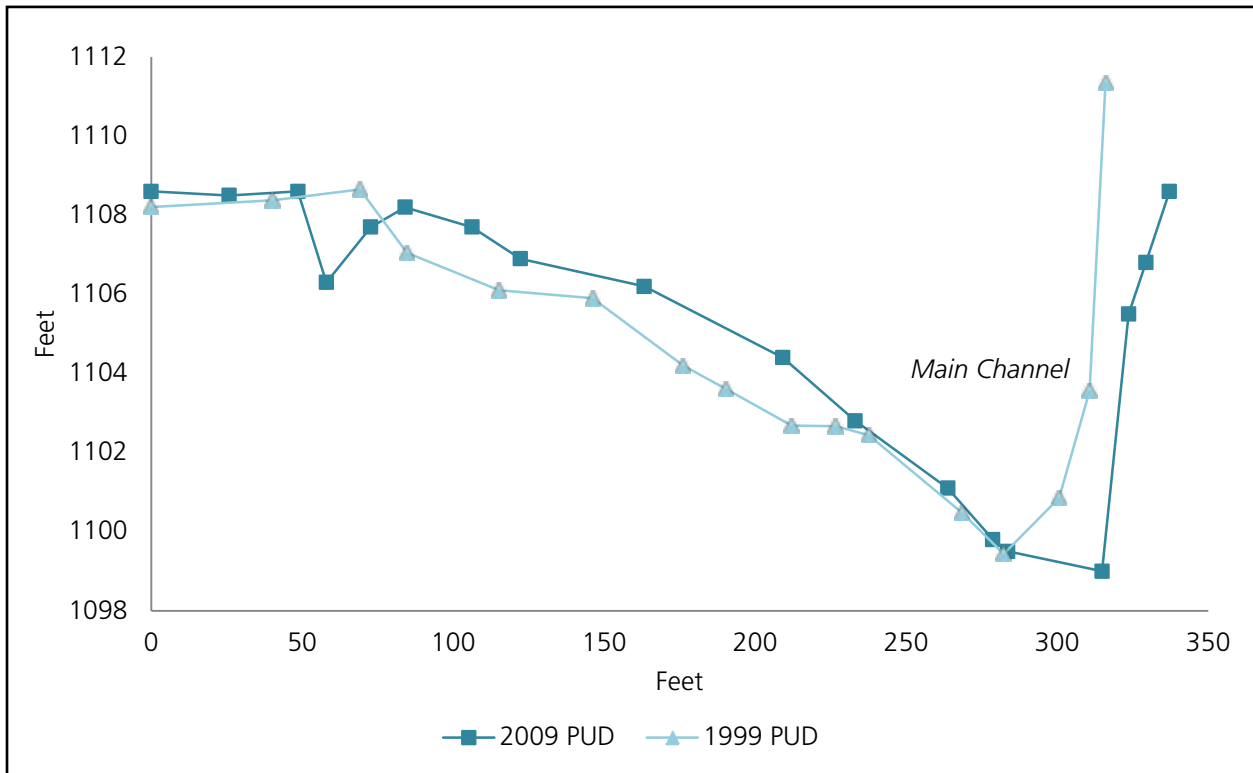
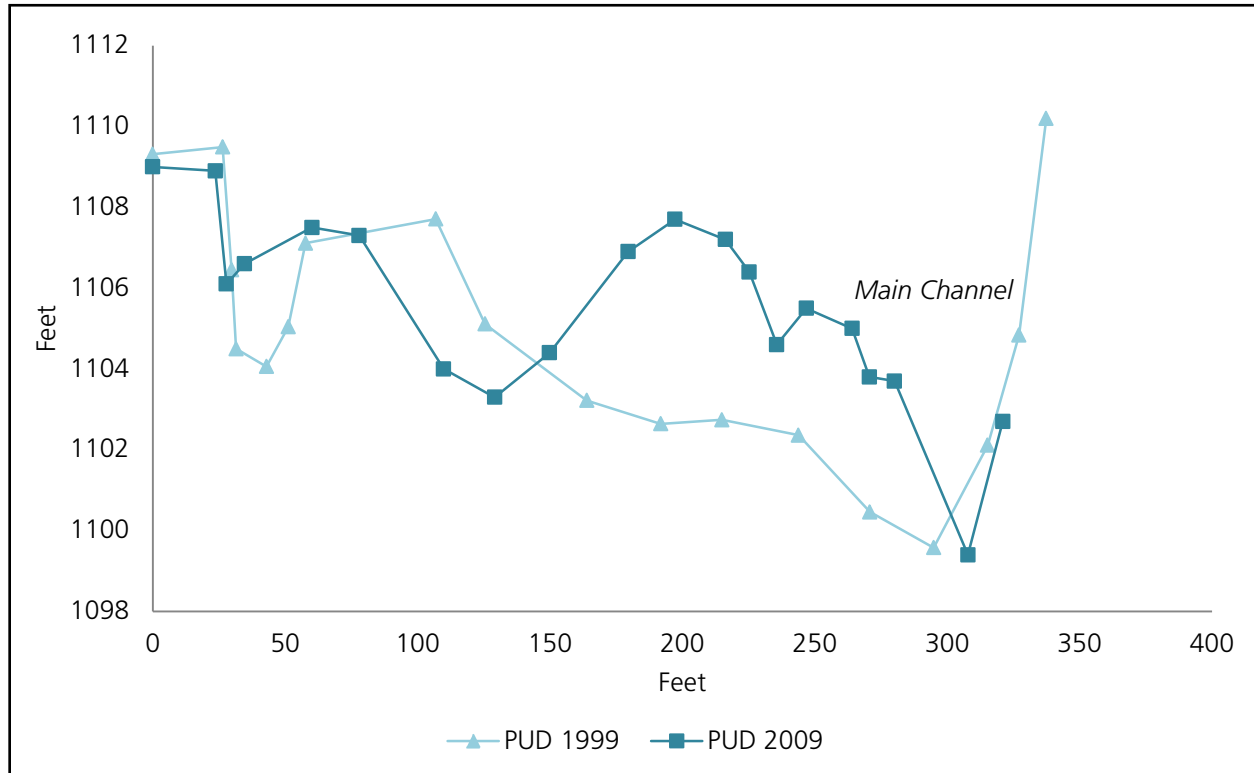


Figure 6: Cross-section PUD-18 in the 1999 and 2009 Surveys



Upper Reach

Gravel accumulation was more challenging to estimate in the upper reach in McGregor Meadows since the locations of comparing cross-sections in most cases are not identical (figure 7). Just above the major logjam in McGregor Meadows, cross-sections USGS-Z and WSI-10 are compared. Slight erosion is noted in the main channel and a large gravel bar has been deposited on the right bank (figure 8). It is also revealed that another channel has been scoured into the far right bank of the river. Further up-river of the logjam, there is again accumulation of gravel in the main channel, revealed by comparing cross-sections USGS-AA to WSI-12 (figure 9). USGS-AB and WSI-13 also reveal more accumulation in the main channel as the river has shifted closer to the right bank (figure 10). The final cross-section comparison, USGS-AC and WSI-16 reveals slight scour, but mostly deposition of gravel in the main channel (figure 11).

Between cross-section WSI-10 and USGS-AC, we will assume that that average gravel accumulation shown in the cross-sections, approximately two feet is constant over the 2,900 foot stretch of river. By approximating the area of the channel to be a trapezoid that consist of one rectangle 200 feet by two feet (main channel) and two triangles each five feet long (edges of channel), this section has an estimated volume of 44,000 cubic yards of gravel accumulated in the 21-year period. Pebble counts done in this section of the river in 2007 estimated the mean grain size to be 3.5 inches at river kilometer 10 and 5.9 inches at kilometer 11.

Figure 7: The Locations of Cross-sections in the McGregor Meadows Reach of the Stehekin River

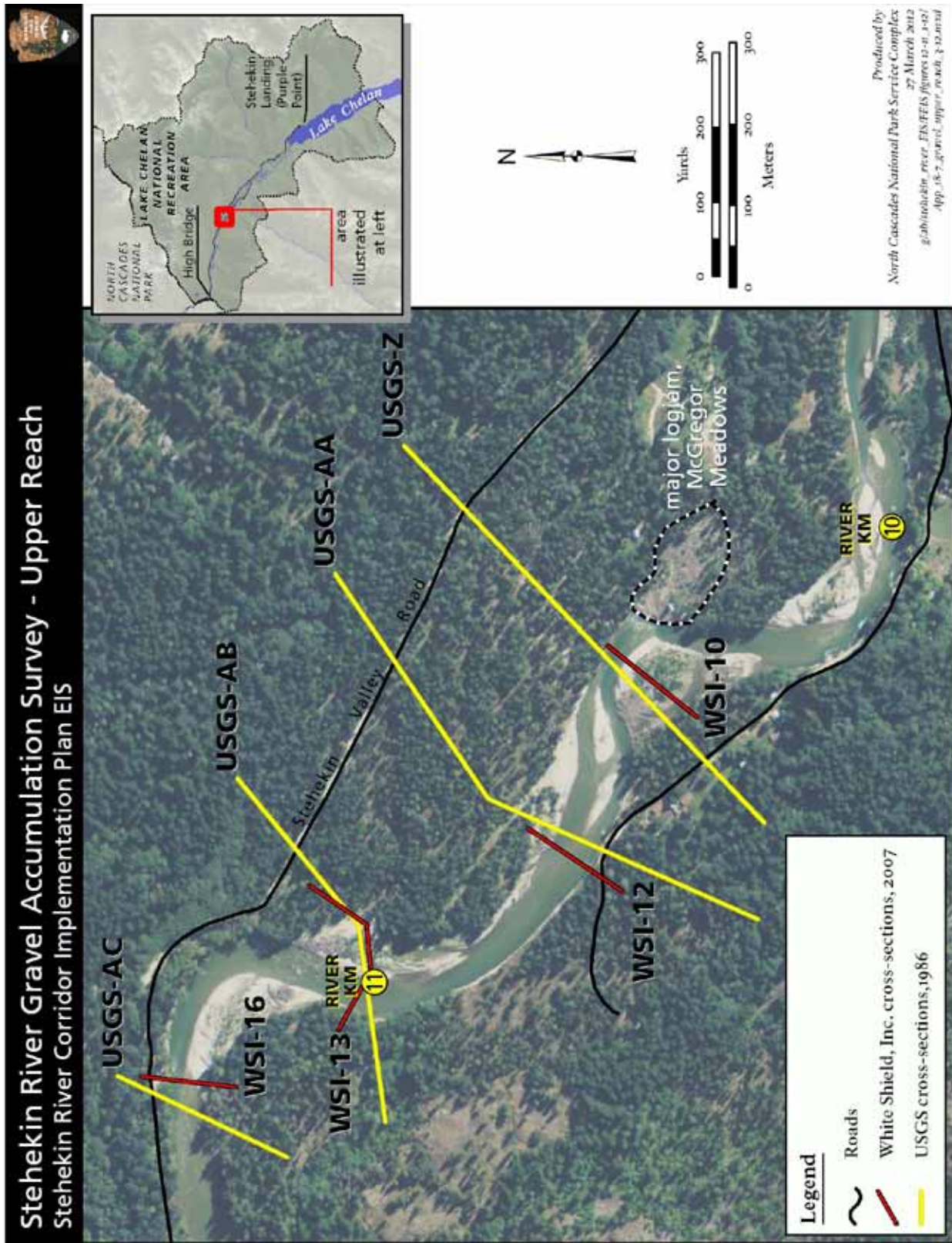


Figure 8: Cross-section USGS-Z and WSI-10 from the 1986 and 2007 Surveys



Figure 9: Cross-section USGS-AA and WSI-12 from the 1986 and 2007 Surveys

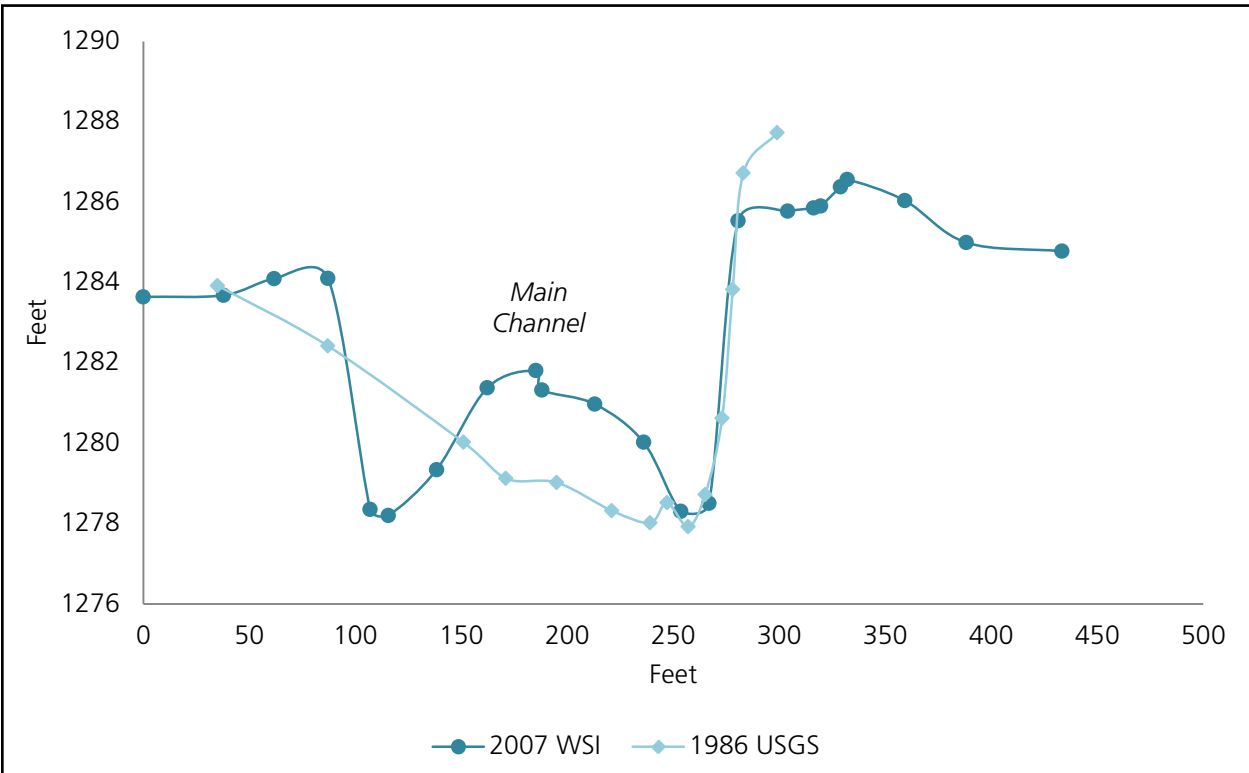


Figure 10: Cross-section USGS-AB and WSI-13 from the 1986 and 2007 Surveys

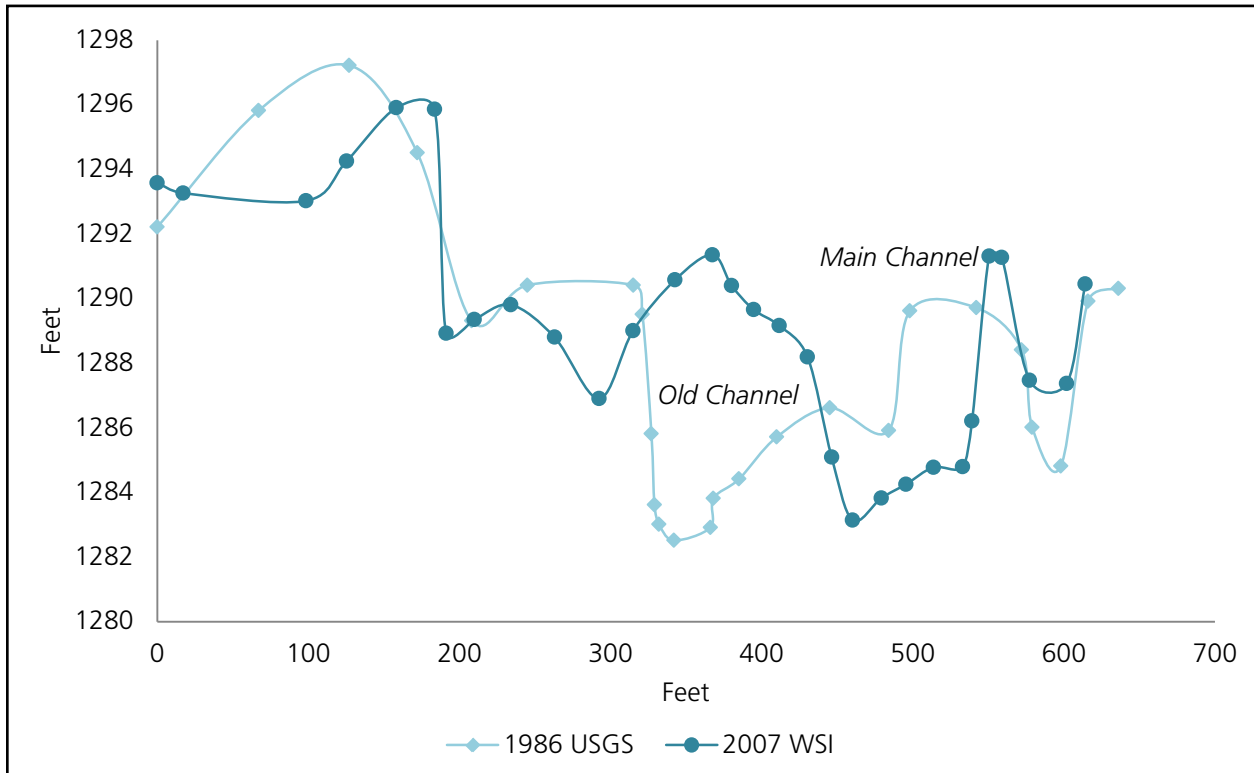
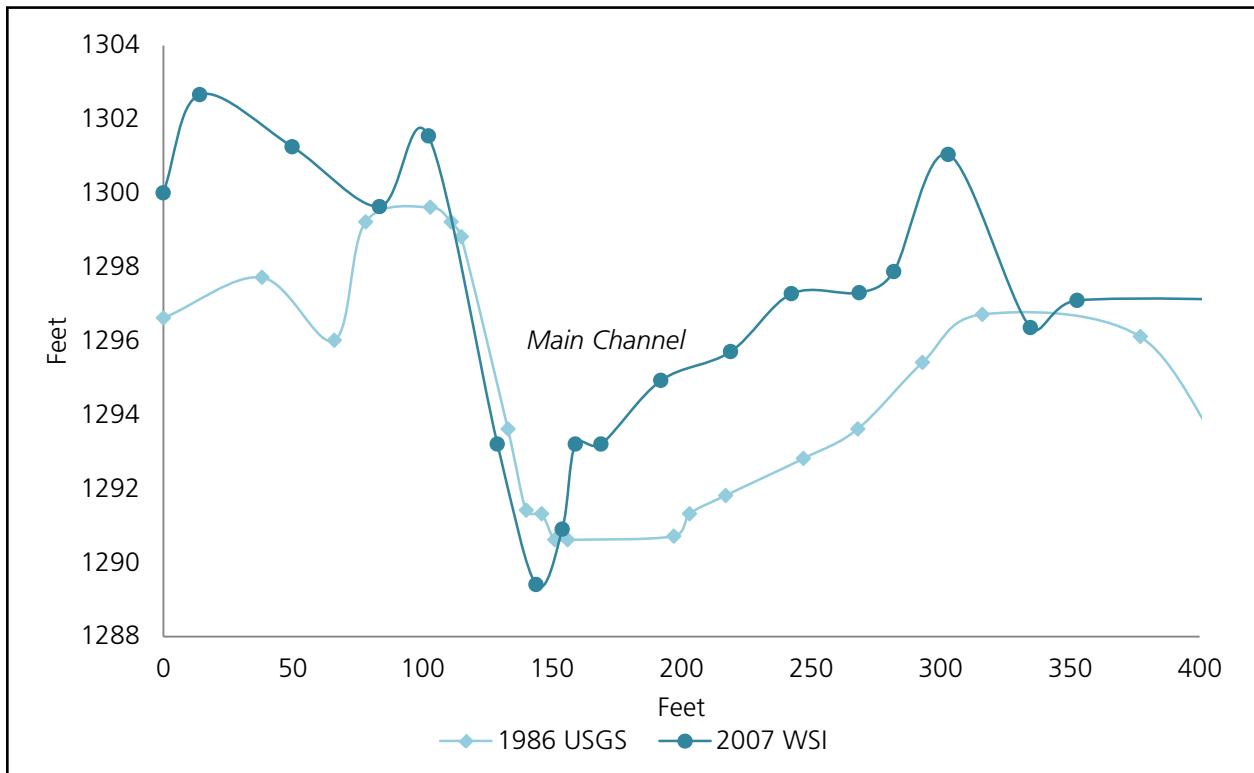
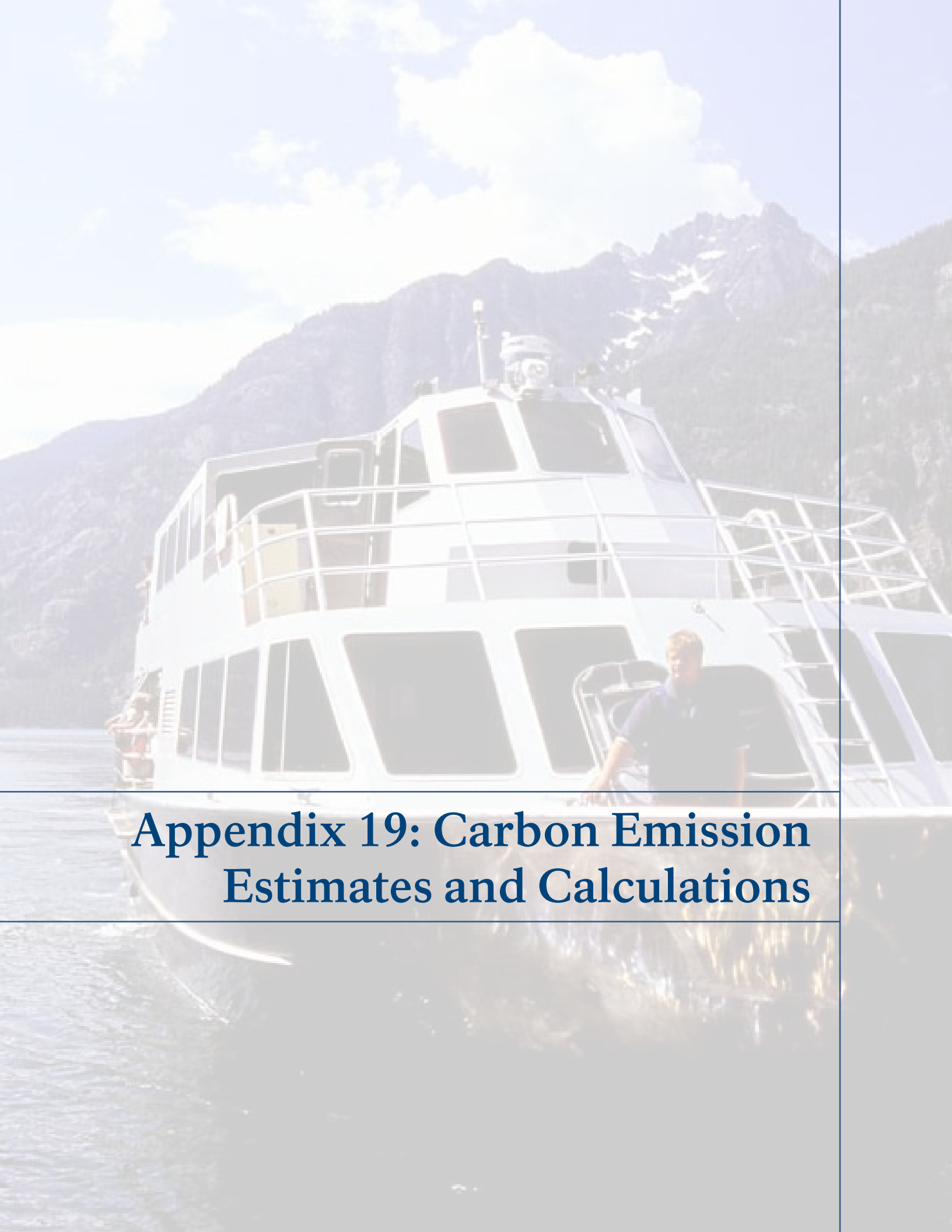


Figure 11: Cross-section USGS-AC and WSI-16 from the 1986 and 2007 Surveys



Potential Storage Site

Potential gravel storage areas in the lower Stehekin Valley are severely limited by current public and private land use, as well as the Stehekin River. The National Park Service currently operates one gravel pit in the valley, known as the Company Creek Gravel Pit. Current policy outlined in the 1995 General Management Plan for use of this material limits the footprint of the gravel pit to two acres, which is too small to accept 103,000 cubic yards of material. Nonetheless, the Company Creek Gravel Pit is the most attractive site for storage. It is located three miles from the upper reach and 3.5 miles from the lower reach analyzed in this study.



Appendix 19: Carbon Emission Estimates and Calculations



The Lady Express.

APPENDIX 19: CARBON EMISSION ESTIMATES AND CALCULATIONS

Fuel efficiency assumptions are as follows: six gallons/hour for excavator and roller use; five miles per gallon for dump trucks and asphalt truck with 40 cubic yards transported per trip (round-trip assumed to be 15 miles); barge can carry 230 tons; 1 cubic yard is equal to 1.8 tons; 200 gallons of fuel per barge trip; and 22.2 pounds of carbon are burned per one gallon of diesel fuel (EPA 2009).

Action	Work Associated with Action	Diesel Fuel (Gallons)		Carbon (Tons)
		Per Work	TOTAL	
Alternative 1 Emissions				
Road Rehabilitation	4,500 cubic yards of imported fill	340	13,300	148
	1,100 cubic yards of local fill	56		
	450 cubic yards of asphalt	34		
	600 hours of excavator use	3,600		
	350 hours of roller use	2,100		
	36 trips on the barge	7,200		
Erosion Protection Measures	4,317 cubic yards of asphalt	108	6,508	72
	400 hours of roller use	2,400		
	20 trips on the barge	4,000		
Construction of New Maintenance Building, Housing, and Helipad	774 cubic yards of concrete	58	4,058	45
	20 trips on the barge	4,000		
Recreational Improvements	Negligible	N/A	N/A	N/A
Totals			23,866	265
Alternative 2 Emissions				
Road Rehabilitation and Reroutes	2,700 cubic yards of imported fill	203	9,285	100
	1,100 cubic yards of local fill	56		
	1,675 cubic yards of asphalt	126		
	1,134 hours of excavator use	3,600		
	150 hours of roller use	900		
	27 trips on the barge	4,400		
Erosion Protection Measures	580 cubic yards of fill	44	9,008	100
	30 trips on the barge	6,000		
	40 hours of excavator use	240		
	4317 cubic yards of asphalt	324		
	400 hours of roller use	2,400		
Construction of New Maintenance Building, Housing, and Helipad	774 cubic yards of concrete	58	4,058	45
	20 trips on the barge	4,000		
Recreational Improvements	Negligible	N/A	N/A	N/A
Totals			22,351	245

Action	Work Associated with Action	Diesel Fuel (Gallons)		Carbon (Tons)
		Per Work	TOTAL	
Alternative 3 Emissions				
Road Rehabilitation and Reroutes	600 cubic yards of imported fill	45	8,100	90
	1,100 cubic yards of local fill	56		
	1,700 cubic yards of asphalt	128		
	1,050 hours of excavator use	6,300		
	100 hours of roller use	600		
	5 trips on the barge	1,000		
Erosion Protection Measures	580 cubic yards of fill	44	10,128	112
	35 trips on the barge	7,000		
	60 hours of excavator use	360		
	4,317 cubic yards of asphalt	324		
	400 hours of roller use	2,400		
Construction of New Maintenance Building, Housing, and Helipad	774 cubic yards of concrete	58	4,058	45
	20 trips on the barge	4,000		
Recreational Improvements	Negligible	N/A	N/A	N/A
Totals			22,286	247
Alternative 4 Emissions				
Road Rehabilitation	4,500 cubic yards of imported fill	340	13,300	148
	1,100 cubic yards of local fill	56		
	450 cubic yards of asphalt	34		
	600 hours of excavator use	3,600		
	350 hours of roller use	2,100		
	36 trips on the barge	7,200		
Erosion Protection Measures	4,317 cubic yards of asphalt	108	12,459	138
	400 hours of roller use	2,400		
	48 trips on the barge	9,600		
	1,480 of cubic yards fill	111		
	40 excavator hours	240		
Construction of New Maintenance Building, Housing, and Helipad	774 cubic yards of concrete	58	4,058	45
	20 trips on the barge	4,000		
Recreational Improvements	Negligible	N/A	N/A	N/A
Totals			29,817	331

Action	Work Associated with Action	Diesel Fuel (Gallons)		Carbon (Tons)
		Per Work	TOTAL	
Alternative 5 (NPS Preferred) Emissions				
Road Rehabilitation	5,200 cubic yards of imported fill	390	14,474	161
	1,100 cubic yards of local fill	56		
	1,700 cubic yards of asphalt	128		
	600 hours of excavator use	3,600		
	350 hours of roller use	2,100		
	41 trips on the barge	8,200		
Erosion Protection Measures	580 cubic yards of fill	44	9,008	100
	30 trips on the barge	6,000		
	40 hours of excavator use	240		
	4,317 cubic yards of asphalt	324		
	400 hours of roller use	2,400		
Construction of New Maintenance Building, Housing, and Helipad	774 cubic yards of concrete	58	4,058	45
	20 trips on the barge	4,000		
Recreational Improvements	Negligible	N/A	N/A	N/A
Totals			27,540	306

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**Appendix 20: USFWS Biological
Opinion**



Buckner Orchard Harvest Fest 2009 (Herb Sargo).

APPENDIX 20: USFWS BIOLOGICAL OPINION



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Washington Fish and Wildlife Office
Central Washington Field Office
215 Melody Lane, Suite 119
Wenatchee, WA 98801

July 12, 2010

MEMORANDUM

To: Vicki Gempko, Natural Resource Manager
National Park Service, North Cascades National Park Complex
Stehekin, Washington

From: Ken S. Berg, Manager
Central Washington Field Office
Wenatchee, Washington *Jessica A. Gonzales for*

Subject: Consultation on the Stehekin River Corridor Implementation Plan
USFWS Reference Number: 13260-2010-F-0036
Cross Reference: 13260-2010-B-0002, 13260-2010-I-0037

This correspondence transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion (BO) based upon our review of the proposed Stehekin River Corridor Implementation Plan (Project) in Chelan County, Washington. The Biological Assessment (BA) for this Project and additional information requested by the Service's Central Washington Field Office (CWFO) on December 11, 2009, were received by the Service on February 23, 2010. A complete record for this consultation is on file in the CWFO.

The attached Biological Opinion (BO) describes the effects of the Project on the northern spotted owl (*Strix occidentalis caurina*). The Service concludes in the attached BO that the implementation of the Project is not likely to jeopardize the continued existence of the northern spotted owl. The attached BO completes consultation on the Stehekin River Corridor Implementation Plan.

The Service appreciates the efforts of the National Park Service to minimize Project effects to the northern spotted owl. If you have further questions about this BO or your responsibilities under the Endangered Species Act, please contact Gregg Kurz of the CWFO in Wenatchee at 509-665-3508, extension 22, or via e-mail at gregg_kurz@fws.gov.



**U.S. FISH AND WILDLIFE SERVICE
BIOLOGICAL OPINION**

for the

Stehekin River Corridor Implementation Plan

U.S. Department of Interior
National Park Service
North Cascades National Park

USFWS Reference Number: 13260-2010-F-0036

Cross Reference: 13260-2010-B-0002

Prepared by: David Morgan and Gregg Kurz, Fish and Wildlife Biologists
U.S. Fish and Wildlife Service
Central Washington Field Office, Wenatchee, Washington

Issued by:

Jessica L. Gonzales for Date *July 12, 2010*
Ken S. Berg, Manager
Washington Fish and Wildlife Office
Lacey, Washington

TABLE OF CONTENTS

<i>Executive Summary</i>	<i>iii</i>
INTRODUCTION	1
CONSULTATION HISTORY	2
BIOLOGICAL OPINION	3
1.0 PROJECT DESCRIPTION	3
1.1 Conservation Measures	6
2.0 STATUS OF THE SPECIES FOR THE SPOTTED OWL	7
2.1 Legal Status	7
2.2 Life History	7
2.3 Threats.....	16
2.4 Conservation Needs of the Spotted Owl	22
2.5 Current Condition of the Spotted Owl	26
3.0 ENVIRONMENTAL BASELINE	34
3.1 Introduction	34
3.2 Washington Eastern Cascades Province Baseline	35
3.3 Environmental Baseline at the Watershed Scale	39
3.4 Environmental Baseline at the Action Area Scale	40
3.5 Factors Affecting the Species Environment in the Action Area	40
4.0 EFFECTS OF THE ACTION	42
4.1 Factors to be Considered	42
4.2 Analyses for Effects of the Action	42
4.3 Species Response to the Proposed Action	43
4.4 Summary	44
5.0 CUMULATIVE EFFECTS	44
6.0 CONCLUSION	44
INCIDENTAL TAKE STATEMENT	46
AMOUNT OR EXTENT OF TAKE	46
REPORTING REQUIREMENTS	46
REINITIATION-CLOSING STATEMENT	47
LITERATURE CITED	48
APPENDIX A	61

Executive Summary

The Project area is located along the lower nine miles of the Stehekin River valley, near the head of Lake Chelan, Washington, in a dry forest area. Most of the land is overseen by the National Park Service (NPS), and the remainder is small private parcels.

Since the 1995 there have been several large flood events in the Stehekin Valley, and compared to the previous 50 years, these events are becoming more common. The NPS, North Cascades National Park Complex (NOCA), has proposed a Stehekin River Corridor Implementation Plan (SRCIP) with five primary elements including: (1) rerouting a portion of the valley road out of the floodplain; (2) streambank erosion protection measures; (3) management of large woody debris; (4) recreation facilities development; and (5) identification of public lands for exchange.

One substantial project element, road reroute, will occur near a northern spotted owl (*Strix occidentalis caurina*) nest which was active intermittently between 1998 and 2007. During recent years (2008 and 2009) no spotted owls have been detected and a pair of barred owls occupied the nest. However, in 2010, a resident male was detected in protocol surveys. The Project's construction activities would occur in the summers of 2011 and 2012. The Project will result in approximately 24.5 acres of overall disturbance within northern spotted owl habitat, including 12.8 acres of habitat removal from the permanent removal of vegetation within the road prism and the short-term impacts associated with construction (e.g., noise, human presence, staging areas for equipment). Disturbance effects are anticipated to be discountable.

Based on the analysis presented in this Biological Opinion, Project effects are minor in terms of habitat impacts. Since effects at the Project scale appear to be minor, effects at the province or rangewide scales may not be measurable. As a result, the Service does not anticipate that the proposed action will jeopardize the continued existence of the spotted owl.

INTRODUCTION

The Project area is located along the lower nine miles of the Stehekin River valley, near the head of Lake Chelan, Washington, in a dry forest area. Most of the land is overseen by the National Park Service (NPS), and the remainder is small private parcels.

Since the 1995 there have been several large flood events in the Stehekin Valley, and compared to the previous 50 years, these events are becoming more common. The NPS, North Cascades National Park Complex (NOCA), has proposed a Stehekin River Corridor Implementation Plan (SRCIP) with five primary elements including: (1) rerouting a portion of the valley road out of the floodplain; (2) streambank erosion protection measures; (3) management of large woody debris; (4) recreation facilities development; and (5) identification of public lands for exchange.

One substantial project element, road reroute, will occur near a northern spotted owl (*Strix occidentalis caurina*) nest (the McGregor activity center) which was active intermittently between 1998 and 2007. During recent years (2008 and 2009) no spotted owls have been detected and a pair of barred owls occupied the nest. However, in 2010, a resident male was detected in protocol surveys. The Project's construction activities would occur in the summers of 2011 and 2012.

The U.S. Fish and Wildlife Service's (USFWS or Service) objective of the following Biological Opinion (BO) is to determine whether the proposed Project is likely to "jeopardize the continued existence of" the spotted owl. The standard for determining jeopardy is described in Section 7(a)(2) of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*) and further defined in 50 C.F.R. 402.14.

Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this BO relies on four components: (1) the *Status of the Species*, which evaluates the spotted owl's rangewide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the spotted owl in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the spotted owl; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the spotted owl; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the spotted owl.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the spotted owl's current status, taking into account cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the spotted owl in the wild.

The jeopardy analysis in this BO places an emphasis on consideration of the rangewide survival and recovery needs of the spotted owl and the role of the action area in the survival and recovery

of the spotted owl as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

This BO is based upon information provided in the final Project Biological Assessment (BA) (USDI 2008); published literature and unpublished reports; the final rule for listing the spotted owl (USDI 1990a); final designation of critical habitat (USDI 1992a and 2008a); the 1992 draft (USDI 1992b), 2007 draft (USDI 2007) and final (USDI 2008b) Recovery Plans for the spotted owl; and the 5-year review for the spotted owl (Courtney *et al.* 2004); as listed in the literature cited section. A complete record of this consultation is on file in the Service's Central Washington Field Office in Wenatchee, Washington.

CONSULTATION HISTORY

The following chronology documents the key points of the consultation process that culminated in the following BO for the spotted owl and informal consultation for other listed species:

1. June 1990: The Service issued its final rule for listing the spotted owl as a threatened species (USDI 1990a). The primary reason for listing included widespread habitat loss and an inadequacy of regulatory mechanisms to protect the species.
2. Throughout 2008: The NPS began informal discussions with Marc Whistler and David Morgan, USFWS, about the Project. Most of the conversations with Marc were about impacts to terrestrial species, and most of the conversations with David were about fish and geomorphology.
3. March 2009: Additional conversations with Marc took place in March 2009 to briefly discuss the consultation process, provide an explanation of the preferred alternative, discuss the timing for completion of the BO, and to identify David as the Service point of contact for the project. David was the Service representative on the SRCIP Technical Advisory Committee during the planning process which began in early 2008 and continued into late 2009.
4. November 2009: The NPS submitted a BA for the Project. The Service responded with a request for more information about effects to owl habitat.
5. February 2010: The NPS sent supplemental information, which was date-stamped and entered into the Service's document management system, beginning the official timeline for completion of the BO (estimated as July 8, 2010; USFWS reference: 13260-2010-F-0036).
6. March 10, 2010: The Service responded to the NPS request for formal consultation and replied that the information provided was determined to be sufficient to complete consultation. In addition, the Service concurred with the NPS determination of "may affect, not likely to adversely affect" the bull trout (*Salvelinus confluentus*), Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), and grizzly bear (*Ursus arctos*) (USFWS reference: 13260-2010-I-0037).

BIOLOGICAL OPINION

1.0 PROJECT DESCRIPTION

The Project purpose is to develop sustainable management strategies and actions for the Stehekin River corridor. The plan's primary objectives seek to:

1. Allow for natural processes associated with the Stehekin River to function, largely unimpeded by human influence;
2. Maintain park facilities (including the road system, campgrounds, and administrative areas);
3. Help ensure the persistence of visitor services provided by the Stehekin community, including those services and facilities found on private lands.

The following sections summarize specific elements of the proposed action, including: (1) rerouting a portion of the valley road out of the floodplain; (2) riverbank erosion protection measures; (3) management of large woody debris; (4) recreation facilities development; and (5) public lands identified for exchange.

Rerouting a portion of the valley road out of the floodplain

The reroute would be approximately 1.89 miles long, and would abandon a stretch of road located on an active floodplain, which required repeated bank protection and several short reroutes since 1995. Prior efforts were ultimately unsuccessful as the river continued to migrate. The new roadway would be 12-14 feet wide and would tie in to the existing alignment of the Stehekin Valley Road down valley of McGregor Meadows and up valley of the Lower Field. Nearly all of the new disturbance from the roadway would be outside of the channel migration zone (CMZ) and would therefore be protected from flooding. There would be approximately 24.5 acres of overall disturbance within northern spotted owl habitat, including 12.8 acres of habitat removal from the removal of vegetation within the road prism. Between milepost 6.5 and milepost 7.5, the existing alignment of the Stehekin Valley Road would be obliterated and revegetated to trail width to serve as a portion of the Lower Valley Trail (see Recreation Facilities for description).

The vegetation in this area consists of a mixed coniferous forest type dominated by Douglas-fir (*Pseudotsuga menziesii*) and Ponderosa Pine (*Pinus ponderosa*) with some Big leaf maple (*Acer macrophyllum*) and Pacific dogwood (*Cornus nuttallii*). There are approximately six seasonal drainages (non-fish bearing) that would be crossed with culverts along the proposed alignment.

Construction is scheduled to begin summer 2011 and is expected to be complete in 2012 (may extend into 2013).

Riverbank erosion protection measures

This element includes work at seven locations.

1. Weaver Point: at this campground on the lakeshore just below the river mouth, the docks will be moved away from 200' of eroding shoreline, which will be stabilized by augmenting large wood already in the area, and riparian plantings.
2. Stehekin River Resort Access Road: this riverbank just above the river mouth was treated with unauthorized riprap years ago and it is failing. That material would be replaced with bioengineering and an engineered log jam or two new rock barbs with large wood incorporated into the design. The bank barb component would be implemented as part of the Raft Takeout project, described below.
3. Buckner Pasture: this riverbank located about two miles above the lake is rapidly eroding the lower pasture of the historic Buckner Orchard. Riparian vegetation would be planted along about 500 feet of bank to reduce erosion and restore a portion of the riparian zone. Small log structures and bioengineering may also be used to slow erosion.
4. Frog Island: this riverbank is near road mile 3.8, where reroutes are impossible due to the steep adjacent terrain and rock cliffs. One or two rock barbs and cabled logs along the bank will be installed to protect the road, and native riparian cuttings will be added to approximately 100 ft of bank.
5. Wilson Creek: the road at mile 5.3 traverses the toe of the Wilson Creek debris cone. Wilson Creek is prone to periodic massive deposition on the road bed and into the culvert. No reroutes are possible given the location of the road along the edge of the river bank and the profile of the cone. The road would be moved approximately 10 feet into the hill slope. No large diameter trees would be removed. Three new culverts (24-36 inches in diameter) would be added to the one existing culvert to reduce damage from heavy rains and flooding caused by Wilson Creek. Two rock barbs will be installed at the toe of the slope to slow erosion. The bank above and between the barbs would be stabilized by incorporating large woody debris and layering native vegetation.
6. Lower Field: the river is eroding the bank near road mile 7.3, and the road would be obliterated and revegetated to trail standards, and incorporated into the Lower Valley Trail, described below. Approximately 500 feet of bank for a width of 30 feet would be planted with native shrubs and trees including Big leaf maple, cottonwood (*Populus deltoids*), alder (*Alnus sp.*), and red osier dogwood (*Cornus sericea*). Douglas fir, ocean spray (*Holodiscus discolor*), wild rose (*Rosa acicularis*), and snowberry (*Symphoricarpos albus*) would be planted further from the water to add diversity and to match vegetation to soil moisture conditions. Large woody debris and bioengineering along the bank slope would be used to slow erosion.
7. Slope Stabilization near River Mile 8: previously the NPS armored the river bank along 800 feet of the Stehekin Valley Road in this area with six bank barbs. Historic features preclude a road reroute in this area. In addition to maintaining existing barbs and bioengineering, the slope would be stabilized by constructing a rock wall at the toe and laying back the over-steepened slope.

Management of large woody debris (LWD)

The proposed action would allow for minimal manipulation of LWD (the minimum needed) to protect public facilities, including roads, water quality, public safety and regular access to private property. Also, LWD could be taken from the tops of logjams in the lower section of the Stehekin River that is influenced by Chelan Public Utility District (CPUD) lake level manipulation (river mouth to Boulder Creek). Wood removed would be used for NPS erosion management and riparian restoration projects and would remain within the CMZ. Logs would only be taken from above the ordinary high water mark, and would not be removed if the stability of the jam could be affected.

Recreation facilities development

This element includes work at two locations.

1. Lower Valley Trail: several sections of new trail would be built to connect several existing trails within the lower Stehekin Valley. The trail would be maintained for horses and hikers; bicycles and motor vehicles would be prohibited. Approximately 1.2 miles of the Lower Valley Trail would be constructed within northern spotted owl habitat.
2. Stehekin River Raft Takeout: a new raft takeout (approximately 20 x 40 ft) and an access road (approximately 300 ft) in length would be constructed upstream of the Stehekin River Resort between the bank barbs described above.

Public lands identified for exchange

In order to facilitate natural river migration, the NPS has a list of public lands that may be suitable for exchange with private landowners. Although initial review of park-owned (fee) lands resulted in approximately 76 acres that were preliminarily identified as possibly being suitable for exchange consideration, further resource analysis and field reconnaissance resulted in the reduction of this acreage to the approximately 24 acres that are proposed as being available for exchange. Criteria used to evaluate the parcels available for exchange includes:

1. Proximity to CMZ
2. Presence of wetlands (riparian / shoreline)
3. Presence of threatened, endangered or sensitive species or important habitats
4. Consequences for habitat fragmentation (is there other development in the surrounding area?)
5. Presence of National Register Eligible Cultural Resources

Of these project elements, only the road reroute is anticipated to have habitat- or disturbance-based effects to the spotted owl and is analyzed in this BO. Effects of the other project elements were described in informal consultation for the bull trout, Canada lynx, gray wolf, and grizzly bear (USFWS reference: 13260-2010-I-0037) and will not be analyzed further in this BO.

1.1 Conservation Measures

When used in the context of the Act, conservation measures are actions that are included by the Federal agency as an integral part of the proposed action. Because conservation measures are pledged in the Project description by the action agency, their implementation is required under the terms of the consultation (USDI and USDC 1998, page 4-19). Conservation measures would be implemented for the protection of spotted owls. These measures include:

- Align the road to avoid as many large diameter trees ($\geq 30''$ dbh) and those with nesting features (conifers with upper canopy crotch or mistletoe broom) as possible.
- Complete spotted owl surveys to protocol March 1 - June 30 in 2010 and 2011. Surveys would be completed prior to the start of construction.

If spotted owls are detected during the 2011 surveys, the following measures would be implemented:

- Construction or other disturbance activities would not occur within 0.7 mile radius of the nest site during the breeding season (March 1 – September 6). This applies to known all nest sites if the current year nest site location is not known.

If spotted owls are detected during the 2010 survey but not detected in 2011:

- In 2011, construction would begin on or after July 1 (following the 2011 surveys)
- In 2012, surveys to protocol would be completed (March 1 – June 30). If spotted owls are detected, construction and disturbance activities within 0.7 miles of the nest site would not begin until after the breeding season (September 6). If spotted owls are not detected during the surveys, construction would begin once surveys are complete (July 1).

If spotted owls are not detected during surveys in 2010 or 2011:

- Construction would begin July 1, 2011.
- Construction would begin in 2012 without restriction
- Monitoring by NPS biologist would continue throughout the breeding season (March 1– September 6) for the remainder of the project. If a spotted owl is detected during monitoring, construction and disturbance activities would stop within a 0.7 mile radius of the nest site until September 6.

In addition to these Conservation Measures, Best Management Practices (BMP's) such as temporary erosion and sediment control, including silt fencing, would be used. Revegetation of disturbed areas would protect soils from erosion and reduce the potential for erosion and long-term impacts to stream habitat. In addition, moving the Stehekin Valley Road away from the river would have long-term beneficial effects on allowing additional area for natural river processes within the 100-year floodplain and channel migration zone, which could improve local habitat for fish.

1.2 Definition of the Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action, including interrelated and interdependent actions, and not merely the immediate area involved in the action (50 C.F.R. 402.02). Subsequent analyses of the environmental baseline, effects of the

action, cumulative effects, and levels of incidental take are based upon the action area as determined by the Service.

For the purposes of this analysis, the Service defines the action area as the lower Stehekin Valley between Lake Chelan and river mile 9, near the Courtney Ranch. However, the effects of the action are analyzed at multiple scales to put the effects into a meaningful context. For the spotted owl, effects of the action are analyzed primarily at the scale of action area, but also at the province and rangewide scales.

2.0 STATUS OF THE SPECIES FOR THE SPOTTED OWL

2.1 Legal Status

The spotted owl was listed as threatened on June 26, 1990, due to widespread loss and adverse modification of suitable habitat across the owl's entire range and the inadequacy of existing regulatory mechanisms to conserve the owl (USDI FWS 1990a, p. 26114). The U.S. Fish and Wildlife Service recovery priority number for the spotted owl is 6C (USDI FWS 2004, pp. 55), on a scale of 1C (highest) to 18 (lowest). This number reflects a high degree of threat, a low potential for recovery, and the owl's taxonomic status as a subspecies (USDI FWS 1983b, pp. 51895). The "C" reflects conflict with development, construction, or other economic activity (USDI FWS 1983a, pp. 43104). The spotted owl was originally listed with a recovery priority number of 3C, but that number was changed to 6C in 2004 during the 5-year review of the species (USDI FWS 2004, pp. 55).

2.2 Life History

2.2.1 Taxonomy

The northern spotted owl is one of three subspecies of spotted owls currently recognized by the American Ornithologists' Union. The taxonomic separation of these three subspecies is supported by genetic, (Barrowclough and Gutiérrez 1990, pp.741-742; Barrowclough et al. 1999, pp. 928; Haig et al. 2004, pp. 1354) morphological (Gutiérrez et al. 1995, pp. 2), and biogeographic information (Barrowclough and Gutiérrez 1990, pp.741-742). The distribution of the Mexican subspecies (*S. o. lucida*) is separate from those of the northern and California (*S. o. occidentalis*) subspecies (Gutiérrez et al. 1995, pp.2). Recent studies analyzing mitochondrial DNA sequences (Haig et al. 2004, pp. 1354, Chi et al. 2004, pp. 3; Barrowclough et al. 2005, pp. 1117) and microsatellites (Henke et al., unpubl. data, pp. 15) confirmed the validity of the current subspecies designations for northern and California spotted owls. The narrow hybrid zone between these two subspecies, which is located in the southern Cascades and northern Sierra Nevada's, appears to be stable (Barrowclough et al. 2005, pp. 1116).

2.2.2 Physical Description

The northern spotted owl is a medium-sized owl and is the largest of the three subspecies of spotted owls (Gutiérrez 1996, pp. 2). It is approximately 46 to 48 centimeters (18 inches to 19 inches) long and the sexes are dimorphic, with males averaging about 13 percent smaller than females. The mean mass of 971 males taken during 1,108 captures was 580.4 grams (1.28 pounds) (out of a range 430.0 to 690.0 grams) (0.95 pound to 1.52 pounds), and the mean mass

of 874 females taken during 1,016 captures was 664.5 grams (1.46 pounds) (out of a range 490.0 to 885.0 grams) (1.1 pounds to 1.95 pounds) (P. Loschl and E. Forsman, pers. comm. cited in USDI 2008b, pp. 43). The northern spotted owl is dark brown with a barred tail and white spots on its head and breast, and it has dark brown eyes surrounded by prominent facial disks. Four age classes can be distinguished on the basis of plumage characteristics (Moen et al. 1991, page 493). The northern spotted owl superficially resembles the barred owl, a species with which it occasionally hybridizes (Kelly and Forsman 2004, pp. 807). Hybrids exhibit physical and vocal characteristics of both species (Hamer et al. 1994, pp. 488).

2.2.3 Current and Historical Range

The current range of the spotted owl extends from southwest British Columbia through the Cascade Mountains, coastal ranges, and intervening forested lands in Washington, Oregon, and California, as far south as Marin County (USDI 1990a, pp. 26115). The range of the spotted owl is partitioned into 12 physiographic provinces (see Figure 1) based on recognized landscape subdivisions exhibiting different physical and environmental features (USDI 1992b, pp. 31). These provinces are distributed across the species' range as follows:

- Four provinces in Washington: Eastern Washington Cascades, Olympic Peninsula, Western Washington Cascades, Western Washington Lowlands
- Five provinces in Oregon: Oregon Coast Range, Willamette Valley, Western Oregon Cascades, Eastern Oregon Cascades, Oregon Klamath
- Three provinces in California: California Coast, California Klamath, California Cascades

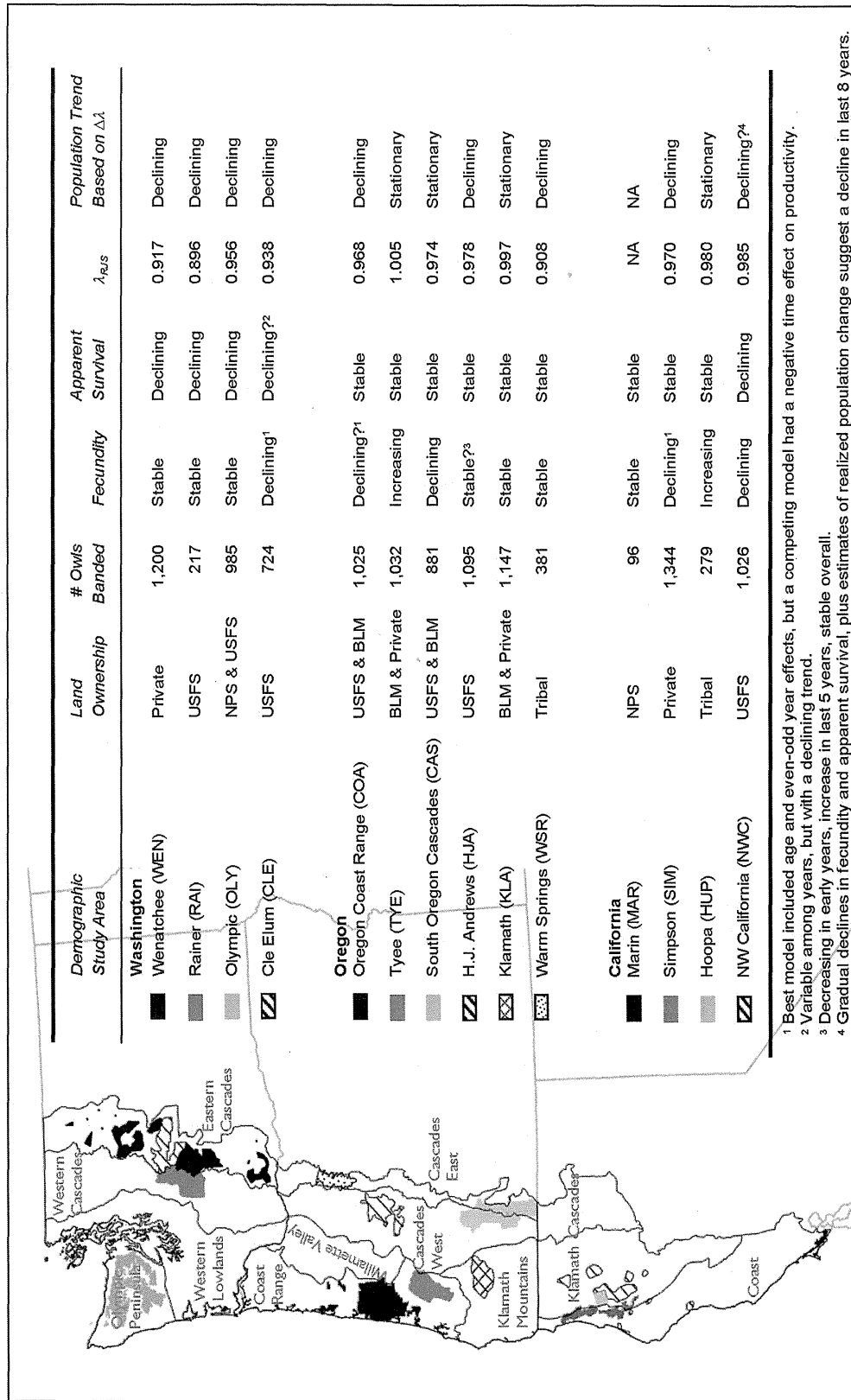
The spotted owl is extirpated or uncommon in certain areas such as southwestern Washington and British Columbia. Timber harvest activities have eliminated, reduced or fragmented spotted owl habitat sufficiently to decrease overall population densities across its range, particularly within the coastal provinces where habitat reduction has been concentrated (USDI 1992a, pp. 1799).

2.2.4 Behavior

Spotted owls are territorial. However, home ranges of adjacent pairs overlap (Forsman et al. 1984, pp. 22; Solis and Gutiérrez 1990, pp. 746) suggesting that the area defended is smaller than the area used for foraging. Territorial defense is primarily effected by hooting, barking and whistle type calls. Some spotted owls are not territorial but either remain as residents within the territory of a pair or move among territories (Gutiérrez 1996, pp. 4). These birds are referred to as "floaters." Floaters have special significance in spotted owl populations because they may buffer the territorial population from decline (Franklin 1992, pp. 822). Little is known about floaters other than that they exist and typically do not respond to calls as vigorously as territorial birds (Gutiérrez 1996, pp. 4).

Spotted owls are monogamous and usually form long-term pair bonds. "Divorces" occur but are relatively uncommon. There are no known examples of polygyny in this owl, although associations of three or more birds have been reported (Gutiérrez et al. 1995, pp. 10).

Figure 1. Physiographic provinces, spotted owl demographic study areas, and demographic trends (Anthony et al. 2004a).



2.2.5 Habitat Relationships

2.2.5.1 Home Range. Home-range sizes vary geographically, generally increasing from south to north, which is likely a response to differences in habitat quality (USDI 1990a, pp. 26117). Estimates of median size of their annual home range (the area traversed by an individual or pair during their normal activities (Thomas and Raphael 1993, pp. IX-15) vary by province and range from 2,955 acres in the Oregon Cascades (Thomas et al. 1990, pp. 194) to 14,211 acres on the Olympic Peninsula (USDI 1994a, pp. 3). Zabel et al. (1995, pp. 436) showed that these provincial home ranges are larger where flying squirrels are the predominant prey and smaller where wood rats are the predominant prey. Home ranges of adjacent pairs overlap (Forsman et al. 1984, pp. 22; Solis and Gutiérrez 1990, pp. 746), suggesting that the defended area is smaller than the area used for foraging. Within the home range there is a smaller area of concentrated use during the breeding season (~20% of the home range), often referred to as the core area (Bingham and Noon 1997, pp. 133-135). Spotted owl core areas vary in size geographically and provide habitat elements that are important for the reproductive efficacy of the territory, such as the nest tree, roost sites and foraging areas (Bingham and Noon 1997, pp. 134). Spotted owls use smaller home ranges during the breeding season and often dramatically increase their home range size during fall and winter (Forsman et al. 1984, pp. 21-22; Sisco 1990, pp. iii).

Although differences exist in natural stand characteristics that influence home range size, habitat loss and forest fragmentation effectively reduce habitat quality in the home range. A reduction in the amount of suitable habitat reduces spotted owl nesting success (Bart 1995, pp. 944) and abundance (Bart and Forsman 1992, pp. 98-99).

Shortly after their listing in 1990, the Service developed guidance for protecting spotted owl habitat in proximity to the nest tree or activity center (more recently summarized by Bart 1995). This guidance describes various “thresholds” or amounts of suitable habitat within prescribed distances from the nest tree or activity center. The Service uses this guidance to evaluate the existing habitat condition, the effects of the proposed action, and the potential for incidental take of spotted owls (see the Incidental Take Statement). Removing habitat below threshold values increases the likelihood of site abandonment, reduced fecundity, and other significant impairments of normal behavioral patterns.

To be considered “at threshold” in the Washington Eastern Cascades, suitable habitat must comprise (1) 100 acres of the best habitat nearest the nest tree or activity center, (2) 500 acres within a 0.7 mile radius of the activity center, and (3) 2,663 acres within a 1.82 mile radius of the activity center (i.e., 40 percent of the home range). The “100 acres of best habitat” is also known as the 100-acre core; although the Service initially described a 70-acre core, this area was expanded to a 100-acre core with the adoption of the NWFP. Even if no longer occupied by spotted owls, the ROD (USDA and USDI 1994a) specified that the 100-acre core should be maintained as an “unmapped LSR” (ROD, page C-10 and C-39), and managed consistent with LSR objectives. This standard and guideline was developed for areas outside of “reserve” LUA’s (e.g., Congressionally Reserved, Administratively Withdrawn, LSR, MLSA, and Riparian Reserves); “unmapped LSRs” may benefit other late-successional species or provide a “stepping stone” for spotted owls moving across the landscape.

2.2.5.2 *Habitat Use*. Forsman et al. (1984, pp.15-16) reported that spotted owls have been observed in the following forest types: Douglas-fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), grand fir (*Abies grandis*), white fir (*Abies concolor*), ponderosa pine (*Pinus ponderosa*), Shasta red fir (*Abies magnifica shastensis*), mixed evergreen, mixed conifer hardwood (Klamath montane), and redwood (*Sequoia sempervirens*). The upper elevation limit at which spotted owls occur corresponds to the transition to subalpine forest, which is characterized by relatively simple structure and severe winter weather (Forsman 1975, pp. 27; Forsman et al. 1984, pp. 15-16).

Roost sites selected by spotted owls have more complex vegetation structure than forests generally available to them (Barrows and Barrows 1978, pp.3; Forsman et al. 1984, pp.29-30; Solis and Gutiérrez 1990, pp.742-743). These habitats are usually multi-layered forests having high canopy closure and large diameter trees in the overstory.

Spotted owls nest almost exclusively in trees. Like roosts, nest sites are found in forests having complex structure dominated by large diameter trees (Forsman et al. 1984, pp.30; Hershey et al. 1998, pp.1402). Even in forests that have been previously logged, spotted owls select forests having a structure (i.e., larger trees, greater canopy closure) different than forests generally available to them (Folliard 1993, pp. 40; Buchanan et al. 1995, pp.1402; Hershey et al. 1998 pp. 1404).

Foraging habitat is the most variable of all habitats used by territorial spotted owls (USDI 1992b, pp. 20). Descriptions of foraging habitat have ranged from complex structure (Solis and Gutiérrez 1990, pp. 742-744) to forests with lower canopy closure and smaller trees than forests containing nests or roosts (Gutiérrez 1996, pp.5).

2.2.5.3 *Habitat Selection*. Spotted owls generally rely on older forested habitats because such forests contain the structures and characteristics required for nesting, roosting, and foraging. Features that support nesting and roosting typically include a moderate to high canopy closure (60 to 90 percent); a multi-layered, multi-species canopy with large overstory trees (with diameter at breast height [dbh] of greater than 30 inches); a high incidence of large trees with various deformities (large cavities, broken tops, mistletoe infections, and other evidence of decadence); large snags; large accumulations of fallen trees and other woody debris on the ground; and sufficient open space below the canopy for spotted owls to fly (Thomas et al. 1990, pp. 19). Nesting spotted owls consistently occupy stands with a high degree of canopy closure that may provide thermoregulatory benefits (Weathers et al. 2001, pp. 686) and protection from predators.

Foraging habitat for spotted owls provides a food supply for survival and reproduction. Foraging activity is positively associated with tree height diversity (North et al. 2000, pp. 524), canopy closure (Irwin et al. 2000, pp. 180; Courtney et al. 2004, pp. 5-15), snag volume, density of snags greater than 20 in (50 cm) dbh (North et al. 2000, pp. 524; Irwin et al. 2000, pp. 179-180; Courtney et al. 2004, pp. 5-15), density of trees greater than or equal to 31 in (80 cm) dbh (North et al. 2000, pp. 524), volume of woody debris (Irwin et al. 2000, pp. 179-180), and young forests with some structural characteristics of old forests (Carey et al. 1992, pp. 245-247; Irwin et al. 2000, pp. 178-179). Northern spotted owls select old forests for foraging in greater proportion

than their availability at the landscape scale (Carey et al. 1992, pp. 236-237; Carey and Peeler 1995, pp. 235; Forsman et al. 2005, pp. 372-373), but will forage in younger stands with high prey densities and access to prey (Carey et al. 1992, pp. 247; Rosenberg and Anthony 1992, pp. 165; Thome et al. 1999, pp. 56-57).

Dispersal habitat is essential to maintaining stable populations by filling territorial vacancies when resident spotted owls die or leave their territories, and to providing adequate gene flow across the range of the species. Dispersal habitat, at a minimum, consists of stands with adequate tree size and canopy closure to provide protection from avian predators and at least minimal foraging opportunities. Dispersal habitat may include younger and less diverse forest stands than foraging habitat, such as even-aged, pole-sized stands, but such stands should contain some roosting structures and foraging habitat to allow for temporary resting and feeding for dispersing juveniles (USDI 1992a, pp. 1798). Forsman et al. (2002, pp. 22) found that spotted owls could disperse through highly fragmented forest landscapes. However, the stand-level and landscape-level attributes of forests needed to facilitate successful dispersal have not been thoroughly evaluated (Buchanan 2004, pp. 1341).

Spotted owls may be found in younger forest stands that have the structural characteristics of older forests or retained structural elements from the previous forest. In redwood forests and mixed conifer-hardwood forests along the coast of northwestern California, considerable numbers of spotted owls also occur in younger forest stands, particularly in areas where hardwoods provide a multi-layered structure at an early age (Thomas et al. 1990, pp. 158; Diller and Thome 1999, pp. 275). In mixed conifer forests in the eastern Cascades in Washington, 27 percent of nest sites were in old-growth forests, 57 percent were in the understory reinitiation phase of stand development, and 17 percent were in the stem exclusion phase (Buchanan et al. 1995, pp. 304). In the western Cascades of Oregon, 50 percent of spotted owl nests were in late-seral/old-growth stands (greater than 80 years old), and none were found in stands of less than 40 years old (Irwin et al. 2000, pp. 41).

In the Western Washington Cascades, spotted owls roosted in mature forests dominated by trees greater than 50 centimeters (19.7 inches) dbh with greater than 60 percent canopy closure more often than expected for roosting during the non-breeding season. Spotted owls also used young forest (trees of 20 to 50 centimeters (7.9 inches to 19.7 inches) dbh with greater than 60 percent canopy closure) less often than expected based on this habitat's availability (Herter et al. 2002, pp. 437).

In the Coast Ranges, Western Oregon Cascades and the Olympic Peninsula, radio-marked spotted owls selected for old-growth and mature forests for foraging and roosting and used young forests less than predicted based on availability (Forsman et al. 1984, pp. 24-25; Carey et al. 1990 pp. 14-15; Forsman et al. 2005, pp. 372-373). Glenn et al. (2004, pp. 46-47) studied spotted owls in young forests in western Oregon and found little preference among age classes of young forest.

Habitat use is influenced by prey availability. Ward (1990, pp. 62) found that spotted owls foraged in areas with lower variance in prey densities (that is, where the occurrence of prey was more predictable) within older forests and near ecotones of old forest and brush seral stages.

Zabel et al. (1995, pp. 436) showed that spotted owl home ranges are larger where flying squirrels (*Glaucomys sabrinus*) are the predominant prey and smaller where wood rats (*Neotoma* spp.) are the predominant prey.

Recent landscape-level analyses in portions of Oregon Coast and California Klamath provinces suggest that a mosaic of late-successional habitat interspersed with other seral conditions may benefit spotted owls more than large, homogeneous expanses of older forests (Zabel et al. 2003, pp. 1038; Franklin et al. 2000, pp. 573-579; Meyer et al. 1998, pp. 43). In Oregon Klamath and Western Oregon Cascade provinces, Dugger et al. (2005, pp. 876) found that apparent survival and reproduction was positively associated with the proportion of older forest near the territory center (within 730 meters) (2,395 feet). Survival decreased dramatically when the amount of non-habitat (non-forest areas, sapling stands, etc.) exceeded approximately 50 percent of the home range (Dugger et al. 2005, pp. 873-874). The authors concluded that they found no support for either a positive or negative direct effect of intermediate-aged forest—that is, all forest stages between sapling and mature, with total canopy cover greater than 40 percent—on either the survival or reproduction of spotted owls. It is unknown how these results were affected by the low habitat fitness potential in their study area, which Dugger et al. (2005, pp. 876) stated was generally much lower than those in Franklin et al. (2000) and Olson et al. (2004), and the low reproductive rate and survival in their study area, which they reported were generally lower than those studied by Anthony et al. (2006). Olson et al. (2004, pp. 1050-1051) found that reproductive rates fluctuated biennially and were positively related to the amount of edge between late-seral and mid-seral forests and other habitat classes in the central Oregon Coast Range. Olson et al. (2004, pp. 1049-1050) concluded that their results indicate that while mid-seral and late-seral forests are important to spotted owls, a mixture of these forest types with younger forest and non-forest may be best for spotted owl survival and reproduction in their study area.

2.2.6 Reproductive Biology

The spotted owl is relatively long-lived, has a long reproductive life span, invests significantly in parental care, and exhibits high adult survivorship relative to other North American owls (Gutiérrez et al. 1995, pp. 5). Spotted owls are sexually mature at 1 year of age, but rarely breed until they are 2 to 5 years of age (Miller et al. 1985, pp. 93; Franklin 1992, pp. 821; Forsman et al. 2002, pp. 17). Breeding females lay one to four eggs per clutch, with the average clutch size being two eggs; however, most spotted owl pairs do not nest every year, nor are nesting pairs successful every year (Forsman et al. 1984, pp. 32-34, Anthony et al. 2006, pp. 28), and re-nesting after a failed nesting attempt is rare (Gutiérrez 1996, pp. 4). The small clutch size, temporal variability in nesting success, and delayed onset of breeding all contribute to the relatively low fecundity of this species (Gutiérrez 1996, pp. 4).

Courtship behavior usually begins in February or March, and females typically lay eggs in late March or April. The timing of nesting and fledging varies with latitude and elevation (Forsman et al. 1984, pp. 32). After they leave the nest in late May or June, juvenile spotted owls depend on their parents until they are able to fly and hunt on their own. Parental care continues after fledging into September (Forsman et al. 1984, pp. 38). During the first few weeks after the young leave the nest, the adults often roost with them during the day. By late summer, the adults are rarely found roosting with their young and usually only visit the juveniles to feed them at

night (Forsman et al. 1984, pp. 38). Telemetry and genetic studies indicate that close inbreeding between siblings or parents and their offspring is rare (Haig et al. 2001, pp. 35, Forsman et al. 2002, pp. 18).

2.2.7 Dispersal Biology

Natal dispersal of spotted owls typically occurs in September and October with a few individuals dispersing in November and December (Forsman et al. 2002, pp. 13). Natal dispersal occurs in stages, with juveniles settling in temporary home ranges between bouts of dispersal (Forsman et al. 2002, pp. 13-14; Miller et al. 1997, pp. 143). The median natal dispersal distance is about 10 miles for males and 15.5 miles for females (Forsman et al. 2002, pp. 16). Dispersing juvenile spotted owls experience high mortality rates, exceeding 70 percent in some studies (Miller 1989, pp. 32-41). Known or suspected causes of mortality during dispersal include starvation, predation, and accidents (Miller 1989, pp. 41-44; Forsman et al. 2002, pp. 18-19). Parasitic infection may contribute to these causes of mortality, but the relationship between parasite loads and survival is poorly understood (Hoberg et al. 1989, pp. 247; Gutiérrez 1989, pp. 616-617, Forsman et al. 2002, pp. 18-19). Successful dispersal of juvenile spotted owls may depend on their ability to locate unoccupied suitable habitat in close proximity to other occupied sites (LaHaye et al. 2001, pp. 697-698).

There is little evidence that small openings in forest habitat influence the dispersal of spotted owls, but large, non-forested valleys such as the Willamette Valley apparently are barriers to both natal and breeding dispersal (Forsman et al. 2002, pp. 22). The degree to which water bodies, such as the Columbia River and Puget Sound, function as barriers to dispersal is unclear, although radio telemetry data indicate that spotted owls move around large water bodies rather than cross them (Forsman et al. 2002, pp. 22). Analysis of the genetic structure of spotted owl populations suggests that gene flow may have been adequate between the Olympic Mountains and the Washington Cascades, and between the Olympic Mountains and the Oregon Coast Range (Haig et al. 2001, pp. 35).

Breeding dispersal occurs among a small proportion of adult spotted owls; these movements were more frequent among females and unmated individuals (Forsman et al. 2002, pp. 20-21). Breeding dispersal distances were shorter than natal dispersal distances and also are apparently random in direction (Forsman et al. 2002, pp. 21-22).

2.2.8 Food Habits

Spotted owls are mostly nocturnal, although they also forage opportunistically during the day (Forsman et al. 1984, pp. 51; 2004, pp. 222-223; Sovern et al. 1994, pp. 202). The composition of the spotted owl's diet varies geographically and by forest type. Generally, flying squirrels (*Glaucomys sabrinus*) are the most prominent prey for spotted owls in Douglas-fir and western hemlock (*Tsuga heterophylla*) forests (Forsman et al. 1984, pp. 40-41) in Washington (Hamer et al. 2001, pp. 224) and Oregon, while dusky-footed wood rats (*Neotoma fuscipes*) are a major part of the diet in the Oregon Klamath, California Klamath, and California Coastal provinces (Forsman et al. 1984, pp. 40-42; 2004, pp. 218; Ward et al. 1998, pp. 84). Depending on location, other important prey include deer mice (*Peromyscus maniculatus*), tree voles (*Arborimus longicaudus*, *A. pomo*), red-backed voles (*Clethrionomys* spp.), gophers (*Thomomys* spp.), snowshoe hare (*Lepus americanus*), bushy-tailed wood rats (*Neotoma cinerea*), birds, and

insects, although these species comprise a small portion of the spotted owl diet (Forsman et al. 1984, pp. 40-43; 2004, pp. 218; Ward et al. 1998; pp. 84; Hamer et al. 2001, pp.224).

Other prey species such as the red tree vole (*Arborimus longicaudus*), red-backed voles (*Clethrionomys gapperi*), mice, rabbits and hares, birds, and insects) may be seasonally or locally important (reviewed by Courtney et al. 2004, pp. 4-27). For example, Rosenberg et al. (2003, pp. 1720) showed a strong correlation between annual reproductive success of spotted owls (number of young per territory) and abundance of deer mice (*Peromyscus maniculatus*) ($r^2 = 0.68$), despite the fact they only made up 1.6 ± 0.5 percent of the biomass consumed. However, it is unclear if the causative factor behind this correlation was prey abundance or a synergistic response to weather (Rosenberg et al. 2003, pp. 1723). Ward (1990, pp. 55) also noted that mice were more abundant in areas selected for foraging by owls. Nonetheless, spotted owls deliver larger prey to the nest and eat smaller food items to reduce foraging energy costs; therefore, the importance of smaller prey items, like *Peromyscus*, in the spotted owl diet should not be underestimated (Forsman et al. 2001, pp. 148; 2004, pp. 218-219).

2.2.9 Population Dynamics

The spotted owl is relatively long-lived, has a long reproductive life span, invests significantly in parental care, and exhibits high adult survivorship relative to other North American owls (Gutiérrez 1996, pp. 5). The spotted owl's long reproductive life span allows for some eventual recruitment of offspring, even if recruitment does not occur each year (Franklin et al. 2000, pp. 576).

Annual variation in population parameters for spotted owls has been linked to environmental influences at various life history stages (Franklin et al. 2000, pp. 581). In coniferous forests, mean fledgling production of the California spotted owl (*Strix occidentalis occidentalis*), a closely related subspecies, was higher when minimum spring temperatures were higher (North et al. 2000, pp. 805), a relationship that may be a function of increased prey availability. Across their range, spotted owls have previously shown an unexplained pattern of alternating years of high and low reproduction, with highest reproduction occurring during even-numbered years (e.g., Franklin et al. 1999, pp. 1). Annual variation in breeding may be related to weather (i.e., temperature and precipitation) (Wagner et al. 1996, pp. 74 and Zabel et al. 1996, pp.81 *In*: Forsman et al. 1996) and fluctuation in prey abundance (Zabel et al. 1996, pp.437-438).

A variety of factors may regulate spotted owl population levels. These factors may be density-dependent (e.g., habitat quality, habitat abundance) or density-independent (e.g., climate). Interactions may occur among factors. For example, as habitat quality decreases, density-independent factors may have more influence on survival and reproduction, which tends to increase variation in the rate of growth (Franklin et al. 2000, pp. 581-582). Specifically, weather could have increased negative effects on spotted owl fitness for those owls occurring in relatively lower quality habitat (Franklin et al. 2000, pp. 581-582). A consequence of this pattern is that at some point, lower habitat quality may cause the population to be unregulated (have negative growth) and decline to extinction (Franklin et al. 2000, pp. 583). Olson et al. (2005, pp. 930-931) used open population modeling of site occupancy that incorporated imperfect and variable detectability of spotted owls and allowed modeling of temporal variation in site occupancy, extinction, and colonization probabilities (at the site scale). The authors found that visit

detection probabilities average less than 0.70 and were highly variable among study years and among their three study areas in Oregon. Pair site occupancy probabilities declined greatly on one study area and slightly on the other two areas. However, for all owls, including singles and pairs, site occupancy was mostly stable through time. Barred owl presence had a negative effect on these parameters (see barred owl discussion in the New Threats section below). However, there was enough temporal and spatial variability in detection rates to indicate that more visits would be needed in some years and in some areas, especially if establishing pair occupancy was the primary goal.

2.3 Threats

2.3.1 Reasons for Listing

The spotted owl was listed as threatened throughout its range “due to loss and adverse modification of suitable habitat as a result of timber harvesting and exacerbated by catastrophic events such as fire, volcanic eruption, and wind storms” (USDI 1990a, pp. 26114). More specifically, threats to the spotted owl included low populations, declining populations, limited habitat, declining habitat, inadequate distribution of habitat or populations, isolation of provinces, predation and competition, lack of coordinated conservation measures, and vulnerability to natural disturbance (USDI 1992a, pp. 33-41). These threats were characterized for each province as severe, moderate, low or unknown (USDI 1992a, pp. 33-41) (The range of the spotted owl is divided into 12 provinces from Canada to northern California and from the Pacific Coast to the eastern Cascades; see Figure 1). Declining habitat was recognized as a severe or moderate threat to the spotted owl throughout its range, isolation of populations was identified as a severe or moderate threat in 11 provinces, and a decline in population was a severe or moderate threat in 10 provinces. Together, these three factors represented the greatest concerns about rangewide conservation of the spotted owl. Limited habitat was considered a severe or moderate threat in nine provinces, and low populations were a severe or moderate concern in eight provinces, suggesting that these factors were also a concern throughout the majority of the spotted owl’s range. Vulnerability to natural disturbances was rated as low in five provinces.

The degree to which predation and competition might pose a threat to the spotted owl was unknown in more provinces than any of the other threats, indicating a need for additional information. Few empirical studies exist to confirm that habitat fragmentation contributes to increased levels of predation on spotted owls (Courtney et al. 2004, pp 11-8 to 11-9). However, great horned owls (*Bubo virginianus*), an effective predator on spotted owls, are closely associated with fragmented forests, openings, and clearcuts (Johnson 1992, pp. 84; Laidig and Dobkin 1995, pp. 155). As mature forests are harvested, great horned owls may colonize fragmented forests, thereby increasing spotted owl vulnerability to predation.

2.3.2 New Threats

The Service conducted a 5-year review of the spotted owl in 1994 (USDI 2004), for which the Service prepared a scientific evaluation of the status of the spotted owl (Courtney et al. 2004). An analysis was conducted assessing how the threats described in 1990 might have changed by 2004. Some of the key threats identified in 2004 are:

- “Although we are certain that current harvest effects are reduced, and that past harvest is also probably having a reduced effect now as compared to 1990, we are still unable to fully evaluate the current levels of threat posed by harvest because of the potential for lag effects...In their questionnaire responses...6 of 8 panel member identified past habitat loss due to timber harvest as a current threat, but only 4 viewed current harvest as a present threat” (Courtney and Gutiérrez 2004, pp. 11-7).
- “Currently the primary source of habitat loss is catastrophic wildfire, although the total amount of habitat affected by wildfires has been small (a total of 2.3% of the rangewide habitat base over a 10-year period).” (Courtney and Gutiérrez 2004, pp. 11-8).
- “Although the panel had strong differences of opinion on the conclusiveness of some of the evidence suggesting [barred owl] displacement of [spotted owls], and the mechanisms by which this might be occurring, there was no disagreement that [barred owls] represented an operational threat. In the questionnaire, all 8 panel members identified [barred owls] as a current threat, and also expressed concern about future trends in [barred owl] populations.” (Courtney and Gutiérrez 2004, pp. 11-8).

2.3.2.1 *Barred Owls (Strix varia)*. With its recent expansion to as far south as Marin County, California (Gutiérrez et al. 2004, pp. 7-12-7-13), the barred owl’s range now completely overlaps that of the northern spotted owl. Barred owls may be competing with spotted owls for prey (Hamer et al. 2001, pp.226) or habitat (Hamer et al. 1989, pp.55; Dunbar et al. 1991, pp. 467; Herter and Hicks 2000, pp. 285; Pearson and Livezey 2003, pp. 274). In addition, barred owls physically attack spotted owls (Pearson and Livezey 2003, pp. 274), and circumstantial evidence strongly indicated that a barred owl killed a spotted owl (Leskiw and Gutiérrez 1998, pp. 226). Evidence that barred owls are causing negative effects on spotted owls is largely indirect, based primarily on retrospective examination of long-term data collected on spotted owls (Kelly et al. 2003, pp. 46; Pearson and Livezey 2003, pp. 267; Olson et al. 2005, pp. 921). It is widely believed, but not conclusively confirmed, that the two species of owls are competing for resources. However, given that the presence of barred owls has been identified as a negative effect while using methods designed to detect a different species (spotted owls), it seems safe to presume that the effects are stronger than estimated. Because there has been no research to quantitatively evaluate the strength of different types of competitive interactions, such as resource partitioning and competitive interference, the particular mechanism by which the two owl species may be competing is unknown.

Barred owls were initially thought to be more closely associated with early successional forests than spotted owls, based on studies conducted on the west slope of the Cascades in Washington (Hamer et al 1989, pp. 34; Iverson 1993, pp.39). However, recent studies conducted in the Pacific Northwest show that barred owls frequently use mature and old-growth forests (Pearson and Livezey 2003, pp. 270; Schmidt 2006, pp. 13). In the fire prone forests of eastern Washington, a telemetry study conducted on barred owls showed that barred owl home ranges were located on lower slopes or valley bottoms, in closed canopy, mature, Douglas-fir forest, while spotted owl sites were located on mid-elevation areas with southern or western exposure, characterized by closed canopy, mature, ponderosa pine or Douglas-fir forest (Singleton et al. 2005, pp. 1).

The only study comparing spotted owl and barred owl food habits in the Pacific Northwest indicated that barred owl diets overlap strongly (76 percent) with spotted owl diets (Hamer et al. 2001, pp. 226). However, barred owl diets are more diverse than spotted owl diets and include species associated with riparian and other moist habitats, along with more terrestrial and diurnal species (Hamer et al. 2001, pp. 225-226).

The presence of barred owls has been reported to reduce spotted owl detectability, site occupancy, reproduction, and survival. Olson et al. (2005, pp. 924) found that the presence of barred owls had a significant negative effect on the detectability of spotted owls, and that the magnitude of this effect did not vary among years. The occupancy of historical territories by spotted owls in Washington and Oregon was significantly lower ($p < 0.001$) after barred owls were detected within 0.8 kilometer (0.5 miles) of the territory center but was “only marginally lower” ($p = 0.06$) if barred owls were located more than 0.8 kilometer (0.5 miles) from the spotted owl territory center (Kelly et al. 2003, pp. 51). Pearson and Livezey (2003, pp. 271) found that there were significantly more barred owl site-centers in unoccupied spotted owl circles than occupied spotted owl circles (centered on historical spotted owl site-centers) with radii of 0.8 kilometer (0.5 miles) ($p = 0.001$), 1.6 kilometer (1 mile) ($p = 0.049$), and 2.9 kilometer (1.8 miles) ($p = 0.005$) in Gifford Pinchot National Forest. In Olympic National Park, Gremel (2005, p. 11) found a significant decline ($p = 0.01$) in spotted owl pair occupancy at sites where barred owls had been detected, while pair occupancy remained stable at spotted owl sites without barred owls. Olson et al. (2005, pp. 928) found that the annual probability that a spotted owl territory would be occupied by a pair of spotted owls after barred owls were detected at the site declined by 5 percent in the HJ Andrews study area, 12 percent in the Coast Range study area, and 15 percent in the Tyee study area.

Olson et al. (2004, pp. 1048) found that the presence of barred owls had a significant negative effect on the reproduction of spotted owls in the central Coast Range of Oregon (in the Roseburg study area). The conclusion that barred owls had no significant effect on the reproduction of spotted owls in one study (Iverson 2004, pp. 89) was unfounded because of small sample sizes (Livezey 2005, pp. 102). It is likely that all of the above analyses underestimated the effects of barred owls on the reproduction of spotted owls because spotted owls often cannot be relocated after they are displaced by barred owls (E. Forsman, pers. comm., cited in USDI 2008b, pp. 65). Anthony et al. (2006, pp. 32) found significant evidence for negative effects of barred owls on apparent survival of spotted owls in two of 14 study areas (Olympic and Wenatchee). They attributed the equivocal results for most of their study areas to the coarse nature of their barred owl covariate.

In a recent analysis of more than 9,000 banded spotted owls throughout their range, only 47 hybrids were detected (Kelly and Forsman 2004, pp. 807). Consequently, hybridization with the barred owl is considered to be “an interesting biological phenomenon that is probably inconsequential, compared with the real threat—direct competition between the two species for food and space” (Kelly and Forsman 2004, pp. 808).

The preponderance of evidence suggests that barred owls are exacerbating the spotted owl population decline, particularly in Washington, portions of Oregon, and the northern coast of California (Gutiérrez et al. 2004, pp. 739-740; Olson et al. 2005, pp. 930-931). There is no

evidence that the increasing trend in barred owls has stabilized in any portion of the spotted owl's range in the western United States, and "there are no grounds for optimistic views suggesting that barred owl impacts on northern spotted owls have been already fully realized" (Gutiérrez et al. 2004, pp. 7-38).

2.3.2.2 Wildfire. Studies indicate that the effects of wildfire on spotted owls and their habitat are variable, depending on fire intensity, severity and size. Within the fire-adapted forests of the spotted owl's range, spotted owls likely have adapted to withstand fires of variable sizes and severities. Bond et al. (2002, pp. 1025) examined the demography of the three spotted owl subspecies after wildfires, in which wildfire burned through spotted owl nest and roost sites in varying degrees of severity. Post-fire demography parameters for the three subspecies were similar or better than long-term demographic parameters for each of the three subspecies in those same areas (Bond et al. 2002, pp. 1026). In a preliminary study conducted by Anthony and Andrews (2004, pp. 8) in the Oregon Klamath Province, their sample of spotted owls appeared to be using a variety of habitats within the area of the Timbered Rock fire, including areas where burning had been moderate.

In 1994, the Hatchery Complex fire burned 17,603 hectares in the Wenatchee National Forest in Washington's eastern Cascades, affecting six spotted owl activity centers (Gaines et al. 1997, pp. 125). Spotted owl habitat within a 2.9-kilometer (1.8-mile) radius of the activity centers was reduced by 8 to 45 percent (mean = 31 percent) as a result of the direct effects of the fire and by 10 to 85 percent (mean = 55 percent) as a result of delayed mortality of fire-damaged trees and insects. Direct mortality of spotted owls was assumed to have occurred at one site, and spotted owls were present at only one of the six sites 1 year after the fire (Gaines et al. 1997, pp. 126). In 1994, two wildfires burned in the Yakama Indian Reservation in Washington's eastern Cascades, affecting the home ranges of two radio-tagged spotted owls (King et al. 1998, pp. 2-3). Although the amount of home ranges burned was not quantified, spotted owls were observed using areas that burned at low and medium intensities. No direct mortality of spotted owls was observed, even though thick smoke covered several spotted owl site-centers for a week. It appears that, at least in the short term, spotted owls may be resilient to the effects of wildfire—a process with which they have evolved. More research is needed to further understand the relationship between fire and spotted owl habitat use.

At the time of listing there was recognition that large-scale wildfire posed a threat to the spotted owl and its habitat (USDI 1990a, pp. 26183). New information suggests fire may be more of a threat than previously thought. In particular, the rate of habitat loss due to fire has been expected with over 102,000 acres of late-successional forest lost on Federal lands from 1993-2004 (Moer et al 2005, pp. 110). Currently, the overall total amount of habitat loss from wildfires has been relatively small, estimated at approximately 1.2 percent on federal lands (Lint 2005, pp. v). It may be possible to influence through silvicultural management how fire prone forests will burn and the extent of the fire when it occurs. Silvicultural management of forest fuels are currently being implemented throughout the spotted owl's range, in an attempt to reduce the levels of fuels that have accumulated during nearly 100 years of effective fire suppression. However, our ability to protect spotted owl habitat and viable populations of spotted owls from large fires through risk-reduction endeavors is uncertain (Courtney et al. 2004, pp. 12-11). The NWFPP recognized wildfire as an inherent part of managing spotted owl habitat in certain portions of the

range. The distribution and size of reserve blocks as part of the NWFP design may help mitigate the risks associated with large-scale fire (Lint 2005, pp. 77).

2.3.2.3 West Nile Virus. WNV has killed millions of wild birds in North America since it arrived in 1999 (Caffrey 2003, pp. 12; Marra et al. 2004, pp. 393). Mosquitoes are the primary carriers (vectors) of the virus that causes encephalitis in humans, horses, and birds. Mammalian prey may also play a role in spreading WNV among predators, like spotted owls. Owls and other predators of mice can contract the disease by eating infected prey (Garmendia et al. 2000, pp. 3111). One captive spotted owl in Ontario, Canada, is known to have contracted WNV and died (Gancz et al 2004, pp. 2137), but there are no documented cases of the virus in wild spotted owls.

Health officials expect that WNV eventually will spread throughout the range of the spotted owl (Blakesley et al. 2004, pp. 8-31), but it is unknown how the virus will ultimately affect spotted owl populations. Susceptibility to infection and the mortality rates of infected individuals vary among bird species (Blakesley et al. 2004, pp. 8-33), but most owls appear to be quite susceptible. For example, eastern screech-owls breeding in Ohio that were exposed to WNV experienced 100 percent mortality (T. Grubb pers. comm. in Blakesley et al. 2004, pp. 8-33). Barred owls, in contrast, showed lower susceptibility (B. Hunter pers. comm. in Blakesley et al. 2004, pp. 8-34).

Blakesley et al. (2004, pp. 8-35) offer two possible scenarios for the likely outcome of spotted owl populations being infected by WNV. One scenario is that a rangewide reduction in spotted owl population viability is unlikely because the risk of contracting WNV varies between regions. An alternative scenario is that WNV will cause unsustainable mortality, due to the frequency and/or magnitude of infection, thereby resulting in long-term population declines and extirpation from parts of the spotted owl's current range. WNV remains a potential threat of uncertain magnitude and effect (Blakesley et al. 2004, pp. 8-34).

2.3.2.4 Sudden Oak Death. Sudden oak death was recently identified as a potential threat to the spotted owl (Courtney and Gutierrez. 2004, pp. 11-8). This disease is caused by the fungus-like pathogen, *Phytophthora ramorum* that was recently introduced from Europe and is rapidly spreading. At the present time, sudden oak death is found in natural stands from Monterey to Humboldt Counties, California, and has reached epidemic proportions in oak (*Quercus* spp.) and tanoak (*Lithocarpus densiflorus*) forests along approximately 300 km of the central and northern California coast (Rizzo et al. 2002, pp. 733). It has also been found near Brookings, Oregon, killing tanoak and causing dieback of closely associated wild rhododendron (*Rhododendron* spp.) and evergreen huckleberry (*Vaccinium ovatum*) (Goheen et al. 2002, pp. 441). It has been found in several different forest types and at elevations from sea level to over 800 m. Sudden oak death poses a threat of uncertain proportion because of its potential impact on forest dynamics and alteration of key prey and spotted owl habitat components (e.g., hardwood trees - canopy closure and nest tree mortality); especially in the southern portion of the spotted owl's range (Courtney and Gutierrez. 2004, pp. 11-8).

2.3.2.5 Inbreeding Depression, Genetic Isolation, and Reduced Genetic Diversity. Inbreeding and other genetic problems due to small population sizes were not considered an imminent threat

to the spotted owl at the time of listing. Recent studies show no indication of significantly reduced genetic variation in Washington, Oregon, or California (Barrowclough et al. 1999, pp. 922; Haig et al. 2001, pp. 36). However, in Canada, the breeding population is estimated to be less than 33 pairs and annual population decline may be as high as 35 percent (Harestad et al. 2004, pp. 13). Canadian populations may be more adversely affected by issues related to small population size including inbreeding depression, genetic isolation, and reduced genetic diversity (Courtney et al. 2004, pp. 11-9). Low and persistently declining populations throughout the northern portion of the species range (see "Population Trends" below) may be at increased risk of losing genetic diversity.

2.3.2.6 Climate change. Climate change, a potential additional threat to northern spotted owl populations, is not explicitly addressed in the NWFP. Climate change could have direct and indirect impacts on spotted owls and their prey. However, the emphasis on maintenance of seral stage complexity and related organismal diversity in the Matrix under the NWFP should contribute to the resiliency of the Federal forest landscape to the impacts of climate change (Courtney et al. 2004, pp. 9-15). There is no indication in the literature regarding the direction (positive or negative) of the threat.

Based upon a global meta-analysis, Parmesan and Yohe (2003, pp. 37-42) discussed several potential implications of global climate change to biological systems, including terrestrial flora and fauna. Results indicated that 62 percent of species exhibited trends indicative of advancement of spring conditions. In bird species, trends were manifested in earlier nesting activities. Because the spotted owl exhibits a limited tolerance to heat relative to other bird species (Weathers et al. 2001, pp. 685), subtle changes in climate have the potential to affect this. However, the specific impacts to the species are unknown.

2.3.2.7 Disturbance-Related Effects. The effects of noise on spotted owls are largely unknown, and whether noise is a concern has been a controversial issue. The effect of noise on birds is extremely difficult to determine due to the inability of most studies to quantify one or more of the following variables: 1) timing of the disturbance in relation to nesting chronology; 2) type, frequency, and proximity of human disturbance; 3) clutch size; 4) health of individual birds; 5) food supply; and 6) outcome of previous interactions between birds and humans (Knight and Skagan 1988, pp. 355-358). Additional factors that confound the issue of disturbance include the individual bird's tolerance level, ambient sound levels, physical parameters of sound and how it reacts with topographic characteristics and vegetation, and differences in how species perceive noise.

Although information specific to behavioral responses of spotted owls to disturbance is limited, research indicates that close proximity to recreational hikers can cause Mexican spotted owls (*S. o. lucida*) to flush from their roosts (Swarthout and Steidl 2001, pp. 314) and helicopter overflights can reduce prey delivery rates to nests (Delaney et al. 1999, pp. 70). Additional effects from disturbance, including altered foraging behavior and decreases in nest attendance and reproductive success, have been reported for other raptors (White and Thurow 1985, pp. 14; Andersen et al. 1989, pp. 296; McGarigal et al. 1991, pp. 5). Spotted owls may also respond physiologically to a disturbance without exhibiting a significant behavioral response. In response to environmental stressors, vertebrates secrete stress hormones

called corticosteroids (Campbell 1990, pp. 925). Although these hormones are essential for survival, extended periods with elevated stress hormone levels may have negative effects on reproductive function, disease resistance, or physical condition (Carsia and Harvey 2000, pp.517-518; Saplosky et al. 2000, pp. 1). In avian species, the secretion of corticosterone is the primary non-specific stress response (Carsia and Harvey 2000, p. 517). The quantity of this hormone in feces can be used as a measure of physiological stress (Wasser et al.1997, pp. 1019). Recent studies of fecal corticosterone levels of spotted owls indicate that low intensity noise of short duration and minimal repetition does not elicit a physiological stress response (Tempel & Gutiérrez 2003, pp. 698; Tempel & Gutiérrez 2004, pp. 538). However, prolonged activities, such as those associated with timber harvest, may increase fecal corticosterone levels depending on their proximity to spotted owl core areas (Wasser et al. 1997, pp.1021; Tempel & Gutiérrez 2004, pp. 544).

Post-harvest fuels treatments may also create above-ambient smoke or heat. Although it has not been conclusively demonstrated, it is anticipated that nesting northern spotted owls may be disturbed by heat and smoke intrusion into the nest grove.

2.4 Conservation Needs of the Spotted Owl

Based on the above assessment of threats, the spotted owl has the following habitat-specific and habitat-independent conservation (i.e., survival and recovery) needs:

2.4.1 Habitat-specific Needs

1. Large blocks of suitable habitat to support clusters or local population centers of spotted owls (e.g., 15 to 20 breeding pairs) throughout the owl's range;
2. Suitable habitat conditions and spacing between local spotted owl populations throughout its range to facilitate survival and movement;
3. Suitable habitat distributed across a variety of ecological conditions within the spotted owl's range to reduce risk of local or widespread extirpation;
4. A coordinated, adaptive management effort to reduce the loss of habitat due to catastrophic wildfire throughout the spotted owl's range, and a monitoring program to clarify whether these risk reduction methods are effective and to determine how owls use habitat treated to reduce fuels; and
5. In areas of significant population decline, sustain the full range of survival and recovery options for this species in light of significant uncertainty.

2.4.2 Habitat-independent Needs

1. A coordinated research and adaptive management effort to better understand and manage competitive interactions between spotted and barred owls; and

2. Monitoring to better understand the risk that WNV and sudden oak death pose to spotted owls and, for WNV, research into methods that may reduce the likelihood or severity of outbreaks in spotted owl populations.

2.4.3 Conservation Strategy

Since 1990, various efforts have addressed the conservation needs of the spotted owl and attempted to formulate conservation strategies based upon these needs. These efforts began with the ISC's Conservation Strategy (Thomas et al. 1990); they continued with the designation of critical habitat (USDI 1992a), the Draft Recovery Plan (USDI 1992b), and the Scientific Analysis Team report (Thomas et al. 1993), report of the Forest Ecosystem Management Assessment Team (Thomas and Raphael 1993); and they culminated with the NWFP (USDA and USDI 1994a). Each conservation strategy was based upon the reserve design principles first articulated in the ISC's report, which are summarized as follows:

- Species that are well distributed across their range are less prone to extinction than species confined to small portions of their range.
- Large blocks of habitat, containing multiple pairs of the species, are superior to small blocks of habitat with only one to a few pairs.
- Blocks of habitat that are close together are better than blocks far apart.
- Habitat that occurs in contiguous blocks is better than habitat that is more fragmented.
- Habitat between blocks is more effective as dispersal habitat if it resembles suitable habitat.

2.4.4 Federal Contribution to Recovery

Since it was signed on April 13, 1994, the NWFP has guided the management of Federal forest lands within the range of the spotted owl (USDA and USDI 1994a, 1994b). The NWFP was designed to protect large blocks of old growth forest and provide habitat for species that depend on those forests including the spotted owl, as well as to produce a predictable and sustainable level of timber sales. The NWFP included land use allocations which would provide for population clusters of spotted owls (*i.e.*, demographic support) and maintain connectivity between population clusters. Certain land use allocations in the plan contribute to supporting population clusters: LSRs, Managed Late-successional Areas, and Congressionally Reserved areas. Riparian Reserves, Adaptive Management Areas and Administratively Withdrawn areas can provide both demographic support and connectivity/dispersal between the larger blocks, but were not necessarily designed for that purpose. Matrix areas were to support timber production while also retaining biological legacy components important to old-growth obligate species (in 100-acre owl cores, 15 percent late-successional provision, etc. (USDA and USDI 1994a, USDI 1994b)) which would persist into future managed timber stands.

The NWFP with its rangewide system of LSRs was based on work completed by three previous studies (Thomas et. al. 2006, pp. 279-280): the 1990 Interagency Scientific Committee (ISC) Report (Thomas et. al. 1990), the 1991 report for the Conservation of Late-successional Forests and Aquatic Ecosystems (Johnson et. al. 1991), and the 1993 report of the Scientific Assessment Team (Thomas et. al. 1993). In addition, the 1992 Draft Recovery Plan for the Northern Spotted Owl (USDI FWS 1992b) was based on the ISC report.

The Forest Ecosystem Management Assessment Team predicted, based on expert opinion, the spotted owl population would decline in the Matrix land use allocation over time, while the

population would stabilize and eventually increase within LSRs as habitat conditions improved over the next 50 to 100 years (Thomas and Raphael 1993, pp. II-31, USDA and USDI 1994b, pp. 3&4-229). Based on the results of the first decade of monitoring, Lint (2005, pp. 18) could not determine whether implementation of the NWFP would reverse the spotted owl's declining population trend because not enough time had passed to provide the necessary measure of certainty. However, the results from the first decade of monitoring do not provide any reason to depart from the objective of habitat maintenance and restoration as described in the NWFP (Lint 2005, pp. 18; Noon and Blakesley 2006, pp. 288). Bigley and Franklin (2004, pp. 6-34) suggested that more fuels treatments are needed in east-side forests to preclude large-scale losses of habitat to stand-replacing wildfires. Other stressors that occur in suitable habitat, such as the range expansion of the barred owl (already in action) and infection with WNV (which may or may not occur) may complicate the conservation of the spotted owl. Recent reports about the status of the spotted owl offer few management recommendations to deal with these emerging threats. The arrangement, distribution, and resilience of the NWFP land use allocation system may prove to be the most appropriate strategy in responding to these unexpected challenges (Bigley and Franklin 2004, pp. 6-34).

Under the NWFP, the agencies anticipated a decline of spotted owl populations during the first decade of implementation. Recent reports (Anthony et al. 2006, pp. 33-34) identified greater than expected spotted owl declines in Washington and northern portions of Oregon, and more stationary populations in southern Oregon and northern California. The reports did not find a direct correlation between habitat conditions and changes in vital rates of spotted owls at the meta-population scale. However, at the territory scale, there is evidence of negative effects to spotted owl fitness due to reduced habitat quantity and quality. Also, there is no evidence to suggest that dispersal habitat is currently limiting (Courtney et al. 2004, 9-12, Lint 2005, pp. 87). Even with the population decline, Courtney et al (2004, pp. 9-15) noted that there is little reason to doubt the effectiveness of the core principles underpinning the NWFP conservation strategy.

The current scientific information, including information showing northern spotted owl population declines, indicates that the spotted owl continues to meet the definition of a threatened species (USDI 2004, pp. 54). That is, populations are still relatively numerous over most of its historic range, which suggests that the threat of extinction is not imminent, and that the subspecies is not endangered; even though, in the northern part of its range population trend estimates are showing a decline.

In May, 2008, the Service published the 2008 Final Recovery Plan for the Northern Spotted Owl (USDI 2008b). The recovery plan identifies that competition with barred owls, ongoing loss of suitable habitat as a result of timber harvest and catastrophic fire, and loss of amount and distribution of suitable habitat as a result of past activities and disturbances are the most important rangewide threats to the spotted owl (USDI 2008b, pp. 57-67). To address these threats, the present recovery strategy has the following three essential elements: barred owl control, dry-forest landscape management strategy, and managed owl conservation areas (MOCAs) (USDI 2008b, pp. 12-15). The recovery plan lists recovery actions that address research of the competition between spotted and barred owls, experimental control of barred owls to better understand the impact the species is having on spotted owls, and, if recommended

by research, management of barred owls (USDI 2008b, pp. 15). The foundation of the plan for managing forest habitat in the non-fire-prone western Provinces of Washington and Oregon is the MOCA network on Federal lands, which are intended to support stable and well-distributed populations of spotted owls over time and allow for movement of spotted owls across the network (USDI 2008b, pp. 13). On the fire-dominated east side of the Cascade Mountains in Washington and Oregon, and the California Cascades, the dry-forest habitat management strategy is intended to maintain spotted owl habitat in an environment of frequent natural disturbances (USDI 2008b, pp. 14). Additionally, the recovery plan identifies Conservation Support Areas (CSAs) in Washington, the west side of the Cascades in Oregon, and in California. These CSAs are located on private, State, and Federal lands and are expected to support the MOCA network and the dry-forest landscape management approach (USDI 2008b, pp. 14). In addition, the recovery plan recommends a research and monitoring program be implemented to track progress toward recovery, inform changes in recovery strategy by a process of adaptive management, and ultimately determine when delisting is appropriate (USDI 2008b, pp. 15). The three primary elements of this program include 1) the monitoring of spotted owl population trends, 2) an inventory of spotted owl distribution, and 3) a comprehensive program of barred owl research and monitoring (USDI 2008b, pp. 15). The recovery plan estimates that recovery of the spotted owl could be achieved in approximately 30 years (USDI 2008b, pp. VIII).

2.4.5 Conservation Efforts on Non-Federal Lands

In the report from the Interagency Scientific Committee (Thomas et al. 1990, pp. 3), the draft recovery plan (USDI 1992b, pp. 272), and the report from the Forest Ecosystem Management Assessment Team (Thomas and Raphael 1993, pp. IV-189), it was noted that limited Federal ownership in some areas constrained the ability to form a network of old-forest reserves to meet the conservation needs of the spotted owl. In these areas in particular, non-Federal lands would be important to the rangewide goal of achieving conservation and recovery of the spotted owl. The U.S. Fish and Wildlife Service's primary expectations for private lands are for their contributions to demographic support (pair or cluster protection) to Federal lands, or their connectivity with Federal lands. In addition, timber harvest within each state is governed by rules that provide protection of spotted owls or their habitat to varying degrees.

There are 17 current or completed Habitat Conservation Plans (HCPs) that have incidental take permits issued for spotted owls—eight in Washington, three in Oregon, and four in California (USDI 2008b, pp. 55). The HCPs range in size from 40 acres to more than 1.6 million acres, although not all acres are included in the mitigation for spotted owls. In total, the HCPs cover approximately 2.9 million acres (9.1 percent) of the 32 million acres of non-Federal forest lands in the range of the spotted owl. The period of time that the HCPs will be in place ranges from 5 to 100 years; however, most of the HCPs are of fairly long duration. While each HCP is unique, there are several general approaches to mitigation of incidental take:

- Reserves of various sizes, some associated with adjacent Federal reserves
- Forest harvest that maintains or develops suitable habitat
- Forest management that maintains or develops dispersal habitat
- Deferral of harvest near specific sites

Washington. In 1996, the State Forest Practices Board adopted rules (Washington Forest Practices Board 1996) that would contribute to conserving the spotted owl and its habitat on non-

Federal lands. Adoption of the rules was based in part on recommendations from a Science Advisory Group that identified important non-Federal lands and recommended roles for those lands in spotted owl conservation (Hanson et al. 1993, pp. 11-15; Buchanan et al. 1994, pp. ii). The 1996 rule package was developed by a stakeholder policy group and then reviewed and approved by the Forest Practices Board (Buchanan and Swedeen 2005, pp. 9). Spotted owl-related HCPs in Washington generally were intended to provide demographic or connectivity support (USDI 1992b, pp. 272).

Oregon. The Oregon Forest Practices Act provides for protection of 70-acre core areas around sites occupied by an adult pair of spotted owls capable of breeding (as determined by recent protocol surveys), but it does not provide for protection of spotted owl habitat beyond these areas (Oregon Department of Forestry 2007, pp. 64). In general, no large-scale spotted owl habitat protection strategy or mechanism currently exists for non-Federal lands in Oregon. The three spotted owl-related HCPs currently in effect cover more than 300,000 acres of non-Federal lands. These HCPs are intended to provide some nesting habitat and connectivity over the next few decades (USDI 2008b, pp. 56).

California. The California State Forest Practice Rules, which govern timber harvest on private lands, require surveys for spotted owls in suitable habitat and to provide protection around activity centers (California Department of Forestry and Fire Protection 2007, pp. 85-87). Under the Forest Practice Rules, no timber harvest plan can be approved if it is likely to result in incidental take of federally listed species, unless the take is authorized by a Federal incidental take permit (California Department of Forestry and Fire Protection 2007, pp. 85-87). The California Department of Fish and Game initially reviewed all timber harvest plans to ensure that take was not likely to occur; the U.S. Fish and Wildlife Service took over that review function in 2000. Several large industrial owners operate under spotted owl management plans that have been reviewed by the U.S. Fish and Wildlife Service and that specify basic measures for spotted owl protection. Four HCPs authorizing take of spotted owls have been approved; these HCPs cover more than 669,000 acres of non-Federal lands. Implementation of these plans is intended to provide for spotted owl demographic and connectivity support to NWFP lands (USDI 2008b, pp. 56).

2.5 Current Condition of the Spotted Owl

The current condition of the species incorporates the effects of all past human activities and natural events that led to the present-day status of the species and its habitat (USDI and USDC 1998).

2.5.1 Range-wide Habitat and Population Trends

2.5.1.1 *Habitat Baseline.* The 1992 Draft Spotted Owl Recovery Plan estimated approximately 8.3 million acres of spotted owl habitat remained range-wide (USDI 1992b, pg. 37). However, reliable habitat baseline information for non-Federal lands is not available (Courtney et al. 2004, pg. 6-5). The Service has used information provided by the Forest Service, Bureau of Land Management, and National Park Service to update the habitat baseline conditions on Federal lands for spotted owls on several occasions since the spotted owl was listed in 1990. The

estimate of 7.4 million acres used for the NWFP in 1994 (USDA and USDI 1994a, pg. G-34) was believed to be representative of the general amount of spotted owl habitat on these lands. This baseline has been used to track relative changes over time in subsequent analyses, including those presented here.

In 2005 a new map depicting suitable spotted owl habitat throughout the range of the spotted owl was produced as a result of the NWFP's effectiveness monitoring program (Lint 2005, pgs. 21-82). However, the spatial resolution of this new habitat map currently makes it unsuitable for tracking habitat effects at the scale of individual projects. The Service is evaluating the map for future use in tracking range-wide habitat trends. Additionally, there continues to be no reliable estimates of spotted owl habitat on non-Federal lands; consequently, consulted-on acres can be tracked, but not evaluated in the context of change with respect to a reference condition on non-Federal lands. The production of the monitoring program habitat map does, however, provide an opportunity for future evaluations of trends in non-Federal habitat.

2.5.1.2 NWFP Lands Analysis 1994 – 2001. In 2001, the Service conducted an assessment of habitat baseline conditions, the first since implementation of the NWFP (USDI FWS 2001, pg. 1). This range-wide evaluation of habitat, compared to the FSEIS, was necessary to determine if the rate of potential change to spotted owl habitat was consistent with the change anticipated in the NWFP. In particular, the Service considered habitat effects that were documented through the section 7 consultation process since 1994. In general, the analytical framework of these consultations focused on the reserve and connectivity goals established by the NWFP land-use allocations (USDA and USDI 1994a, pg. 6), with effects expressed in terms of changes in suitable spotted owl habitat within those land-use allocations. The Service determined that actions and effects were consistent with the expectations for implementation of the NWFP from 1994 to June, 2001 (USDI 2001, pg. 32).

2.5.1.3 Range-wide Analysis 1994 – May 19, 2010. This section updates the information considered in USDI FWS (2001), relying particularly on information in documents the Service produced pursuant to section 7 of the Act and information provided by NWFP agencies on habitat loss resulting from natural events (e.g., fires, wind storms, insect and disease outbreaks). To track impacts to spotted owl habitat, the Service developed the Consultation Effects Tracking System database in which we record impacts to spotted owls and their habitat. Data are entered into the database under various categories including, land management agency, land-use allocation, physiographic province, and type of habitat affected.

In 1994, about 7.4 million acres of suitable northern spotted owl habitat were estimated to exist on Federal lands managed under the NWFP. As of May 19, 2010, the Service had consulted on the proposed removal of approximately 237,551 acres (Table 1) or 3.2 percent of 7.4 million acres of northern spotted owl suitable habitat on Federal lands. Of the total Federal acres consulted on for removal, approximately 192,712 acres, or 2.6 percent of 7.4 million acres of northern spotted owl habitat, were removed as a result of timber harvest. These changes in suitable spotted owl habitat are consistent with the expectations for implementation of the NWFP (USDA FS and USDI BLM 1994a).

April 13, 2004 marked the start of the second decade of the NWFP. Decade-specific baselines and summaries of effects by State, physiographic province and land-use function from proposed

management activities and natural events are not provided here, but can be calculated using the Service's Consultation Effects Tracking system.

Due to ongoing technical difficulties with the Service's Consultation Effects Tracking system, the range-wide summary of acres of federal NWFP lands that were consulted on and removed and downgraded presented in Table 1 does not match the province-specific summary of acres of habitat on federal NWFP lands that were consulted on and removed and downgraded in reserves and non-reserves (Table 2). Table 2 reports approximately 11,500 acres less of total habitat removal. Despite this discrepancy, we include Table 2 because it is useful for providing an approximate breakdown of habitat impacts by physiographic province and state. We are currently re-programming our Consultation Effects Tracking system, with support from the U.S. Geological Survey, and we expect to resolve this technical problem during this process.

Habitat removal from Federal lands due to management activities has varied among the individual provinces with most of the impacts concentrated within the Non-Reserve land-use allocations (about 83% of total removal) (Table 2). When habitat removal is evaluated as a proportion of the affected acres range-wide, the majority of total habitat removal has occurred within Oregon (84%), especially within its Klamath Mountains (50%) and Cascades (East and West) (33%) Provinces (Table 2), followed by much smaller habitat losses in Washington (8 %) and California (8%) (Table 2). When habitat loss is evaluated as a proportion of provincial baselines, the Oregon Klamath Mountains (25%), Cascades East (8%), and the California Cascades (5.45%) all have proportional losses greater than the range-wide mean (5.33%) (Table 2).

From 1994 through April 8, 2009, habitat lost due to natural events was estimated at approximately 167,894 acres rangewide (Table 2). About two-thirds of this loss was attributed to the Biscuit Fire that burned over 500,000 acres in southwest Oregon (Rogue River basin) and northern California in 2002. This fire resulted in a loss of approximately 113,451 acres of spotted owl habitat, including habitat within five LSRs (Table 2 – footnote 8). Approximately 18,630 acres of spotted owl habitat were lost due to the B&B Complex and Davis Fires in the East Cascades Province of Oregon (Table 2– footnote 9).

Because there is no comprehensive spotted owl habitat baseline for non-Federal lands, there is little available information regarding spotted owl habitat trends on non-Federal lands. Yet, we do know that internal Service consultations conducted since 1992, have documented the eventual loss of 419,432 (Table 1) acres of habitat on non-Federal lands. Most of these losses have yet to be realized because they are part of large-scale, long-term HCPs. Combining effects on Federal and non-Federal lands, the Service had consulted on the proposed removal of approximately 632,860 acres of spotted owl habitat rangewide, resulting from all management activities, as of April 8, 2008 (Table 1).

Table 1. Changes to NRF¹ habitat acres from activities addressed in section 7 consultations (both formal and informal) and other causes rangewide from 1994 to May 19, 2010.

Northwest Forest Plan (NWFP) Group / Ownership		Consulted On Habitat Changes ²		Other Habitat Changes ³	
		Removed/Downgraded	Degraded	Removed/Downgraded	Degraded
Federal - Northwest Forest Plan	Bureau of Land Management	100930	56166	760	0
	Forest Service	117324	472795	36911	5481
	National Park Service	3916	5286	3	0
	Multi-agency ⁴	15381	23314	130220	0
	NWFP Subtotal	237551	557561	167894	5481
Other Management and Conservation Plans (OMCP)	Bureau of Indian Affairs and Tribes	110123	28398	2398	0
	Habitat Conservation Plans	295889	14430	0	0
	OMCP Subtotal	406012	42828	2398	0
Other Federal Agencies & Lands ⁵	241	241	466	28	
Other Public & Private Lands ⁶	14173	14473	880	30240	
TOTAL Changes	632860	658277	601735	200560	

¹ Nesting, roosting, foraging habitat. In California, suitable habitat is divided into two components; nesting – roosting (NR) habitat, and foraging (F) habitat. The NR component most closely resembles NRF habitat in Oregon and Washington. Due to differences in reporting methods, effects to suitable habitat compiled in this, and all subsequent tables include effects for nesting, roosting, and foraging (NRF) for 1994.

² After 6/26/2001, suitable habitat includes NRF for Washington and Oregon but only nesting and roosting (NR) for California. Includes both effects reported by USDI FWS (2001) and subsequent effects compiled in the Spotted Owl Consultation Effects Tracker (web application and database).

³ Includes effects to NRF habitat (as documented through technical assistance) resulting from wildfires (not from suppression efforts), insect and disease outbreaks, and other natural causes, private timber harvest, and land exchanges not associated with consultation.

⁴ The 'Multi-agency' grouping is used to lump a variety of NWFP mixed agency or admin unit consultations that were reported together prior to 6/26/2001, and the acres of habitat loss to natural events that can not be split out by administrative unit.

⁵ Includes lands that are owned or managed by other Federal agencies not included in the NWFP.

⁶ Includes lands not covered by Habitat Conservation Plans that are owned or managed by states, counties, municipalities, and private entities. Effects that occurred on private lands from right-of-way permits across Forest Service and FS lands are included here.

Table 2: Acres of suitable (NRF¹) habitat loss on Federal lands from 1994 to May 19, 2010 from proposed management activities and natural events: baseline and summary of effects by State, physiographic province and land use function.

Physiographic Province ⁴	Evaluation Baseline ⁵			Habitat Removed/Downgraded ¹			% of Provincial Baseline Affected	% of Range-wide Effects		
	Reserves ²	Non-reserves ³	Total	Reserves ²	Non-reserves ³	Total				
WA	Olympic Peninsula	548483	11734	560217	867	24	1190	0.21	0.31	
	Eastern Cascades	506340	200509	706849	3946	5748	15448	2.19	3.96	
	Western Cascades	864683	247797	1112480	1681	10924	0	12605	1.13	3.23
	Western Lowlands	0	0	0	0	0	0	0	0.00	
OR	Coast Range	422387	94190	516577	734	3938	66	4738	0.92	1.21
	Klamath Mountains	448509	337789	786298	23402	71989	101676 ⁸	197067	25.06	50.38
	Cascades East	247624	196035	443659	2343	13448	19547 ⁹	35338	7.97	9.06
	Cascades West	1012426	1033337	2045763	4020	66397	24583	95000	4.64	24.28
	Willamette Valley	593	5065	5658	0	0	0	0	0.00	0.00
CA	Coast	47566	3928	51494	455	65	100	620	1.2	0.16
	Cascades	61852	26385	88237	0	4809	0	4809	5.45	1.23
	Klamath	734103	345763	1079866	1545	9719	15869	27133	2.51	6.94
Total	4894566	4894566	2502532	7397098	38993	187061	167894	393948	5.33	

¹ Nesting, roosting, foraging habitat. In California, suitable habitat is divided into two components; nesting – roosting (NR) habitat, and foraging (F) habitat. The NR component most closely resembles NRF habitat in Oregon and Washington. Due to differences in reporting methods, effects to suitable habitat compiled in this, and all subsequent tables include effects for nesting, roosting, and foraging (NRF) for 1994-6/26/2001. After 6/26/2001, suitable habitat includes NRF for Washington and Oregon but only nesting and roosting (NR) for California.

² 1994 FSEIS baseline (USDA FS and USDI BLM 1994b).

³ Includes consultation on effects reported by USDI FWS (2001) and subsequent effects compiled in the NSO Consultation Effects Tracking System database.

⁴ Defined by the NWFP as the twelve physiographic provinces, as presented in Figure 3&4-1 on page 3&4-16 of the FSEIS.

⁵ Land-use allocations intended to provide large blocks of habitat to support clusters of breeding pairs

⁶ Land-use allocations intended to provide habitat to support movement of spotted owls among reserves.

⁷ Acres for all physiographic provinces, except the Oregon Klamath Mountains and Oregon Cascades East, are from the Scientific Evaluation of the Status of the Spotted owl (Courtney et al. 2004)

⁸ Acres are from the biological assessment entitled: Fiscal year 2006-2008 programmatic consultation: re-initiation on activities that may affect listed species in the Rogue-River/South Coast Basin, Medford BLM, and Rogue-Siskiyou National Forest.

⁹ Acres are from the Scientific Evaluation of the Status of the Spotted owl (Courtney et al. 2004) and data in the NSO Consultation Effects Tracking Database. NSO Consultation Effects Tracking Database

2.5.1.4 Other Habitat Trend Assessments. In 2005, the Washington Department of Wildlife released the report, "An Assessment of Spotted Owl Habitat on Non-Federal Lands in Washington between 1996 and 2004" (Pierce et al. 2005). This study estimates the amount of spotted owl habitat in 2004 on lands affected by state and private forest practices. The study area is a subset of the total Washington forest practice lands, and statistically-based estimates of existing habitat and habitat loss due to fire and timber harvest are provided. In the 3.2-million acre study area, Pierce et al. (2005, pp. 88) estimated there was 816,000 acres of suitable spotted owl habitat in 2004, or about 25 percent of their study area. Based on their results, Pierce and others (2005, pp. 98) estimated there were less than 2.8 million acres of spotted owl habitat in Washington on all ownerships in 2004. Most of the suitable owl habitat in 2004 (56%) occurred on Federal lands, and lesser amounts were present on state-local lands (21%), private lands (22%) and tribal lands (1%). Most of the harvested spotted owl habitat was on private (77%) and state-local (15%) lands. A total of 172,000 acres of timber harvest occurred in the 3.2 million-acre study area, including harvest of 56,400 acres of suitable spotted owl habitat. This represented a loss of about 6 percent of the owl habitat in the study area distributed across all ownerships (Pierce et al. 2005, pp. 91). Approximately 77 percent of the harvested habitat occurred on private lands and about 15 percent occurred on State lands. Pierce and others (2005, pp. 80) also evaluated suitable habitat levels in 450 spotted owl management circles (based on the provincial annual median spotted owl home range). Across their study area, they found that owl circles averaged about 26 percent suitable habitat in the circle across all landscapes. Values in the study ranged from an average of 7 percent in southwest Washington to an average of 31 percent in the east Cascades, suggesting that many owl territories in Washington are significantly below the 40 percent suitable habitat threshold used by the State as a viability indicator for spotted owl territories (Pierce et al. 2005, pp. 90).

Moer et al. 2005 (pp. 110) estimated an increase of approximately 1.25 to 1.5 million acres of medium and large older forest (greater than 20 inches dbh, single and multi-storied canopies) on Federal lands in the Northwest Forest Plan area between 1994 and 2003. The increase occurred primarily in the lower end of the diameter range for older forest. The net area in the greater than 30 inch dbh size class increased by only an estimated 102,000 to 127,000 acres (Moer et al. 2005, pp. 100). The estimates were based on change-detection layers for losses due to harvest and fire and re-measured inventory plot data for increases due to in-growth. Transition into and out of medium and large older forest over the 10-year period was extrapolated from inventory plot data on a subpopulation of Forest Service land types and applied to all Federal lands. Because size class and general canopy layer descriptions do not necessarily account for the complex forest structure often associated with northern spotted owl habitat, the significance of these acres to northern spotted owl conservation remains unknown.

2.5.1.5 Spotted owl Numbers, Distribution, and Reproduction Trends. There are no estimates of the size of the spotted owl population prior to settlement by Europeans. Spotted owls are believed to have inhabited most old-growth forests or stands throughout the Pacific Northwest, including northwestern California, prior to beginning of modern settlement in the mid-1800s (USDI 1989, pp. 2-17). According to the final rule listing the spotted owl as threatened (USDI 1990a, pp. 26118), approximately 90 percent of the roughly 2,000 known spotted owl breeding pairs were located on Federally managed lands, 1.4 percent on State lands, and 6.2 percent on

private lands; the percent of spotted owls on private lands in northern California was slightly higher (USDI 1989, pp. 4-11; Thomas et al. 1990, pp.64).

The current range of the spotted owl extends from southwest British Columbia through the Cascade Mountains, coastal ranges, and intervening forested lands in Washington, Oregon, and California, as far south as Marin County (USDI 1990a, pp. 26115). The range of the spotted owl is partitioned into 12 physiographic provinces (Figure 1) based on recognized landscape subdivisions exhibiting different physical and environmental features (USDI 1992b, pp. 31). The spotted owl has become rare in certain areas, such as British Columbia, southwestern Washington, and the northern coastal ranges of Oregon.

As of July 1, 1994, there were 5,431 known site-centers of spotted owl pairs or resident singles: 851 sites (16 percent) in Washington, 2,893 sites (53 percent) in Oregon, and 1,687 sites (31 percent) in California (USDI 1995, pp. 9495). By June 2004, the number of territorial spotted owl sites in Washington recognized by the Washington Department of Fish and Wildlife was 1,044 (Buchanan and Swedeen 2005, pp. 37). The actual number of currently occupied spotted owl locations across the range is unknown because many areas remain unsurveyed (USDI 2008b, pp. 44). In addition, many historical sites are no longer occupied because spotted owls have been displaced by barred owls, timber harvest, or severe fires, and it is possible that some new sites have been established due to reduced timber harvest on Federal lands since 1994. The totals in USDI (1995, pp. 9495) represent the cumulative number of locations recorded in the three states, not population estimates.

Because the existing survey coverage and effort are insufficient to produce reliable rangewide estimates of population size, demographic data are used to evaluate trends in spotted owl populations. Analysis of demographic data can provide an estimate of the finite rate of population change (λ), which provides information on the direction and magnitude of population change. A λ of 1.0 indicates a stationary population, meaning the population is neither increasing nor decreasing. A λ of less than 1.0 indicates a decreasing population, and a λ of greater than 1.0 indicates a growing population. Demographic data, derived from studies initiated as early as 1985, have been analyzed periodically (Anderson and Burnham 1992, Burnham et al. 1994; Forsman et al. 1996, Anthony et al. 2006) to estimate trends in the populations of the spotted owl.

In January 2004, two meta-analyses modeled rates of population change for up to 18 years using the re-parameterized Jolly-Seber method (λ_{RJS}). One meta-analysis modeled all 13 long-term study areas excluding the Marin study area (Table 3), while the other modeled the eight study areas that are part of the effectiveness monitoring program of the NWFP (Anthony et al. 2006, pp. 2). Data were analyzed separately for individual study areas, as well as across all study areas in a meta-analysis.

Table 3. Spotted owl demographic study areas (adapted from Anthony *et al.* 2006, pp. 29).

Area	Fecundity	Survival	λ_{RJS}	Population Change
Wenatchee	Declining	Declining	0.917	Declining
Cle Elum	Declining	Declining?	0.938	Declining
Rainier	Stable	Declining	0.896	Declining
Olympic	Stable	Declining	0.956	Declining
Coast Ranges	Declining?	Stable	0.968	Declining
HJ Andrews	Stable?	Stable	0.978	Declining
Warm Springs	Stable	Stable	0.908	Declining
Tyee	Increasing	Stable	1.005	Stationary
Klamath	Stable	Stable	0.997	Stationary
S. Cascades	Declining	Stable	0.974	Stationary
NW California	Declining	Declining	0.985	Declining?
Hoopa	Increasing	Stable	0.98	Stationary
Simpson	Declining	Stable	0.97	Declining
Marin	Stable	Stable	NA	NA

Point estimates of λ_{RJS} ranged from 0.896 to 1.005 for the 13 long-term study areas, and in all study areas but one—the Tyee study area—these estimates were less than 1.0 (Anthony *et al.* 2006, pp. 29). There was strong evidence that populations in the Wenatchee, Cle Elum, Warm Springs, and Simpson study areas decreased during the period of study. There also was evidence that populations in the Rainier, Olympic, Oregon Coast Range, and HJ Andrews study areas were decreasing. The precision of the λ_{RJS} estimates for Rainier and Olympic study areas was poor and not sufficient to detect a statistically significant difference from 1.00; however, the estimate of λ_{RJS} for the Rainier study area (0.896) was the lowest of all of the areas. Populations in the Tyee, Klamath, South Oregon Cascades, Northwest California, and Hoopa study areas appeared to be stationary during the study, but there was some evidence that the spotted owl population in the Northwest California study area was decreasing ($\lambda_{RJS} = 0.959$ to 1.011).

The weighted mean λ_{RJS} for all of the study areas was 0.963 (standard error [SE] = 0.009, 95 percent confidence interval [CI] = 0.945 to 0.981), suggesting that populations over all of the study areas decreased by about 3.7 percent per year from 1985 to 2003. Anthony *et al.* (2006, pp. 31) explains that the indication populations were declining was based on the fact that the 95 percent confidence intervals around the estimate of the mean lambda did not overlap 1.0 (stable) or barely included 1.0.

The mean λ_{RJS} for the eight demographic monitoring areas that are part of the effectiveness monitoring program of the NWFP was 0.976 (SE = 0.007, 95 percent CI = 0.962 to 0.990), and the mean λ_{RJS} for the other five study areas was 0.942 (SE = 0.016, 95 percent CI = 0.910 to 0.974), yielding average declines of 2.4 and 5.8 percent per year, respectively. These data suggest that demographic rates for spotted owl populations on Federal lands were better than elsewhere; however, both the interspersed non-Federal land in study areas, and the likelihood that spotted owls use habitat on multiple ownerships in some demography study landscapes, confound this comparison.

The number of populations that declined and the rate at which they have declined are noteworthy, particularly the precipitous declines in the Wenatchee, Cle Elum, and Rainier study areas in Washington and the Warm Springs study area in Oregon. Estimates of population declines in these areas ranged from 40 to 60 percent during the study period of 1990 to 2003 (Anthony et al. 2006, pp. 31). Decreases in apparent adult survival rates were an important factor contributing to decreasing population trends. Survival rates decreased over time in five of the 14 study areas: four study areas in Washington, which showed the sharpest declines, and one study area in the California Klamath Province of northwest California (Anthony et al. 2006, pp. 30). In Oregon, there were no time trends in apparent survival for four of six study areas, and remaining areas had weak, non-linear trends. In California, three study areas showed no trend and one showed a significant linear decrease (Anthony et al. 2006, pp. 30). Like the trends in annual rate of population change, trends in the rate of adult survival showed clear decreases in some areas but not in others.

There are few spotted owls remaining in British Columbia. Chutter et al. (2004, pp. v) suggested immediate action was required to improve the likelihood of recovering the spotted owl population in British Columbia. So, in 2007, personnel in British Columbia captured and brought into captivity the remaining 16 known wild spotted owls (USDI 2008b, pp. 48). Prior to initiating the captive-breeding program, the population of spotted owls in Canada was declining by as much as 10.4 percent per year (Chutter et al. 2004, pp. v). The amount of previous interaction between spotted owls in Canada and the United States is unknown.

3.0 ENVIRONMENTAL BASELINE

3.1 Introduction

The environmental baseline is an account of the effects of past and ongoing human actions and natural factors leading to the current status of the species, its habitat, and ecosystem at the scale of the action area (USDI and USDC 1998 p. 4-22). The environmental baseline represents the current condition of species and designated critical habitat, and provides the context for the analysis of potential effects of the proposed action.

For wide-ranging, highly mobile species like the spotted owl, the action-area scale is not the only scale relevant to the evaluation of how baseline conditions might influence the consequences of project effects. Baseline conditions at larger scales, particularly the watershed and physiographic province, provide important information about trends in habitat quantity, quality, and distribution, as well as non-habitat factors that may be influencing spotted owl numbers, reproduction, and distribution across the landscape. The watershed baseline provides insights about the condition of the local population of spotted owls affected in the action area. The physiographic province scale describes the condition of the broader metapopulation with which the affected local population interacts. Baseline conditions of the spotted owl metapopulation presumably influence the numbers, distribution, and reproduction of the local population in the action area.

The following sub-sections present baseline information starting at the broad scale of the physiographic provinces affected and zooming in to the watershed and action area scales. In conjunction with the Status of the Species, this nested hierarchy of baseline conditions provides

the context for subsequent analysis of Project effects at multiple scales en route to determining the potential for the Project to jeopardize the continued existence of the spotted owl or to destroy or adversely modify critical habitat.

3.2 Washington Eastern Cascades Province Baseline

This section describes the implementation of the conservation strategy for the spotted owl at the scale of the Washington Eastern Cascades province (WECP). The Service uses this background to determine how representative baseline conditions in the action area are relative to baseline conditions at the broader provincial scale, and how the action area is currently contributing to the provincial conservation strategy. This background also provides insights about how resilient the broader metapopulation of spotted owls may be to adverse effects to the local population in the action area.

The 5.7 million acre WECP is located along the eastern edge of the Cascade Mountains in Washington, spanning the entire state from Canada south to the Columbia River and the border with Oregon. The range of the spotted owl within the WECP has a mixture of federal, state, tribal, and private ownership. The Forest Service, Yakama Indian Nation, and State of Washington are owners and managers of most of the spotted owl suitable habitat and known activity centers within the province. The province is generally characterized by high topographic relief compared to other provinces, especially the extensively glaciated northern portion. The province is dominated by mixed-conifer and ponderosa pine forests in the low- to mid-elevation areas, and true fir/hemlock forests at higher elevations.

The Service's current recovery strategy includes two primary components; (1) maintain large clusters of spotted owl pairs, with smaller clusters supporting these large clusters, and (2) maintain dispersal habitat between clusters by limiting the distance between clusters and providing "stepping stones" and corridors of suitable habitat linking larger habitat blocks (Thomas et al. 1990, USDI 1990a, FEMAT 1993). These strategic objectives guided the final recovery plan for the spotted owl, revision of spotted owl critical habitat (based on the recovery plan), and the design of the reserve network in the NWFP. In the WECP, four large clusters (i.e., groups of at least 20 pairs) have been identified. Populations of this size have a high probability of being self-sustaining for 100 years, and are expected to produce "extra" owls that can disperse into other smaller reserves where populations are less stable. Other smaller clusters (i.e., numbering less than 20 pair) exist to support these four large clusters. These clusters are located within three large Late-successional Reserves on federal lands managed under the NWFP (Chiwawa, Swauk, and Manastash LSRs) and on Yakama Nation Lands.

The designation of critical habitat in the province was designed to provide for intra-provincial connectivity and inter-provincial connectivity with Washington Western Cascades to the west, the Yakama Indian Nation to the south, and Canadian populations of spotted owls to the north (Tehan 1991). Within the province, the three largest CHU's were anticipated to support three large clusters of spotted owls on federal lands described above. Smaller units had other roles such as supporting smaller clusters of owls, acting as "stepping stones" to support dispersal, or providing roosting/foraging opportunities.

Effects to spotted owl habitat in the province result primarily from natural disturbance and forest management projects. The primary agents of natural disturbance in forested areas of the province are fires, insect outbreaks, and tree diseases. Preliminary data suggest that over 36,000 acres of suitable habitat for the spotted owl have been removed due to wildfire since 1994 (Appendix A). During the same period, about 15,448 acres have been removed or downgraded due to management actions (through May 2010; USFWS effects tracking data). Information about effects to spotted owl habitat from insect and disease is limited. The risk of these disturbances has recently been assessed by the OWNF in their forest health assessment (USDA 2004). In general, insect and disease disturbances exist across the OWNF. Some loss of suitable habitat and the PCEs of designated critical habitat are occurring on the Naches, Wenatchee River, and Methow Valley Ranger Districts. Patchy mortality is a natural process and can increase stand heterogeneity, which may benefit the spotted owl in some cases by producing the snags and large woody debris required by prey species (see Lehmkuhl et al. 2006a and b).

Regarding effects to critical habitat, the Services best estimate is that about 12,000 acres of critical habitat, or 3.8 percent of the provincial baseline, were removed or downgraded from 1994 to September 2008. The majority of effects were concentrated in the northern half of the province and resulted primarily from the Tye, Needles, North 25 Mile, and Maple fires. The largest of these fires, the Tye, removed or downgraded approximately 3,600 acres of suitable habitat. The Maple Fire removed or downgraded an additional 300 acres of suitable habitat. The Needles and North 25 Mile Fires removed or downgraded approximately 2,974 acres of suitable habitat from two different units (see Appendix A). Collectively, the units impacted by these fires are important for the rangewide distribution of the spotted owl, because they are located on the eastern and northeastern edge of the species range (Tehan 1991). Although some units in the original critical habitat network sustained substantive effects, the Service believed the province-wide network continued to fulfill the conservation functions for which it was designated.

These estimates of natural disturbance effects represent the best available information, but they remain preliminary. These estimates cannot be finalized and entered into the Service's rangewide effects-tracking database until they have been reviewed and agreed upon by the NWFP Level 1 team. Many factors, especially lack of comprehensive surveys of spotted owl presence across the province, also complicate estimation of the effects of wildfire and fire suppression activities on spotted owls. The summary provided in Appendix A gives our best estimates for effects to spotted owls and their habitat in the vicinity of known activity centers detected using protocol surveys.

Since 1994, authorized removal of suitable habitat from NWFP reserves in the WECP was less than 1 percent of the starting habitat total. Wildfires, especially during the summer of 1994, removed large areas of habitat from a subset of reserves, including the Chiwawa. Up to 20 known spotted owl activity centers may have been removed due to fire and fire-suppression effects since 1994. Despite these losses, the large-cluster LSRs continue to have relatively high proportions of suitable habitat, particularly in the Manastash, which has 65 percent of its area in suitable habitat (USDA 1997).

Given the relatively modest scale of disturbance and management effects to spotted owl habitat, it is surprising that from 1996 through 2006, the number of spotted owls in the four large clusters declined between 32 and 62 percent, and only 1 cluster currently has more than 20 pairs. All

four demography study areas in Washington (Wenatchee [WEN], Cle Elum [CLE], Rainier [RAI], and Olympic [OLY]) and the Warm Springs Reservation study site in the northeast Oregon Cascades, are all locations where precipitous declines in spotted owl populations have been observed (4.4 to 10.4 percent per year). Spotted owl population trends in the WECP are declining at about 6.2 percent annually (Anthony et al. 2006). Consequently, formerly large clusters in the province may no longer be fulfilling their expected roles of ensuring long-term persistence of spotted owls and providing recruits to other areas.

Connectivity among clusters may still be adequate, based on the distribution of habitat. Although suitable spotted owl habitat in the Matrix has been reduced by over 10 percent, again primarily due to wildfire effects, the distribution of suitable and dispersal habitat across all land allocations does not exceed typical dispersal distances and does not contain conspicuous gaps. The concentration of spotted owl habitat removal in fire areas suggests reduced local connectivity, but dispersal opportunities remain either through unburned patches of habitat or outside fire perimeters.

One reason spotted owl demographic performance in the WECP may not be matching expectations based on habitat condition is the presence of barred owls. Barred owls first arrived in the WECP over 25 years ago. Barred owls are potential competitors with spotted owls for prey and nest sites. The barred owl has rapidly expanded its distribution within the range of the spotted owl and negative inter-specific interactions with the spotted owl have been documented (reviewed in Courtney et al. 2004). However, competitive interactions between barred and spotted owls are not well studied (Courtney et al. 2004). Most published studies about barred owls in the Pacific Northwest have been ancillary to studies being conducted on spotted owls. This has led to a great deal of uncertainty about the barred owl's pattern of range expansion, its interaction and the consequences of those interactions with spotted owls, and the contribution of barred owls to the decline of spotted owls both in terms of direct effects (e.g., competition, predation, social harassment, hybridization) or interactions among barred owl effects and the effects of other factors (e.g., ongoing habitat loss, lag effects associated with previous habitat loss, or weather).

Preliminary results from one study of barred owl habitat selection and use in the WECP have provided insights into some aspects of the interspecific interaction. Along a moisture gradient extending from mesic to dry forests, barred owls prefer the more mesic end of the gradient, and in more mesic forests have established adjoining territories that nearly saturate suitable spotted owl habitat (Peter Singleton, USFS, pers. comm. 2008). Barred owl territories are only about 200 to 300 ha in size, roughly one-tenth the size of spotted owl territories in the WECP, and barred owls appear to defend these territories vigorously (Singleton, pers. comm. 2008). Barred owls appear to prefer flat or gentle slopes (broad valley bottoms) with mature, closed canopy forests that include a deciduous component. Toward the drier end of the moisture gradient, barred owls appear to prefer the moistest inclusions within a matrix of dry forest types. Existing and historic spotted owl sites in this study area were associated with closed canopy, mature ponderosa pine or Douglas fir forest on steeper slopes at mid-slope locations (Singleton, pers. comm. 2008). Though these results are preliminary, they suggest that barred owl competition with spotted owls may be more intense in more mesic forests, and that some opportunities for niche partitioning may be present in drier forest types.

Experimental studies that will clarify the nature of competitive interactions between these species are currently underway or are being designed. Results of these experiments should help to predict the likely consequences of interactions between these species. Pending the outcome of these studies, the best available science indicates the presence of barred owls has a negative effect on spotted owl numbers, distribution, and reproduction in the WECP, but the magnitude of this negative effect is unknown.

North Cascades National Park Complex (i.e., including the North Cascades National Park, Lake Chelan National Recreation Area, and the Ross Lake National Recreation Area), spans both the Washington Western Cascades Province and the WECP. The Park includes most of the area that was originally designated as a mapped category 2 Habitat Conservation Area (HCA), designed to support less than 20 spotted owl pairs (Thomas et al. 1990). This HCA (W-34) has a total area of 101,000 acres of potential habitat and was expected to have the capacity to support 11 pairs of spotted owls in the future (Thomas et al. 1990). Within the WECP, Thomas et al. (1990) estimated that about 900 acres of suitable spotted owl habitat may develop in the North Cascades National Park as forests mature after logging that occurred from the 1930s to 1960s. However, recent vegetation analyses by National Park staff indicate that the estimated total area of spotted owl suitable habitat in the WECP is much larger, about 28,295 acres (Kuntz and Christophersen 1996). The management objectives for National Parks emphasize maintenance of ecological processes, and therefore are generally considered compatible with maintaining spotted owl populations (Thomas et al. 1990). Fire, as an ecological process, may reduce the future amount of suitable habitat for spotted owls in localized patches of the North Cascades National Park, but the overall amount of suitable habitat in the Park is generally expected to increase as second-growth forests mature. Surveys conducted from 1993 to 1996 identified 11 spotted owl activity centers in the North Cascades National Park Complex, 4 of which were detected in the WECP. However, the spotted owl population in the Park is thought to be declining, perhaps due to competition with more abundant barred owls; 42 barred owl activity centers have been detected in the Park (Kuntz and Christophersen 1996). More recent survey information on National Park Service lands in the WECP are limited. Given the 35 to 62% decline of spotted owls on the OWNF between 1996 and 2006, very few owls may currently exist in the North Cascades National Park Complex.

Overall, the Service is concerned about the long-term persistence of spotted owls within the WECP. Continuing population declines suggest the combined effects of historic and ongoing habitat removal due to human activities, habitat removal by wildfire and other natural disturbances, changes in habitat suitability due to fire suppression (e.g., Irwin et al. 2004), and interactions with barred owls are reducing survival and reproduction, and may be contributing to range contraction in the province. The final recovery plan proposes a new conservation strategy for the province based on managing the entire landscape to meet spotted owl conservation objectives. This strategy acknowledges that in fire-prone landscapes, spotted owl habitat is likely to be spatially dynamic, and recommends a three-part landscape management strategy: (1) identify existing high-quality spotted owl habitat, (2) strategically place fuel-reduction treatments, and (3) manage for sustainable ecosystem processes and functions (USDI 2008b). Most of the important decisions about how to implement this strategy remain to be made. During the transition period, the Service believes all remaining spotted owls within the WECP

are vital to the conservation of the species until populations stabilize and recover to abundance levels with a higher likelihood of long-term persistence.

3.3 Environmental Baseline at the Watershed Scale

We consider this scale to be roughly equivalent to the population of spotted owls likely to be affected by the proposed Project.

The spotted owl is an uncommon resident in the North Cascades. Approximately 60 percent of the suitable spotted owl habitat in the Park has been surveyed for spotted owls. Past efforts to assess the status of spotted owls within the Park began in the early 1980's when random calling surveys were initiated by the Washington Department of Fish and Wildlife. Only a few of the random survey transects actually entered Park boundaries and no spotted owls were detected in the Park from these surveys (Kuntz and Christophersen 1996). In 1987, Park biologists conducted a calling survey in the Ross Lake basin and found no spotted owls (Kuntz and Christophersen 1996). Other surveys conducted by Park biologists were done in conjunction with environmental assessments of Park operations (USDI 1989). No spotted owls were detected from these surveys. Biologists from the National Council of the Paper Industry for Air and Stream Improvement, Incorporated (NCASI), helped complete reconnaissance-level surveys in the Stehekin Valley while conducting spotted owl investigations on USFS lands adjacent to the Park and discovered 2 nest sites. Since the mid-1980's, park biologists and NCASI have visited these nest sites found in the Stehekin Valley to monitor productivity and survivorship. NCASI banded adults and juveniles at these nest sites and on adjacent USFS lands (Kuntz and Christophersen 1996).

The most recent analysis of the population of spotted owls in the Park was completed by Kuntz and Christophersen (1996). They identified 11 spotted owl activity centers during 1993-1996. Approximately 60 percent of the suitable spotted owl habitat identified in the Park was surveyed during this period. They documented pair occupancy at six of these sites, and single spotted owls at five other sites. Half of the documented pairs are located in the Stehekin Valley (Kuntz and Christophersen 1996). Activity sites range in elevation from 1,040 feet to 2,880 feet. Occupancy at sites with pairs ranged from was 0.33-0.75 (mean = 0.52). Mean annual fecundity was 0.30 female young per paired adult female. During the same 4 years, they identified 42 barred owl sites, 18 of which were pairs and 24 of which were singles. They reported "[i]t appears spotted owl populations in the North Cascades are continuing to decline. Competition with barred owls for suitable habitat may be influencing the spotted owl's distribution and abundance" [in the North Cascades National Park] (Kuntz and Christophersen 1996; pg. 4). Since 1996, one additional spotted owl activity site containing a breeding pair was documented in the Park (USDI 2005).

Throughout the 4 year study, spotted owl activity sites found during current and previous inventory field seasons were monitored to determine owl occupancy and productivity. These data provided information on nest site fidelity, pair fidelity, and survival rates. As many activity sites as possible were sampled each year. However, when all activity sites could not be visited in a given year, sites where pair activity had been identified in previous years were given priority. An average of 8.5 activity sites were monitored each year. Three of six spotted owl pairs

successfully fledged at least 1 young during the 4-year period. A total of 7 young fledged during the 4-year period. Young fledged in all years except 1995. Mean annual productivity equaled 1.25 young per successful pair (Kuntz and Christophersen 1996).

3.4 Environmental Baseline at the Action Area Scale

In this sub-section, we focus on the specific spotted owl activity centers that may be affected by the Project. One active site, known as the McGregor Meadow site, is within the project area. Located approximately 500 feet from the Stehekin Valley Road on the south side of the Stehekin Valley, this site was discovered in July 1998 during a cavity nesting bird survey. Later, this discovery was confirmed when an adult pair and three juveniles were observed. Three birds were banded in August 1998. Table 4 provides a status summary for this site.

Table 4. Status summary for the McGregor Meadow Spotted Owl Activity Site.

Year	Occupancy	Reproduction
1998	Pair	2 young
1999	Pair	Unknown
2000	Single	Unknown
2001	Unknown	Unknown
2002	Unknown	Unknown
2003	No Survey	No Survey
2004	Single	Unknown
2005	Pair	2 young
2006	Pair	1 young
2007	Pair	Failed
2008	Unoccupied*	n/a
2009	Unoccupied*	n/a

**Note:* In 2008 and 2009, no northern spotted owls were detected, however, a pair of barred owls was found.

In 2010, a single resident male was discovered at the McGregor activity center during survey efforts (R. Kuntz, pers. comm. 2010). Although protocol surveys are not complete for 2010, information gathered since the BA was completed suggests no reproduction is likely to occur.

3.5 Factors Affecting the Species Environment in the Action Area

This section describes all federal, state, tribal, local, and private actions already affecting the species that will occur contemporaneously with the proposed action.

3.5.1 Consulted-Upon Effects

The 1995 NPS Forest Fuel Reduction/Firewood Management Plan called for thinning sections of the forest in the Stehekin Valley through manual thinning and prescribed burns. In 1995 it was estimated that 2,500 acres of suitable habitat were available for owls from Lower Field down the valley to Lake Chelan (see USFWS Biological Opinion, August 23, 1995). NPS actions in the lower valley, as defined in the Forest Fuel Reduction Plan, will reduce the suitable habitat by 299 acres. No other projects affecting owls have occurred in the action area.

3.5.2 Presence and Effect of Barred Owls

During surveys in 2008 and 2009, no northern spotted owls were detected at the McGregor Meadows Spotted Owl Activity Site, although a pair of barred owls was found. However, a resident male was discovered at the McGregor activity center during surveys in 2010. Courtney *et al.* (2004) reported that the competitive interaction between barred owls and spotted owls is unclear and that relatively little data has been specifically collected regarding this issue. The opinion of the scientific panel convened for the 5-year review for the spotted owl was divided; while all panelists thought this was a major threat, some felt that the scientific case for the effects of barred owls remained inconclusive and others were more certain.

Because the information on detections of barred owls has been collected incidental to spotted owl surveys, the data are neither consistently collected nor consistently reported, and are usually reported in the literature either as a ratio of barred owls to spotted owls or as numbers of barred owls detected over time. Consequently, there is a great deal of uncertainty about the barred owl's pattern of range expansion, its interaction and the consequences of those interactions with spotted owls, and the contribution of barred owls to the decline of spotted owls both in terms of direct effects (e.g., competition, predation, social harassment, hybridization) or indirect contributing effects (e.g., additional pressure on spotted owls in combination with habitat loss and/or lag effects associated with previous habitat loss; weather; or other factors). However, it is apparent that barred owls have greatly and rapidly expanded their distribution within the range of the spotted owl and that they have demonstrated negative inter-specific interactions with the spotted owl (Courtney *et al.* 2004).

Given this uncertainty, Courtney *et al.* (2004) proposed nine hypotheses regarding the potential consequences of the barred owl invading the range of the spotted owl. They range from complete replacement of the spotted owl by barred owls across their range to varying degrees of range, habitat, or niche partitioning. Although these hypotheses were categorized as "clearly plausible," "plausible," or "not plausible or not clear," no management recommendations were provided.

3.5.3 Summary

The Service concludes that only recent, minor consulted-upon effects and natural disturbances have occurred in or near the action area. At the watershed and WECP scales, moderate degrees of effect have occurred. While historic timber harvest has occurred across the entire WECP, habitat removal from wildland fire in the central and northern sub-provinces has been extensive. Habitat degradation from insect and disease mortality appears to be increasing across the WECP, and "outbreak" levels exist most notably in the northern and southern sub-provinces. Spotted owl populations in the northern part of their range are in precipitous decline, and non-habitat factors may be significant. The barred owl may be a greater threat than previously thought, but the potential effects are poorly understood and may be confounded by lag effects of habitat removal and other factors. Due to the documented decline in spotted owl populations and the uncertainty in identifying the effects of the proximate cause, a conservative approach is taken in analyzing the proposed action.

4.0 EFFECTS OF THE ACTION

The Service regulations for implementing the Act define “effects of the action” as “the direct and indirect effects of an action on the species together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline” (50 C.F.R. §402.02). “Indirect effects” are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur. Any adverse effect requires the Service to conduct a jeopardy/adverse modification analysis (Section 7[a][2] of the Act).

4.1 Factors to be Considered

The Service evaluates the degree of effect resulting from the proposed action by considering the proximity, distribution, timing, type, duration, frequency, intensity, and severity of the action (USDI and USDC 1998; pages 4-23, 24). The standard to be analyzed is whether the proposed action will “jeopardize the continued existence” of the spotted owl. “Jeopardy” is defined as an appreciable reduction in the likelihood of survival and recovery by reducing its reproduction, numbers, or distribution (USDI and USDC 1998; page xvi).

4.2 Analyses for Effects of the Action

The Service has identified all Project elements as having the potential to affect suitable and dispersal habitat. These effects are anticipated to occur primarily through the construction of a new roadway 12-14 feet wide and 1.89 miles long. Nearly all of the new disturbance from the roadway (13.3 acres) would be outside of the CMZ and would therefore be protected from flooding. There would be approximately 24.5 acres of overall disturbance within the McGregor activity center, including 12.8 acres of habitat removal from constructing the new road alignment. Short-term impacts associated with construction include noise and human presence within the new road prism and staging areas for equipment.

4.2.1 Direct and Indirect Effects

The proposed reroute project is within the activity area of a pair of northern spotted owls that have periodically nested since first detected in 1998. Although this nest site was found to be occupied by barred owls during the 2008 and 2009 nesting seasons, it is possible that northern spotted owls, which have occupied this site for 10 years, producing at least five young, could return at some future time. In 2010, a resident male was detected at this nest site during survey efforts, which may suggest a step toward re-occupancy.

The U.S. Fish and Wildlife Service estimates that spotted owls require an average of 6,657 acres of suitable habitat per nesting pair (USDI 2005). Suitable habitat surrounding the 2006 nest site (based on a 1.82 mile radius buffer) is comprised of only 978 acres, approximately 15% of the amount required at nest sites in Washington (NPS data). Within the core area of the nest site (0.7 mile radius buffer), only 176 acres of suitable habitat exist. This amounts to only 17.8% of the buffered area. As a result of the removal of 12.8 acres of habitat, the proposed action would adversely affect northern spotted owls.

As described in the Status of the Species (section 2.0), effects of habitat modification can disrupt normal behavior patterns including feeding, breeding, and sheltering. Potential effects include (1) reductions in canopy closure that can increase susceptibility to predators and competitors ill-suited for movements within a closed canopy; and (2) reductions in stand complexity (e.g., density and/or multi-layered canopy), snags, and coarse woody debris that can influence prey populations.

Disturbance effects can cause an adverse affect if they disrupt normal behavior patterns and/or create a likelihood of injury. However, disturbance effects can be managed through the application of seasonal timing restrictions to minimize effects during critical periods (e.g., the nesting season). The proposed action will implement seasonal restrictions to minimize effects during the nesting season for the spotted owl (March 1 through September 6), so disturbance is anticipated to be discountable.

4.2.2 Interrelated and Interdependent Actions

“Interrelated and Interdependent Actions” are defined in the Service’s consultation handbook (USDI and USDC 1998; page xv). In brief, they are actions that would not occur but for the proposed Project and are a connected action and effect.

Interrelated and interdependent actions are not anticipated. The Service is unaware of other efforts in and around the action area that would affect spotted owls.

4.3 Species Response to the Proposed Action

Habitat removal and alteration resulting from Project implementation will reduce nesting, roosting, foraging, and dispersal opportunities and change their distribution in the action area. While this resident male may be locally displaced, habitat-based impacts of this small scale to non-breeding spotted owls generally do not result in take. Direct “harm” or “harassment” (e.g., capture, injury, mortality) is also not anticipated to result from Project activities. Like habitat removal and alteration, disturbance can modify the normal behavior of the spotted owls and displace them from areas they normally use for nesting, roosting, foraging, and dispersal. However, design criteria/conservation measures will reduce the likelihood of disturbance to discountable levels. The combined effect of habitat and disturbance may be additive.

Changes in the distribution and abundance of suitable and dispersal habitat will occur over the life of the project (2011-2012). As the Project is implemented, the spotted owl is anticipated to respond to the changes in habitat conditions and disturbance, likely through a modification of its normal behavioral activities and patterns. This may include changing dispersal routes, foraging locations, behavior, and timing; and may result in increased contact with and exposure to predators and competitors such as the northern goshawk, great-horned owl, and barred owl. Whatever habitat or niche portioning may have been present before Project implementation may be altered if spotted owls modify their behavior in response to the proposed action. This may subject spotted owls to increased risk of predation, competition, and harassment by these other species during Project implementation. The extent of increased susceptibility to predation and competition is speculative, although northern goshawk, great-horned owl, and barred owls are

known to occur within the action area. While it is reasonable to assume that this potential effect exists, the Service has no predictive ability to quantify this further.

4.4 Summary

The Project will result in adverse effects to northern spotted owls due to the removal of suitable habitat for the spotted owl. There would be approximately 24.5 acres of overall disturbance and habitat removal within the McGregor activity center, but impacts are relatively small in scale and disturbance would be restricted to the period of construction. Nonetheless, removal of suitable habitat may influence future habitat use and dispersal behaviors. Disturbance effects are anticipated to be discountable, due in part to seasonal timing restrictions.

5.0 CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the Act. All future permitted actions (e.g., through a USFS special use permit) would require consultation following the implementing regulations of Section 7 of the Act.

Climate change, and the related warming of global climate, has been well documented in the scientific literature. The abundance and distribution of species, including the spotted owl, are dynamic relative to a variety of factors including climate. As climate changes, the abundance and distribution of species are expected to change. Many of the current future climate predictions for the Pacific Northwest suggest the spotted owl and its habitat will be affected by climate change through several pathways, including but not limited to changes in fire regime; patterns of rain and snowfall; wildlife diseases; and abundance and distribution of native and nonnative species of fish, wildlife, and plants.

6.0 CONCLUSION

The Service has reviewed the status of the species for the spotted owl, the environmental baseline, the effects of the proposed action, and the cumulative effects. Based on this review, it is the Service's biological opinion that these actions are not likely to jeopardize the continued existence of the spotted owl. The basis for these conclusions are summarized as follows:

1. The change in the rangewide status of the spotted owl due to consulted-upon effects is within expectations of the overall conservation strategy. Approximately 96 percent of effects have occurred outside of LSR and other NWFP reserve allocations (Table 2), and only about 1.5 percent of the amount of extant critical habitat has been consulted-upon for removal or downgrading since the 1994 FSEIS baseline (Table 3) was established.
2. Natural events (e.g., wildland fire, insect and disease disturbances) have impacted some spotted owl suitable habitat and individual CHU's, but rangewide the conservation framework (LSR/MLSA and CHU networks) continues to function as designated.

3. Consulted-upon effects in the Washington Eastern Cascades physiographic province have been minor, but wildland fires since 1994 have been extensive. Although the provincial CHU and LSR/MLSA networks have been degraded, primarily by wildland fire, they remain intact although the resiliency of some areas has been reduced.
4. The proposed action will result in relatively minor amounts of habitat effects. Because protocol surveys indicate the action area is not currently used by reproductive owls, and no direct “harm” or “harassment” (e.g., capture, injury, mortality) is anticipated, incidental take will not occur. Project implementation and the proposed action will not impact the overall conservation needs of the species.
5. The proposed action will likely modify the normal behavioral patterns of the spotted owl, and may increase their susceptibility to predation and competition. The severity of these effects is speculative and currently cannot be quantified. Seasonal timing restrictions will minimize the proximity, distribution, timing, type, duration, frequency, intensity, and severity of this effect.

Based on the analysis presented in this BO, Project effects are minor in terms of habitat impacts and disturbance is anticipated to be discountable. Since effects at the Project scale appear to be minor, effects at the province or rangewide scales may not be measurable. As a result, the Service does not anticipate that the proposed action will jeopardize the continued existence of the spotted owl.

7.0 REASONABLE AND PRUDENT ALTERNATIVES

Regulations implementing Section 7 of the Act (50 C.F.R. §402.02 *et seq.*) define reasonable and prudent alternatives as alternative actions, identified during formal consultation, that: (1) can be implemented in a manner consistent with the intended purpose of the action; (2) can be implemented consistent with the scope of the action agency’s legal authority and jurisdiction; (3) are economically and technologically feasible; and (4) would, the Service believes, avoid the likelihood of jeopardizing the continued existence of listed species or resulting in the destruction or adverse modification of critical habitat.

Because the proposed action is not likely to jeopardize the continued existence of the spotted owl, no reasonable and prudent alternatives are required.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act, and Federal regulations pursuant to Section 4(d) of the Act, prohibit the take of endangered and threatened species, respectively without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions or omissions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the USFS so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The USFS has a continuing duty to regulate the activity covered by this incidental take statement. If the USFS fails to assume and implement the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the USFS must report the progress of the action and its impact on the species to the Service as specified in this Incidental Take Statement [(50 C.F.R. §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

As described in the BO, the Service does not anticipate incidental take will occur, so an exemption for incidental take is not required. As a result, no reasonable and prudent measures or terms and conditions are appropriate.

REPORTING REQUIREMENTS

In order to monitor the impacts of implementation of the reasonable and prudent measure, the NPS shall prepare a report describing the progress of the proposed Project, including implementation of the associated terms and conditions and impacts to the spotted owl (50 CFR §402.14[I][3]). The report, which shall be submitted to the Central Washington Field Office on or before February 1 of each year, shall list and describe:

1. Annual survey results and reproductive status of affected spotted owls;
2. Any observed adverse effects resulting from Project activities, including type, location, and frequency of the event, especially any interaction between spotted owls and their predators and competitors;

3. The details regarding any newly discovered nesting or territorial spotted owl nest sites or activity centers.

Upon locating a dead, injured, or sick endangered or threatened species specimen, prompt notification must be made to the nearest Service Law Enforcement Office (Special Agent Corky Roberts, Richland, Washington; telephone 509.546.8344) and the Central Washington Field Office (Wenatchee, Washington; telephone 509.665.3508). Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

REINITIATION-CLOSING STATEMENT

This concludes formal consultation pursuant to the regulations implementing the Act, 50 C.F.R. §402.16. Reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this BO; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this BO; or (4) a new species is listed or critical habitat designated that may be affected by the action. If spotted owls are incidentally taken, any operations causing such take must cease pending reinitiation.

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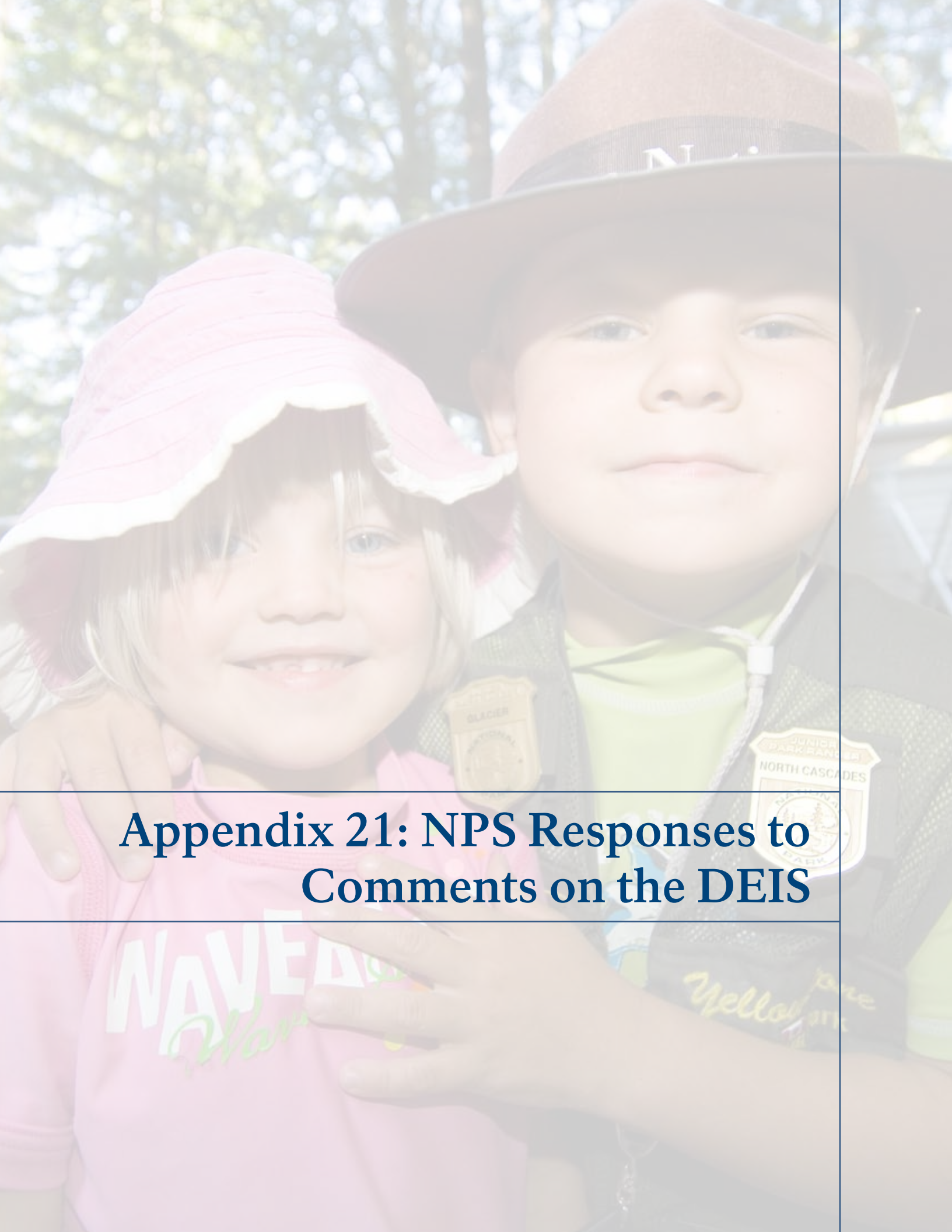
APPENDIX A

Summary of Estimated Wildfire Effects on Spotted Owl Habitat in the Washington Eastern Cascades Physiographic Province, 1994 to 2007.

Year	#	Fire	Unit	Total Acres	NRF Rmvd	CHU Rmvd	CHU	AC Rmvd	READ	Comments
1994	1	Tyee/Rat/Rd. Mtn	WNF	186800	9512	6080	6, 9, 11	17	0	jb analysis
1998	2	North 25	Chelan	8845	3500	1260	4	1	0	jb
			TOTAL	195645	13012	7340		18	0	
2001	3	Icicle Complex	Leav	7850	1569	41	10	0	1	jk
2001	4	Rex Creek	Chelan	56000	1873	0	n/a	0	1	cm
2001	5	South Libby	MVRD	3800	380	0	n/a	0	0	jk: assumed 10% of area is NRF
2001	6	Tommy Creek	Entiat	640	100	30	5	0	0	jk
2001	7	Rattlesnake	Naches	20	2	0	n/a	0	0	jk: assumed 10% of area is NRF
2001	8	Spruce-Dome	Naches	2600	260	130	17	0	0	jk: assumed 10% of area is NRF; about half in CHU
2001	9	Merritt Lake	Lake	20	2	0	n/a	0	0	jk: assumed 10% of area is NRF
2001	10	Dog Creek	Naches	450	45	0	n/a	0	0	jk: assumed 10% of area is NRF
			TOTAL	71380	4231	201		0	2	
2002	11	Deer Point	Chelan	43000	2098	0	n/a	0	1	cm
2002	12	Power Creek	Leav	10	0	0	n/a	0	0	jk
2002	13	Deer Mountain	Chelan	1500	0	0	n/a	0	0	jk
2002	14	Malcom	Cle Elum	10	2	2	13	0	0	jk: assumed 20% of area is NRF
2002	15	Cat Face	Lake	10	0	0	n/a	0	0	jk
			TOTAL	44530	2100	2		0	1	
2003	16	Crystal Creek	Leav	1284	195	0	n/a	0	1	jk
2003	17	Square Lake	Leav	1097	607	0	n/a	0	0	jk
2003	18	Farewell	MVRD	81400	1343	0	n/a	0	1	jk: about 1/3 of area is w/in NWFP; assumed 5% of area was NRF
2003	19	Needles	MVRD	21300	6500	2500	2	1	0	cm: much of home range of Driveway Butte STOC burned
2003	20	Maple	Lake	2409	1385	630	6	0	1	cm
			TOTAL	107490	10030	3130		1	3	

Year	#	Fire	Unit	Total Acres	NRF Rimvd	CHU Rimvd	CHU	AC Rimvd	READ	Comments
2004	21	Pot Peak Complex	Chelan	46000	4600	1150	4	1	1	jk: assumed 10% of area is NRF; about 1/2 of CHU was burned, much of 25-mile STOC home range burned
2004	22	Rattlesnake	Naches	600	30	0	n/a	0	0	jk: assumed 5% of area is NRF
2004	23	Icicle	Leav	778	416	355	10	0	1	jk
2004	24	Trinity	Lake	45	0	0	6	0	0	jk
2004	25	Dirtyface	Lake	295	50	0	n/a	0	0	jk
2004	26	Sunshine	MVRD	50	5	0	n/a	0	0	assumed 10% of area is NRF
2004	27	Reecer	Cle	100	18	0	n/a	0	0	jk
2004	28	Fisher	Leav	16500	1314	0	n/a	0	1	jk
		TOTAL	TOTAL	64368	6433	1505		1	3	
2005	29	Pearygin Lake	MVRD	550	0	0	n/a	0	0	jk
2005	30	Dirtyface	Lake	1150	303	5	6	0	1	jk: BA coming over winter; weed issues
2005	31	Squaw Creek	MVRD	1200	0	0	n/a	0	0	
		TOTAL	TOTAL	2900	303	5		0	1	
2006	32	Tripod Complex	MVRD	175000	0	0	n/a	0	1	outside NWFP area
2006	33	Tatoosh Complex	MVRD	2550	0	0	n/a	0	0	
2006	34	Flick Creek	Chelan	5160	0	0	0	0	0	
2006	35	Tinpan	Entiat	5750	0	0	0	0	0	
2006	36	Cedar Creek	MVRD	1661	0	0	0	0	0	
2006	37	Polallie Ridge	Cle	500	0	0	0	0	1	
		TOTAL	TOTAL	190621	0	0		0	1	
2007		Easton Ridge	Cle	400	4	0	0	0	0	40 acres on USFS; assumed 10% was NRF
		Grand Totals	Grand Totals	676934	36109	12183		20	11	

NRF and CHU removed is a combination of fire and fire-suppression effects
 NRF and CHU acres overlap unless otherwise stated; CHU acres = NRF only
 READ = Service resource advisors/BAER/monitoring (1=present, 0=absent)



Appendix 21: NPS Responses to Comments on the DEIS



Two Junior Rangers visit North Cascades National Park Service Complex.

APPENDIX 21: NPS RESPONSES TO COMMENTS ON THE DEIS

A. Elements Common to All

1. CONCERN STATEMENT: The NPS should identify a clear philosophy and alternatives for the maintenance / housing area. (33 comments, 3 duplicates)

Public Comments:

- (EM39n, 50l, 53o, 59l, 63k, 64o, 66r, 68m, 69o, 73q, 74m, 77l, 78n, 82n, 87u, 90w, 91s, 93o, 97o, 102o, 103o, 106aa, 107t, 112q, 113l, 115x, 116m, 118l, 119m, CorID758ee, EM79ss, LET23g) 10. Remove the facilities section from all alternatives until a clearly articulated philosophy and alternatives are developed for this maintenance/housing complex.

Response: The maintenance / housing area is consistent with and would implement GMP recommendations. As noted in the DEIS, future environmental analysis would be completed for the maintenance and housing facilities. In this analysis would be more description of this proposed development, including a specific purpose and need for the activity, issues that it would address and alternatives for its implementation. Initial design has revealed that there is likely not enough room to accommodate both the maintenance area and all of the housing in one location at the airstrip. In Alternative 5, housing could therefore also be constructed elsewhere in the lower valley. Although formal planning will not begin until after the SRCIP is completed, these comments will be considered when public scoping is initiated.

2. CONCERN STATEMENT: The NPS should identify design guidelines for the new housing / maintenance facility. (1 comment, 2 duplicates)

Public Comments:

- (CorID671hhh, 671pp, 671nn) Identify design guidelines for new NPS facilities.

Response: Design guidelines will be developed for new NPS housing and maintenance facilities. These guidelines will be based upon architectural elements (e.g. materials, colors, size) of existing public and private facilities in Stehekin with the intention of emulating these examples. These architectural guidelines will be applied to NPS facility design models for housing and maintenance facilities. Specific site plans would be developed as part of the additional environmental analysis and planning process for these facilities. Although formal planning will not begin until after the SRCIP is completed, these comments will be considered when public scoping is initiated.

3/4. CONCERN STATEMENTS: 3 - The NPS should consider constructing only the maintenance facility in the airstrip area. 4 - The housing and maintenance areas/projects should be separated (5 comments, 1 duplicate).

Public Comments:

- (CorID759c) Because of the high cost of relocating the maintenance facility (and no direct benefit to the visitor), I would hope that the NPS would consider relocating only the hazardous waste facilities out of the CMZ, and flood-proofing the remaining structures in place.
- (EM107u) lumping the maintenance facility and employment housing (up to 11 units) together in a small area, goes against the statement on page four of the LPP 1.3, Management Goal/ Objectives: “. . .ensure that land uses on public and private lands are compatible with the purposes of LCNRA, . . .”
- (EM61y) Park Housing and “Maintenance Yard” (M-Y) issues should be separated.

3 / 4 Response: The Lake Chelan NRA GMP provided direction for the location of the housing and maintenance facilities. The SRCIP uses this direction to provide a more complete picture of impacts associated with moving NPS facilities out of the channel migration zone. More detailed analysis, including alternatives for locating housing, will be considered in a future planning process. Although formal planning will not begin until after the SRCIP is completed, these comments will be considered when public scoping is initiated.

5. CONCERN STATEMENT: There are WSDOT guidelines that need to be followed to locate the maintenance / housing area near the airstrip. (1 comment)

Public Comments:

- (EM17j) WSDOT Aviation will submit an airport airspace obstruction removal proposal in the near future based on the before mentioned airport boundary survey and airspace obstruction analysis. We would like to coordinate future obstruction removal efforts with potential NPS development plans to see if shared opportunities are available.

Response: During the planning process for the maintenance and housing areas the NPS would continue to consult with WSDOT Aviation and other stakeholders. Although formal planning will not begin until after the SRCIP is completed, these comments will be considered when public scoping is initiated.

6. CONCERN STATEMENT: The new maintenance facility should contain a plumbing shop and water reservoir. (1 comment, 1 duplicate)

Public Comments:

- (CorID671nnn) The NPS maintenance facility should contain a plumbing shop.
- (CorID671ooo) Include a water reservoir for fire protection and water supplies in the design of the new maintenance facility.

Response: Future planning for the maintenance facility will identify its design components. These are outside the scope of the SRCIP. Although formal planning will not begin until after the SRCIP is completed, these comments will be considered when public scoping is initiated.

7. CONCERN STATEMENT: There may be cost-savings generated from co-locating utilities with WSDOT Aviation near the airstrip. (1 comment)

Public Comments:

- (EM17k) WSDOT Aviation understands that NPS may update electrical and water services to the vicinity of the airport. . . Due to the current limitations of the existing gravity fed irrigation system and lack of assurances on runway vegetation coverage, WSDOT Aviation would be interested in co-locating utilities for irrigation system improvement purposes.

Response: As noted in other comment responses, the NPS would continue to consult with stakeholders, including WSDOT, during the planning process for the facilities, including regarding implementation details such as for utilities. Although formal planning will not begin until after the SRCIP is completed, these comments will be considered when public scoping is initiated.

8. CONCERN STATEMENT: NPS should determine whether the new maintenance / housing facility is compatible with Stehekin (Growth Management Act) and Chelan County zoning. (2 comments, 1 duplicate)

Public Comments:

- (EM79qq) . . . there are compatibility issues embedded in the suggested Maintenance/Housing element of . . . both the desirability and the legality of locating all of these uses on a single piece of property given Chelan County Zoning and the mandates of the Washington State Growth Management Act. . . in conjunction with the maintenance area on about 5-8 acres.
- (LET26d) The maintenance/housing relocation. . .by building a subdivision with multiplexes, duplexes, single family houses and NPS maintenance and transfer garbage station, the NPS could be looked on as developing property incompatibility in this neighborhood and in this Lake Chelan NRA.

Response: The NPS would continue to consult with Chelan County through future planning of these facilities.

9. CONCERN STATEMENT: The proposed maintenance / housing area would be visible from many visitor use areas. (1 comment)

Public Comments:

- (LET26i) . . . this new subdivision NPS Compound, this location would be extremely visible from various trails and popular ridge walks.

Response: During the planning for this facility, the NPS would identify site locations based on a number of criteria, including visibility from nearby areas. The existing maintenance facility is partially visible from some visitor use areas. Most visitors to Stehekin would not see the proposed facility because it is planned for an area across the river from the Stehekin Valley Road.

10. CONCERN STATEMENT: There are other suitable locations for the proposed maintenance area. (1 comment)

Public Comments:

- (LET28h) There is definitely a need for better fire facilities and housing but I would like to see them placed near the area used for the spike camp. It would be more efficient and hopefully could use existing roads. Since the maintenance facility requires year round accessibility I think it should be just off the road up-valley from the proposed compound thereby clustering it close to the power plant.

Response: Through the maintenance facility and housing planning process, the NPS would analyze how the entire area is and would be used.

11. CONCERN STATEMENT: The maintenance/housing area will adversely affect night sky values. (1 comment)

Public Comments:

- (LET26k) . . . based on observation of the Maintenance Facilities/Housing Compounds there will be many bright humming outdoor lights that will affect the existing lightscape in a detrimental way both to our furry friends and our hairless brothers/sisters. Depending on the vantage point, the outdoor lighting will be seen for miles at night.

Response: NPS policy is to include concerns associated with night sky values in planning processes and to use minimal outdoor lighting. Where outdoor lighting is used, timing, direction and shielding are used to minimize impacts from light.

B. NPS Employee Housing

12. CONCERN STATEMENT: NPS employee housing should be spread throughout / integrated within the community. (8 comments, 3 duplicates)

Public Comments:

- (EM61dd) Clustering of NPS personnel could result in: Destroying the very idea of community; NPS portable radios are not distributed throughout the valley; Not enough distributed 'eyes' on potential problems - fire/flood; Slower response time to problem areas; Personnel isolated on wrong side of river during floods and fires; 'Us and They' mentality develops between NPS and private community; Unwarranted complaints about aircraft noise and efforts to close it
- (EM119w) One of the positive elements of community life in the valley is that people living on private property and those living in NPS housing are integrated throughout the valley. The pattern of integration represents a unique element of community culture that must be addressed in these and future planning efforts. . .

Response: NPS employees will continue to reside in different places in the Stehekin Valley, both in government provided and private housing. This includes at the Landing, in the vicinity of the Bakery and on Company Creek Road. Most of the housing identified for the maintenance / emergency airstrip / Company Creek Road area is to replace existing flood prone or deteriorated

housing already located in this area. This includes replacement of the YACC cabins, yurts, and several houses along Company Creek Road. Locations and site plans for the maintenance facility and housing area would be part of a future planning process. Through that process it is likely that some other locations for housing would be evaluated. Although formal planning will not begin until after the SRCIP is completed, these comments will be considered when public scoping is initiated.

13. CONCERN STATEMENT: The NPS should look at other ways / places to accommodate housing. (1 comment)

Public Comments:

- (EM61cc) Why not continue with existing housing and improve the ‘YACC Yard’ for seasonal employees? The inexpensive Yurt idea makes sense as seasonal summer housing – rustic opportunities for more transient employees of the concession and park.

Response: Based on facility condition assessments, the YACC cabins are well beyond their useful life and are in very poor condition. In addition the YACC Yard is within the channel migration zone, and a primary goal of the SRCIP is to facilitate moving NPS facilities and housing out of the CMZ. The NPS is under specific housing guidelines that generally forbid the use of temporary types of housing, such as trailers, unimproved cabins etc. for permanent and seasonal employees. Although these types of housing have been used in the past, NPS guidelines have changed.

14. CONCERN STATEMENT: Co-location of NPS housing and maintenance area is incompatible with the community. (4 comments, 1 duplicate)

Public Comments:

- (CorID759e) . . . I am opposed to a high density housing development proposed for park service housing concentrated in the vicinity of the airstrip. A development of this density does not seem as a compatible use of the property in keeping with the character of Stehekin.
- (LET28d) I must object to the proposed housing compound. The idea of cramming so many residences in such a small place just doesn’t fit the ambiance or culture here. It will be an eyesore from the many trails that overlook the valley and from the road especially the multiplexes which are really inappropriate and incompatible.
- (LET23h) And if “new” housing is needed a type that would blend with the overall valley would be much better than a “multi-plex” type.

Response: NPS employees will continue to reside in different places in the Stehekin Valley, both in government provided and private housing. This includes at the Landing, in the vicinity of the Bakery and on Company Creek Road. Most of the housing identified for the maintenance / emergency airstrip / Company Creek Road area is to replace existing flood prone or deteriorated housing already located in this area. This includes replacement of the YACC cabins, yurts, and several houses along Company Creek Road. The future planning process for the maintenance facility and replacement housing would include more detailed analysis, including alternatives for locating housing. Although formal planning will not begin until after the SRCIP is completed, these comments will be considered when public scoping is initiated.

C. New Elements or Actions

15. CONCERN STATEMENT: Create a small parking area at the upper end of the road reroute (Lower Field). (1 comment)

Public Comments:

- (Let3l) [Add] . . . a small parking area at the up-valley end of the road re-route near the Lower Field (. . . to access the proposed trail. . .)

Response: As noted in the DEIS (page 66), provision for a small parking area (turnaround) at the upper end of the road reroute at Milepost 6.5 has been included in the action alternatives . If one of these alternatives is selected for implementation, this parking would likely include part of the rerouted road and an adjacent wide area.

16. CONCERN STATEMENT: Add a scenic overlook with parking and benches to the reroute. (1 comment)

Public Comments:

- (Let3m) There is one section of the proposed road that has a great view across the valley. Bikers and drivers will naturally want to stop here and enjoy the view. . .The road plans should anticipate this by providing an adequate size pullout and benches. (We can provide more exact location info for this vista as needed.)

Response: Although turnouts would be located periodically along the reroute if it becomes the selected alternative, the NPS would not construct facilities as part of these turnouts. Because traffic in Stehekin is very low and would continue to remain so, drivers, hikers and bicyclists would continue to have the opportunity to stop to take advantage of roadside views, including opportunities to park for short periods. Planners have noted that the area with the best views has steep slopes unsuitable for construction of an overlook.

17. CONCERN STATEMENT: Add long-term parking for residents to the maintenance area. (1 comment)

Public Comments:

- (Let3n) . . . we recommend that you provide long-term year-round parking for resident use. The long-term lot at the landing is always very close to capacity; providing parking at the new NPS facility will help relieve congestion. . .

Response: The provision of long-term parking is outside of the scope of the SRCIP. Long-term parking could be considered as part of future planning for the area, but also could be provided by individual enterprise in Stehekin.

18. CONCERN STATEMENT: Widen SVR along the lake and near Frog Island to improve safety. (1 comment)

Public Comments:

- (Let11n) Stehekin valley road should be widened along lake, and near Frog Island to improve hiker and biker safety.

Response: Based on FHWA analysis of road width, speed limits and traffic patterns, the road adjacent to Frog Island is considered adequate. Instead of widening the road along the lake where private property generally limits the right-of-way, under the SRCIP, the existing flat area (top-width) of the road would be paved. As a result, where it is currently wider than the existing paved surface, some additional width would be added. It is unlikely that the NPS would pursue widening the road beyond this area toward the lake due to regulatory requirements associated with the Clean Water Act and the Shoreline Management Act.

19. CONCERN STATEMENT: Consider preserving the historic Maxwell Homestead (Lower Field) similar to Buckner. (1 comment)

Public Comments:

- (EM51) This plan does address some other important needs. . . preservation of the lower Buckner field. I am glad to see this preservation of our historical heritage. I think the NPS needs to give the lower field this same consideration. I believe it is part of the original Maxwell homestead, and the first field to be cleared. It should be a part of our historic preservation.

Response: The Maxwell homestead was evaluated in 1985 and found to have a valuable historic story but because it does not contain intact or remnant structures and for other reasons, it does not have the same level of integrity as Buckner Orchard. Based on the SRCIP and other planning, the Lower Field would continue to operate under a special use permit for agricultural purposes which will maintain the open character of the former landscape associated with the Maxwell Homestead.

20. CONCERN STATEMENT: Improve Recreational Destination Opportunities in Stehekin. (4 comments, 4 duplicates)

Public Comments:

- (EM22a) . . . reconfigure the valley into a true recreation destination that includes facilities similar to Holden Village—a premier example of melding people with pristine nature.
- (EM22b) The existing layout of the 9-hole golf course would generate high visitation, big money and several jobs. Archery classes and practice ranges, paved tennis and volley ball courts, horseshoe pitching, fly tying and fishing classes, weaving, art, woodworking, etc. all are clean, enjoyable, low energy consumption sorts of activities that SHOULD be available.
- (CorID671b) The SRCIP should focus on the priority of providing recreational facilities that would increase visitation to Stehekin.

Response: There are abundant opportunities for individuals, organizations or private businesses in Stehekin to provide some of these recreational activities on private property, if desired. It is not the role of the NPS to provide non-resource-based community recreational activities. Among the resource-based recreational activities facilitated by the NPS in Stehekin and supported by the SRCIP include bicycling, rafting, hiking and camping. The SRCIP includes proposals for new trails, camps and bicycling.

D. Stehekin Heritage Alternative 5 Proposal

21. CONCERN STATEMENT: Consider an Alternative 5 as defined by Stehekin Heritage.

Public Comments (68 comments support):

- (EM16e, 29bb, 32o, 33qq, 34b, 37b, 38o, 39o, 43b, 46q, 48k, 50m, 53p, 59m, 63l, 64p, 66s, 68n, 69p, 73r, 74n, 77m, 78o, 82o, 87w, 88e, 90x, 91t, 92o, 93p, 102p, 103p, 106bb, 107x, 110e, 111q, 112r, 113m, 115y, 116n, 118m, 119oo, CorID689l, 703b, 707a, 715b, 717e, 758ff, LET 23f, 27m) Support Alternative 5 – This alternative represents a common sense, practical management philosophy that is consistent with enacting legislation, supports a sustained vibrant community, public access and recreation. Additionally, Alternative 5 supports land trades (with a no net loss of existing land base or value) keeping the road in its original alignment, protecting the road from river erosion, and improving visitor access.

Response: Because this alternative is based on components in the existing SRCIP and contains few new ideas that the NPS can implement (based on existing law and policies), it has not been evaluated as a separate alternative in the FEIS. Nonetheless, components of it are considered in modifications to the alternatives in the FEIS. These include the multiuse trail into Buckner Orchard, allowing bicycle use on the obliterated section of road from McGregor Meadows to Lower Field, and changing the scoring criteria in the LPP (most to least risk).

E. Bicycling

22. CONCERN STATEMENT: Consider allowing bicycles on the Lower Valley Trail to avoid the steep hills on the reroute. (8 comments, 2 duplicates)

Public Comments:

- (CorrID8h) . . . we'd like to see bicyclists allowed access to the section of trail that extends from the end of the McGregor Access Road to the junction with the road reroute. This would reduce the number of steep grades for less ambitious cyclists, give all cyclists a much-needed break from (most) vehicle traffic, and also allow for a potential scenic loop (McGregor Access Road one direction, Stehekin Valley Road the other direction).
- (LET11p) [Lower Valley] Trail should be multi-use including both horse and Bicycles.
- (Let3b) Consider making the short section of proposed trail that generally follows the current Stehekin Road from McGregor Meadows to the Lower Field a biker/hiker path and built for both uses. This would allow bikers to avoid the new section of road . . . ups & downs (and . . . conflicts with traffic) and allow bikers to do a loop using the path and the new road.

Response: The section of trail that extends from the end of the McGregor Meadows Access Road to the junction with the road reroute would be converted to a trail if the reroute is implemented. This is consistent with NPS policy, which allows bicycles on roads and former roads. Should the road be damaged by the river, however, no specific action would be taken to reconstruct it if bicycle use cannot be continued. Other sections of the Lower Valley Trail would not be open to bicycle use because of the cost of construction and maintenance. In addition to allow bicycle use on trails, rather than roads, the NPS would need to promulgate a special regulation. Bicyclists could also continue to use the alignment of the Stehekin Valley Road to travel up- and

down-valley and could continue to use the Company Creek Road. In addition, the Buckner Historic District Management Plan calls for creating a multi-use trail (including bicycles) from the Stehekin Valley Road to the orchard on the historic entrance road. This proposed action, however does not include allowing bicycles on Buckner Lane or on the Rainbow Falls Trail.

23. CONCERN STATEMENT: Add bicycling on the Stehekin River Trail. (3 comments)

Public Comments:

- (LET36b, CorID672p, 671vvv) River Trail: The existing trail would be upgraded to a multi-use trail (includes bike use) from airstrip to Weaver Point.

Response: Although the SRCIP does propose to link the Stehekin River Trail to other Lower Valley Trails by a bridge, no specific improvements have been proposed for the River Trail to accommodate bicycles. Bike use on the River Trail would require substantial trail reconstruction and development of a special regulation.

F. Camping

24. CONCERN STATEMENT: Add a new backcountry camp off the Stehekin River Trail. (1 comment)

Public Comments:

- (Let3e) Consider . . . a new backcountry campsite on or near the Stehekin River Trail . . . for hikers not boaters. . .

Response: As noted in the response to the previous comment, although the SRCIP does propose to link the Stehekin River Trail to other Lower Valley Trails by a footbridge, no specific improvements have been proposed for the River Trail. With the proposed footbridge in place, however, hikers could camp at Weaver Point and Harlequin Camp at either end of the River Trail.

25. CONCERN STATEMENT: Construct the Rainbow Falls camp in its historic location. (1 comment)

Public Comments:

- (LET11k) Rainbow Falls: [In historic camp location] construct new individual and group campsites near Rainbow Falls. Campsites would include corresponding infrastructure.

Response: This historic campsite location between the old Stehekin School and Rainbow Creek is not being considered in the plan because it is on the opposite side of the creek. Constructing a new camp on the east side of the creek would require more trail improvements and impacts. Keeping the camp on the west side of the creek as in the DEIS would concentrate the impact to the area near the current parking lot, allow access to the existing restrooms, and is along a former roadway. This site is also not within the floodplain of the Stehekin River or Rainbow Creek.

26. CONCERN STATEMENT: Do not construct a camp at Rainbow Falls. (2 comments)

Public Comments:

- (CorID713g, 756g) Camping sites near Rainbow Falls is a bad idea because it will result in dramatically increased erosion of the stream banks on both sides of the falls from increased foot traffic. No additional development in this very special area should occur.

Response: As noted in the DEIS (page 116), proposed campsites near Rainbow Falls have been designed to minimize impacts to the extent possible, by being located along a former roadway and near the existing parking lot to take advantage of vault toilets and existing disturbance in this area. Although campers would likely obtain water from Rainbow Creek, this additional use is unlikely to be discernible given the high number of visitors already using this area. If additional impacts are noted, a water collection site could be designated. Although the DEIS called for “three to five” new individual sites,” the actual number of sites that would likely be constructed is two to three, including one accessible site (as noted in the FEIS).

27. CONCERN STATEMENT: Do not construct a camp at Company Creek. (1 comment)

Public Comments:

- (Let3d) There should not be a campground at Company Creek because a) CC Road is primarily residential. . . b) would either require a shuttle bus or walkers on CC Road; c) CC Road will have a lot more traffic and large vehicles in the future due to the proposed large NPS facility; d). . . would mean campers . . . gathering at or near the PUD plant. . . walking up to the PUD intake, both of which have lots of tools, hazards, vehicles, etc.; e) campers will gather on the CC bridge where it is very easy to be surprised by traffic (. . .noise of creek and PUD plant makes it very hard to hear cars). . .

Response: This action was not identified as part of the preferred alternative in the DEIS due in part to its proximity to Harlequin Camp and other impacts noted in the comment. Similarly, because it has greater impacts, it is also not part of the preferred alternative in the FEIS.

28. CONCERN STATEMENT: Retain Bullion Camp. (1 comment, 1 duplicate)

Public Comments:

- (LET11l) Bullion Campground: Remove hazard trees, retaining camp in existing location. Add Vault toilet if needed.
- (LET11m) Bullion Campground: The original campsite is sheltered and the proposed new site is in the open and exposed. The original camp is safer for families (away from the river).

Response: Bullion Camp currently receives minimal use. Without cutting down trees surrounding the existing Bullion Camp, it cannot be retained as an overnight facility (campground). Removing the trees would remove the shelter associated with the camp. Because the fungus that has infected the trees is a native fungus the NPS preferred action is to relocate the camp until the trees naturally succumb as is detailed in the DEIS alternatives. Until that time, it will be retained for day use as a picnic area.

29. CONCERN STATEMENT: Do not reduce / expand stock camping at Purple Point. (7-18 comments)

Public Comments:

- (EM41d, 42c, CorID680e, 701e, 712c, 717d) We support continued and expanded stock camping at Purple Point Horse Camp and ask that any new group camping sites for non-stock users not reduce the availability of stock camping.

Response: There would be no reduction in stock camping at Purple Point Horse Camp or other sites as a result of the implementation of any of the alternatives in the DEIS or FEIS. Changes to the Purple Point camp, however, would allow for additional group use.

G. SRCIP DEIS / LPP Goals

30. CONCERN STATEMENT: The DEIS / LPP should contain a statement supporting the Stehekin Community and define its value as a resource for visitor experience and enjoyment. (22 comments)

Public Comments:

- (EM23m) It is our hope that by adopting management policies that strongly advocate a private community in Stehekin the NPS will have clearer boundaries within which to make decisions and policy. This seems like it could benefit the NPS, the Stehekin Community and the visiting public. A win-win-win!
- (EM55e) a clearly worded NPS position statement as a management goal should be included defining NPS recognition and continued support of the value of the private community, its lifestyle and activities as a resource for visitor experience and enjoyment.
- (CorID760d) I encourage you to develop, in partnership with the community, a more robust group of guiding principles [than the SRCIP goals] that serve as touchstones from which all decisions are tested against.

Response: The NPS has incorporated a goal statement from the park's Foundation Statement to acknowledge the Stehekin Community as a valued provider of visitor services and experiences. The Foundation Statement (in the SRCIP on page 9) states "Within Lake Chelan NRA, Stehekin is a private community that provides visitors with an opportunity to see and experience life in a remote setting that is not accessible by roads and is surrounded by wilderness." One of the goals in the SRCIP DEIS (pages xvi and 3) states: "Continue visitor services provided by the Stehekin Community, including those services and facilities found on private lands." In the FEIS, this has been modified to: "Partner with the Stehekin Community to provide services, facilities and experiences for visitors."

31. CONCERN STATEMENT: The DEIS / LPP should contain a statement or specific language regarding support for the Stehekin Community: (51 comments, 3 duplicates)

Public Comments:

- (Let 12c, EM21d, 24c, 29p, 32c, 33ee, 38dd, 39i, 45h, 46f, 48s, 50g, 53j, 59g, 63f, 64j, 65h, 66m, 68h, 69j, 73l, 74h, 76f, 77g, 78i, 82i, 84o, 90r, 91n, 92c, 93j, 97j, 102j, 103j, 106v, 107k, 110c,

111i, 112l, 113g, 115s, 116h, 118g, 119cc, 119g, 119ii, CorID689c, 758z, LET9t, 23c, 27e) 6. It is essential that the LPP state overtly in the overall objectives and goals that: It is a management goal of the National Park Service to support an active and vibrant community people living and working in Stehekin as an enhancement to the visitor appreciation and use of the Lake Chelan National Recreation Area.

- (DEISGOALS)(IMPSVISEXP)(EM44q) Chelan County requests that the NPS include specific language in the LPP that a viable and thriving local community in Stehekin is not only consistent with NPA goals and objectives but also essential in supporting and enhancing visitor experiences to the Lake Chelan National Recreation Area and North Cascades National Park.

Response: The SRCIP and LPP recognize the contributions that the Stehekin Community makes to visitor services. Page 148 of the DEIS states: “In establishing Lake Chelan NRA, Congress recognized the significance of the Stehekin Community, which plays a central role in enabling recreational use of the area. The enabling legislation for Lake Chelan NRA recognizes that people will continue to live and work within the recreation area.” As noted above, other statements in the SRCIP on pages xvi, three and nine also acknowledge the Stehekin Community. In addition, environmental impact analysis (on page 251 of the SRCIP) states that “The NPS has no intention of purchasing all the land within the Stehekin Valley.”

Maintaining a “viable and thriving local community,” however, is dependent upon many factors, most of which are outside NPS purview. These factors include, but are not limited to, continuation of regularly scheduled year-round ferry service; use of private property as primary year round residences vs. vacation homes; continuation of a postal service, management and operation of the Stehekin School; and general economic conditions. The NPS recognizes that Chelan County has primary jurisdiction over actions and activities on private property that largely shape the community. The NPS is willing to work with Chelan County and community residents to explore the variety of attributes that are part of supporting a viable and thriving community, including the full spectrum of joint efforts and partnerships that may be needed to support these. Because this process would concern a community on private land, the NPS recognizes Chelan County as the appropriate entity to take the lead in the planning effort.

32. CONCERN STATEMENT: Consider whether the NPS should support a Stehekin “Community Protection Plan.” (2 comments)

Public Comments:

- (EM106f) The first reading of the LPP made us aware of the need for a Community Protection Plan. We believe the private Stehekin Community is something that needs to be preserved and protected.
- (EM61i) Do we need a CPP (Community Protection Plan)?

Response: While it is not clear what a “Community Protection Plan” would be comprised of, if the Stehekin Community is interested in developing such a plan, the NPS recognizes that the correct entity to guide that plan is Chelan County since the County has jurisdiction over private land use. The NPS would also be willing to be a part of the planning process.

H. Editorial Comments

33. CONCERN STATEMENT: Consider Revising the SRCIP / LPP to include the following editorial comments:

33a. Maps:

Public Comments:

- (LET15m) The CMZ is not shown consistently on maps. An example location that I noticed, and of particular interest to my wife and me, is the terrace between the road and river upriver from Boulder Creek. Maps in the “Executive Summary” (Figures ii-2, ii-4, ii-5, ii-7, ii-9, ii-10 and possibly ii-6) show all of this terrace west of the road to be in the CMZ. Some maps in the LPP (Figures 2, 4 and 5) show most of the terrace to be outside the CMZ, while the remaining relevant map (Figure 1) shows the terrace to be fully out of the CMZ. This terrace is part of the Boulder Creek fan (e.g. Appendix 16, Fig 4B) and its surface has never been accessed by the river. Its elevation is distinctly above the floodplain to the west. LPP, Figure 1 appears closest to actuality based on the LIDAR mapping (and my knowledge of the terrain). Some of the apparent inconsistency may arise from the mapping scale, which makes it hard to see details.
- (LET15n) There are no doubt problems elsewhere, so please review maps for accuracy.
- (LET15o) . . . there should be maps of sufficient scale that the boundaries of the CMZ are clearly and accurately defined where possible and its potential limits shown where it has not yet been defined. These maps either need to be in the final EIS or referenced in an identified location that can be accessed. This is important since the CMZ is so central to the SRCIP.
- (LET15r) The path of Little Boulder Creek below its entry to the valley bottom is shown as the present path in some figures (e.g. relevant figures in the SRCIP Executive Summary) and as a prior path in others (e.g. relevant figures in Appendix 16) without explanation. It would be good to provide appropriate explanation (e.g. in the relevant figure captions of Appendix 16) or alternatively show it consistently in the present path on all maps.
- (LET15s) Note a misplaced “Little Boulder Creek” label in Figure 10A of Appendix 16.
- (EM16e) all maps in this report, including “Possible Exchange Lands, Boulder Creek Area” on page 48, erroneously show our land and Tract 05-119 as publicly owned. Such mapping errors should be corrected in any final report.)
- (EM16e) all maps in this report, including “Possible Exchange Lands, Boulder Creek Area” on page 48, erroneously show our land and Tract 05-119 as publicly owned. Such mapping errors should be corrected in any final report.)
- (CorrID671n) Show scenic easement designations on LPP map.

Response: Where appropriate, the above editorial changes will be made in the FEIS. NPS agrees that the top of the terrace at this site is outside the CMZ. Adjustments will be made to figures.

33b. Tables: Map of Parcels

Public Comments:

- (LET15q) The priority of NPS interest in acquisition of private holdings is listed in tables. While many readers with specific interest will have some knowledge of the locations in the listed parcels, maps showing the acquisition priority of private property (e.g. in Appendices 11 and 12) would better display the information and its spatial relationship with regard to the guidelines on which the priorities are based as well as other environmental features of interest.

Response: Additional maps have been added to the LPP, and this information is also in the tables.

33c. Tables: Land Owner Names

Public Comments:

- (CorID759g). . . it would be beneficial to omit the names relating to each parcel number.

Response: Names have been retained for ease of reference.

33d. Tables: Priority Map

Public Comments:

- (CorID759h) there should be a parcel map included in the document. This would help illustrate the areas for priority and would keep the document from being “dated” as landowner’s names change when property is bought and sold.

Response: We have included the Chelan County “Assessor’s Parcel Number” for each parcel in the Valley, which allows users to identify and locate specific parcels according to the County’s property identification scheme. The Chelan County website, through the Assessor’s Office link, includes a search and mapping function that allows users to search for individual parcels, using the Assessor’s Parcel Number (or referred to at that link as the “Geographic ID”); that web address is: <http://63.135.55.83/PropertyAccess/?cid=90>

33e. Tables: Parcel Scores

Public Comments:

- (CorID759i) it would be informative to show the individual parcel scores on each criterion and a total score. This would help differentiate and explain why there are so many high priority parcels.

Response: This has been added to the revised LPP.

33f. Tables: Parcel and Tract Numbers

Public Comments:

- (CorrID2) Re: LPP Need to include county parcel numbers in addition to NPS tract no’s. when referring to private properties. Public has no clue how these two related; county parcel numbers widely known.

Response: County parcel numbers have been added to the revised LPP.

33g. Airstrip / WASDOT Aviation

Public Comments:

- (EM17g) The DEIS (page 221) lists the airstrip (airport runway) as “2,700 feet long and 80 feet wide,” in fact the airport runway is 2,630 feet long by 100 feet wide.
- (EM17h) A specific airport legal description can be found on the recently completed airport boundary record of survey.
- (EM17i) The DEIS (page 221) states that the airport is a “state-maintained emergency airstrip.” In addition to emergency use, WASDOT Aviation, through the Long-Term Air Transportation Study has identified other use classes for the Stehekin airport as recreational usage,

Forest Firefighting activity, Transportation Access to Remote Community, Emergency Medical Usage and Flight Safety Enhancement.

- (EM17l) [Replace] “Aeronautics Divisions” [with] “WSDOT Aviation.”
- (EM17m) The DEIS (page 410) lists an outdated WSDOT Aviation contact. Please change the contact information to John Sibold, Director, WSDOT Aviation, 18204 59th Dr NE, Suite B, Arlington, WA 98223 (360) 651-6300, (360) 651-6319 fax, www.wsdot.wa.gov/aviation.

Response: Where appropriate, the above editorial changes will be made in the FEIS, however, the NPS will continue to identify the area as a “state-maintained emergency airstrip” per the existing special use permit.

33h. Other: Cultural Resources

Public Comments:

- (EM89aa) NCCC found it difficult to interpret the NPS meaning with respect to Cultural resources [p.55] and suspect that there needs to some editing where it states that no pre-contact archaeology was found in the Corridor area and therefore it is treated in the DEIS? If no sites are found how can it be treated in the DEIS. NCCC does not want to be seen as trying to second guess the archeologists who made the determination but we would question if the action of the river itself may have covered over potential sites. We would propose that the NPS evaluate this contingency and state how it is prepared to protect and preserve any sites that are exposed by the evolution of the river channel. The issue we are raising here is how the NPS would respond if the river action itself uncovered sites as opposed to the mitigation measures (p. 479-480) for sites and artifacts discovered as a consequence of construction.

Response: See the modifications to the archeological resources impact topic section in the FEIS. The attribution sentence for both this paragraph and the one above it were missing. In that section, the last sentence has been replaced with: “Because, however, there is a potential for previously unknown archeological resources to be found, prehistoric and historic archeological resources is included as an impact topic in this DEIS.”

If previously unidentified archeological resources were found, the NPS would implement mitigation measures to avoid harm to these as identified in the cultural resources impact analysis section.

33i. Other: Coon Lake

Public Comments:

- (EM89dd) A minor edit but important issue is that it is NCCC understanding that the Board of Geographic Names changed the “Coon Run” “Coon Lake” designation. The Final documents should reflect those decisions [see pp. 91,185, 214, 216, 223, 349, 353, 420, 471, etc.].

Response: A petition to change the name was submitted to the U.S. Board of Geographic Names and after due consideration, the Board decided not to change the name and therefore to retain the use of Coon Lake. The FEIS reflects this decision.

33j. Other: Stehekin Community

Public Comments:

- (CorID675o) In the LPP on page 9, 1st paragraph add: “enjoyment of the Stehekin Community by visitors.”

Response: The management goals on page 2 have been revised to better acknowledge the GMP and Foundation Statement where it addresses the Stehekin Community: “Within Lake Chelan NRA, Stehekin is a private community that provides visitors with an opportunity to see and experience life in a remote setting that is not accessible by roads and is surrounded by wilderness.”

33k/l. Other: Wood

Public Comments:

- (CorID671fff) Add word “commercial” or “in” to p.20 #4 compatibility criteria regarding the cutting of timber.
- (CorID671kkk) Selling firewood is already regulated by DNR. Fix #4 page 20 by adding the word “commercial.”

k/l Response: This reference in the LPP has been changed to: “The cutting of timber for sale and transport outside the Stehekin Valley.” The word “or” was changed to “and.”

33m. Other: Access

Public Comments:

- (LET14f) On page 92, paragraph 3, line 5 should be changed to reflect this intent: The NPS would work with private landowners to determine HOW (not ‘whether’) to restore access.”

Response: This change has been made and a route has been identified associated with it in a revised version of Alternative 2 added to the FEIS (Alternative 5).

I. Erosion Protection Measures

34. CONCERN STATEMENT: Additional SRCIP river management actions should be identified (and implemented) quickly (apart from LPP work). (45 comments, 2 duplicates)

Public Comments:

- (LET8o, EM39k, 50i, 53l, 59i, 63h, 64l, 65l, 66o, 68j, 69l, 73n, 74j, 77i, 78k, 82k, 84s, 87r, 90t, 91q, 92g, 93l, 97l, 102l, 103l, 106x, 107o, 112n, 113i, 115u, 116k, 118j, 119kk, CorID758bb) 8. As quickly as possible, (let us work together to) identify the actions that are proposed for actual river management and put those elements of the planning effort into effect as soon as possible.
- (EM25l, 29t, 32g,[2]33ii, 46n, 48v1, 76k, 87p, CorID689f1) while immediately implementing river control and road protections measures listed in the SRCIP

Response: 1) One goal of the SRCIP was to assess all actions and their cumulative effects in one EIS. 2) The NPS worked with the Stehekin Community, Chelan County and the State of Washington to identify actions following the 2006 flood. All but one of those proposed actions has either been implemented or is part of the SRCIP.

35/36. CONCERN STATEMENTS: 35 - Increase the number of erosion protection measures (12 comments, 1 duplicate). 36 - Increase erosion protection measures to protect the SVR in place (7 comments).

Public Comments:

- (EM29u, 32h, 33jj, 38m,46o, 48w, 65m, 84t, 87q, 92h, CorID689g) expand the list of river projects where needed and allow for flexibility for future required work as changes occur.
- (EM3g, 76h, 87n, 92m, 111n, CorID689j1) protect the road from the river both adjacent to the road and also at strategic locations away from the road where it can be predicted, with a high degree of certainty, to harm the road if allowed to erode.
- (EM44r) The County supports Erosion Protection Measures Alternative 2 with consideration of additional rock barbs outlined in Alternative 4.

35/ 36 Response: Because the SRCIP took a comprehensive look at the lower Stehekin Valley, the NPS has identified all of the needed erosion projects to allow for sustainable maintenance of the Stehekin Valley Road (including access to High Bridge). These projects would also avoid additional long-term impacts by removing public facilities that would likely be threatened by the river because they are within the floodplain / channel migration zone. The SRCIP planning process used a Technical Committee comprised of subject-matter experts from federal, state and local agencies to assist in identification of projects.

37. CONCERN STATEMENT: Expand erosion protection measures to adjacent private property. (2 comments)

Public Comments:

- (EM44s) We encourage the NPS to work with private property owners during the design of these measures to ensure that site-specific treatments address the full extent of erosion and not only threats to federal property. There are many examples in Stehekin where erosion control measures were limited by property boundaries and resulted in inadequate protection of both federal and private property.
- (CorID671l) Identify whether the NPS would support the construction of rock barbs and other erosion protection measures on private property.

Response: The NPS is prohibited by law from expending public funds for the sole purpose of protecting private property. If actions on private land are warranted to meet the needs of the federal government, the NPS would work with private property owners to accomplish these if possible. For example, the EIS proposes accessing a river erosion protection site, to maintain the Stehekin Valley Road (and associated vehicle access) through private property (Wilson Creek).

38. CONCERN STATEMENT: Identify interim actions that will be undertaken before projects are funded. (2 comments)

Public Comments:

- (CorID671ccc) Identify interim measures that can be used until unfunded erosion protection measures are implemented.

Response: The NPS can take steps that do not require additional management oversight or action or additional NEPA compliance. For instance, replanting is generally excluded from additional environmental analysis and may be done at any time.

39. CONCERN STATEMENT: Weaver Point: The historical cribbing up the river from the NPS house should be maintained. (1 comment)

Public Comments:

- (LET11j) Weaver Point: Maintain existing historical cribbing up river from NPS house.

Response: Proposed actions at Weaver Point to maintain the historic cribbing are planned as part of nearby erosion control work being done to mitigate the FERC relicensing.

40. CONCERN STATEMENT: Stehekin River Mouth: The logjam near the Stehekin River Resort should be extended. (3 comments, 3 duplicates)

Public Comments:

- (EM31f, 31g) [Tying into the logjam 100 feet from the river bank] This improvement would protect all of us from a serious threat of the river strengthening in that direction. It would also maintain the integrity of the river channel which is conducive to fish habitat and would create more fish habitat along that bank.
- (CorID672d) Consider restoring / extending the logjam from the Stehekin River Resort down to the existing series of logjams that used to be a peninsula / island that provided protection from flooding to the Resort.

Response: Actions at the Stehekin River Mouth have been designed to limit potential catastrophic avulsion of the Stehekin River toward the Stehekin Valley Road and to remove the harmful effects of the riprap placed there. No extension of the logjam in this location is necessary to accomplish these goals. In addition, as noted in other responses, the NPS is not permitted to expend public funds for the sole purpose of protecting private property. Private property owners, working on their private property could, however, take actions near this area with appropriate permits from regulatory agencies

41. CONCERN STATEMENT: Stehekin River Mouth: The river access point and bank barbs near Stehekin River Resort may affect private property.

Public Comments:

- (EM31e) The NPS is planning to make some adjustments along the river bank which can quite possibly have an effect on all those properties. I refer to the alterations along the river bank to offer a commercial rafting pull out area and the proposed bank barbs.

Response: Proposed actions (logjam and/or rock barbs) near the Stehekin River Mouth will directly protect public facilities, including the Stehekin Valley Road and in the process likely inadvertently protect private property. The bank downstream of the proposed barbs is currently protected by riprap and rock barbs on private land.

42. CONCERN STATEMENT: Lower Field Riparian Restoration should be different (Stehekin Heritage Alternative 5). (1 comment)

Public Comments:

- (LET11x) (SVR Lower Field] Implement riparian restoration along edge of Lower Field. Add two rock barbs and bioengineering to protect Stehekin Valley Road alignment.

Response: Barbs are part of Alternative 4 at this location. In other alternatives, it is unlikely that barbs would be effective because there is very little gravel entrained at this site. As noted in the DEIS (page 140), “Riparian restoration would be implemented along a 30-foot-wide strip, approximately 200 feet long, beginning from the Stehekin River bank and continuing back toward the road. Approximately 15,840 square feet (0.36 acre) would be restored with native vegetation, including seeding and planting. Large logs would be anchored to the bank to slow erosion until vegetation became established.” Rock barbs would not be used because the proposed action calls for relocating the road out of McGregor Meadows and the proposed trail that would be rehabilitated in this area would not need that level of protection from erosion.

43/44. CONCERN STATEMENTS: 43 - Buckner Homestead Hayfield and Pasture Riparian Area Restoration: Additional bank protection measures, such as rock barbs and bank hardening should be added at Buckner because the rate of erosion has increased and poses a serious threat to the historic structures (2 comments, 4 duplicates). 44 - Buckner Homestead Hayfield and Pasture Riparian Area Restoration: Move the channel or add riprap bank protection alongside Buckner.

Public Comments:

- (LET11u) [Buckner] Use all tools available to protect historical homestead and hayfield including rock barbs and bank hardening as needed.
- (LET33b) [re: Buckner SRCIP action] Given the nature of the soil, the erosion already having occurred, and the rate at which it has occurred, we strongly encourage the NPS to take a more aggressive approach here. We believe that bioengineering will be too slow a process to ensure even the slowing of erosion, and will not withstand the aggressive forces at work on this part of the river.
- (LET33c) [Couple bioengineering with] A. Returning the river to its more traditional channel, by using mechanical methods to move rock from the river to near the bank so as to create a buffer of rock between the channel and the river flow, and creating a more traditional channel as part of the same process. This would be done during an appropriate season so as to not impact the Stehekin River fisheries. Both A and B would then be coupled with the reestablishment of plant life along the river bank to further stability.
- (LET33d) [Couple bioengineering with] B. Or, hauling large rock to reestablish the traditional, non-threatening channel, then backfilling the area between to restore that portion of the property that has been lost in recent years. Both A and B would then be coupled with the reestablishment of plant life along the river bank to further stability.

43 / 44 Response: Bioengineering would also consist of some placement of rocks and logs. These actions proposed in the SRCIP DEIS (page 133) are an appropriate response to the erosion. Effectiveness would be evaluated and if more aggressive actions (such as rock barbs) are warranted, these could be proposed. Currently, more aggressive actions, such as the use of rock are proposed only for protecting public vehicle access along small sections of the Stehekin Valley Road. As noted on page 147 of the DEIS, under Alternatives and Actions Considered But Dismissed, implementing additional erosion protection measures at Buckner Homestead Hayfield and Pasture was dismissed because “The proposed riparian restoration at this location is likely to slow erosion of the bank. Additional erosion protection measures could be considered later if warranted.”

45/46. CONCERN STATEMENTS: 45 - Wilson Creek: Work at Wilson Creek will affect private property up and downstream, including Scherer-Vavrek gardens, building and residence. 46 - Wilson Creek work will affect intangible values of private property (1 comment)

Public Comments:

- (EM7i) The work NPS proposes at Wilson Creek may very well protect the public road but will increase erosion to our property via the 2nd culvert that will be installed and send more water across our property. The barbs themselves will contribute to erosion and threaten our property downstream and also possibly our property across the river from Wilson Creek.
- (EM7j) What are the guarantees that after NPS does this work at Wilson Creek that it won't adversely affect our property upstream and ultimately cause the river to threaten our gardens, buildings and residence?

45 /46 Response: The proposed work would add erosion protection to the bank of the Stehekin River but would otherwise not affect this private property. Through careful observation and modeling of the effect of rock barbs it is clear that rock barbs do influence erosion processes downstream about 100 feet from a barb—but they do not influence erosion processes upstream.

47. CONCERN STATEMENT: Wilson Creek work will require use of a private land for an access road. Will it be available for private use? (1 comment, 1 duplicate)

Public Comments:

- (EM7a) work proposed at Wilson Creek by NPS . . . will require the use of our land for an access road and will have impacts on our property located there.
- (EM7h) If we grant NPS access will we still be allowed to extract resources as we have historically in that area and will we be able to use the NPS built access road?

Response: The answer to this would vary, depending on whether the private property owner was willing to sell either an easement or a portion of their land. If the property owner chooses to sell an easement, any portion of the access road located on private property would be available for private use, but would be closed to public use.

48. CONCERN STATEMENT: Wilson Creek work may require use of private timber and rocks. (1 comment)

Public Comments:

- (EM7g) At Wilson Creek there is the issue of the NPS use of resources (rock and trees) on site that we own. Since NPS would not have to barge materials up to build the access road and build the barbs, our resources used by NPS would be valuable. There is value to the timber and mineral resources.

Response: The NPS would still have to import rock for barbs, but some rock on site may be repositioned if allowed via the easement (or purchase). NPS has no plans to use private timber. These materials have been considered in the proposed road realignment.

49. CONCERN STATEMENT: Are barbs at Wilson Creek required if the Scherer / Vavrek reroute was implemented? (1 comment)

Public Comments:

- (EM7l) Would NPS still have to put barbs in at Wilson Creek if the reroute were started downvalley of that location?

Response: This area is continuing to erode and would need erosion protection measures even if the reroute began down valley. The reroute would not relocate the road at Wilson Creek (there is not enough room to accommodate a reroute in this location).

50. CONCERN STATEMENT: Milepost 7.0: Additional erosion protection measures, such as additional rock barbs or a Boulder Creek-style logjam should be constructed at Milepost 7.0. (7 comments)

Public Comments:

- (LET11w) [SVR Milepost 7.0] Same as Alternative 1 plus construct two rock barbs to maintain road at Milepost 7.0.
- (EM4b, CorrID7g, 8k, 671mmm, 673a) We support installation of a large jam of woody debris at Seven Mile between the existing grade control structure and the river, similar to the one proposed near MP 2.0 near Boulder Creek, in order to provide an additional barrier to the river cutting down the McGregor Access Road and/or the new stretch of trail.

Response: Adding a logjam at this location was considered but dismissed in the FEIS.

51. CONCERN STATEMENT: Milepost 8.0: Consider laying back the slope further at Milepost 8.0 to increase stability, to provide fill, and to prevent impacts to wildlife. (4 comments)

Public Comments:

- (LET11y) [SVR Milepost 8.0] Lay slope back to an angle that will self-heal and use material in raising of road from Mile post six to seven.
- (CorID672k) The slope at Milepost 8.0 would be a difficult escape route for mule deer in winter.

Response: The factors identified in the DEIS and during the public comment period for Milepost 8.0, included public safety, cost, revegetation potential, traffic impacts, and the need for fill. Analysis confirmed that the proposal under Alternative 2 would have fewer impacts and cost less while maintaining the scenic character of the road. This includes having fewer impacts to northern spotted owl habitat, maintaining wildlife habitat and disturbing less acreage. The proposed work (laying back the slope but not to the full extent proposed in the comment) would improve stability of the slope while minimizing impact to habitat. The limited lay-back of this slope would also cost less because it would require far less material to be removed from the slope and transported off site.

52. CONCERN STATEMENT: Milepost 8.5/9.2: Replace the concrete plank crossing at Milepost 8.5/9.2 with a box culvert or other design to allow bicycle access and snowplowing. (5 comments)

Public Comments:

- (LET11z) [SVR Milepost 9.2] Install Culvert and extend ditch to river. Build up road as required and maintain ditch along road with extra culverts as needed.
- (CorID671ppp) Redesign the low water crossings as box culverts.
- (CorID672f) The concrete plank crossing may not be viable because bicycle and pedestrian traffic would have to “ford” through it when it is flooded with water and silt or sand.
- (CorID672h) A covered low water crossing could potentially work if the cover could be removed when needed.

Response: The concrete plank crossing at Milepost 8.5 is proposed for replacement with a box culvert, in part to facilitate snowplowing operations and in part to make this section bicycle/pedestrian friendly. The box culvert would have a removable top or lid to allow the culvert to be cleaned of sand and gravel deposits. The crossing at Milepost 9.2 would remain a plank crossing. This locations is the end of the paved road/transition to gravel road and would not be plowed in the winter. It is also anticipated that with the change from a paved road to gravel road at Milepost 9.2, that the concrete plank crossing there would not serve as a barrier to bicyclists. Retaining the plank crossing here is anticipated to reduce overall road maintenance costs.

53. CONCERN STATEMENT: Strengthen protection for Stehekin River. (1 comment)

Public Comments:

- (CorrID1i) I urge you to revisit the plan and strengthen management actions proposed to protect the river. Revisit your legal authorities – and do not be afraid to use them however difficult that may be politically or otherwise.

Response: By its comprehensive look at the lower Stehekin Valley, Alternatives 2 and 3 in the DEIS (and the revisions to Alternatives 2 and 5 in the FEIS) would strengthen protection for the Stehekin River. These alternatives would do so with the fewest potential impacts to the floodplain / channel migration zone while meeting the purpose and need of the plan. Alternatives 1 and 4, by contrast would extend impacts to the floodplain / channel migration zone and continue to protect areas of upland habitat now proposed for the proposed reroutes.

54. CONCERN STATEMENT: Allow for water flow across the road near Danielson’s corner. (1 comment)

Public Comments:

- (LET11v) [SVR Milepost 6.25 - 6.53 and Milepost 6.95 - 7.14] Construct road so that trapped water on North side of road could flow over road in high water situations at Danielson’s corner.

Response: The FEIS calls for a revision to Alternative 2 (Alternative 5) that would keep the road in this area at grade and allow for installation of a grade control structure beneath the NPS Tract #7-199 (Chelan County Parcel No. 331716120150) driveway which would be extended under the Stehekin Valley Road. This is proposed as a public-private cooperative effort (allowed for on NPS land and funded with private dollars).

J. New Information

55. CONCERN STATEMENT: Several comments indicate a lack of recorded easement for sections of road crossing private land. (2 comments, 1 duplicate)

Public Comments:

- (Let4c) there is no Chelan County record of road access to our property either thru conveyance or condemnation. Since Chelan County had no interest in our property they had no right to transfer any interest to the U.S.A. via the Quit Claim Deed that transferred ownership of the road from Chelan County to the U.S.A.
- (Let4d) . . . the main Stehekin Valley Road was intended to be some 200' north and west of property corner number 10.
- (EM7b) because of the length of time that the road has gone into the River Resort , passing thru Jim Clarks property , that road would be considered a public road in the state of Washington.

Response: Two of the above comments refer to the Stehekin Valley Road where it crosses private land (Chelan County parcel number 331716140050; NPS tract #07-142). This parcel of property lies within a portion of Homestead Entry Survey (H.E.S.) No. 148. NPS records indicate when H.E.S. 148 was surveyed in fall 1914, the surveyor specifically noted that the H.E.S. Boundary crossed the “Stehekin Bridge Creek Road.” The road described in the surveyor’s notes is in the general area where the Stehekin Valley Road exists today. NPS records indicate that the long-standing presence of the road, in this case prior to homestead entry and many years prior to current ownership, imparts a prescriptive right of federal ownership and a public right of access on the road through the property.

The other comment (EM7b) refers to an access road leading from the Stehekin Valley Road (near the vicinity of the bakery) to the Stehekin River Resort. A segment of this road crosses NPS land proposed for use as a boat ramp. NPS records and various title reports indicate this is also a long-standing public road. On occasion, this public road has been referred to as “Pike Street.”

K. GAO Recommendations

56/57. CONCERN STATEMENTS: 56 - The NPS should follow the 1981 GAO report and stop purchasing private land in Stehekin / The LPP / DEIS is not consistent with the GAO report (6 comments). 57 - Private lands purchased in Stehekin in excess of NPS needs should be returned to private ownership in conformance with the 1981 GAO report. (7 comments, 1 duplicate)

Public Comments:

- (EM106i) In 1981, the Government Accountability Office (GAO -an independent nonpartisan federal agency that acts as the investigative arm of Congress making the executive branch accountable to Congress and the government accountable to citizens of the United States) did an extensive investigation. Part of the summary following their investigation reads as follows: “Through the law which established this area, it was congressional intent that land acquisi-

tion costs be minimal, that a private community in the recreation area continue to exist, that commercial development not be eliminated, and that additional compatible development be permitted to accommodate increased visitor use. . . NPS has not acted in accordance with congressional intent.”

- (EM48b) the NPS has acquired more private property than was originally intended.
- (EM44o) We encourage the NPS to review the findings of the January 22, 1981 GAO report on Stehekin that recommended that private lands purchased in Stehekin by the NPS should be returned to private ownership.

56 /57 Response: In 1979, Senator Ted Stevens directed the General Accounting Office (now the U.S. Government Accounting Office) to examine NPS land acquisition practices. In partial fulfillment of that broader request in 1981, GAO produced a report entitled “Lands in the Lake Chelan National Recreation Area Should be Returned to Private Ownership”(CED 81-10). A full copy of the 1981 GAO Report is available on the SRCIP project website: <http://parkplanning.nps.gov/SRCIP-LPP-GAO1981>.

The GAO Report recommended that the Secretary of the Interior require the Director of the NPS to implement two specific actions (among other recommendations):

- Develop a Land Acquisition Plan for Lake Chelan National Recreation Area. The plan should (a) define compatible and incompatible uses based on the legislative history; (b) clarify the criteria for condemnation; (c) identify the reasons for acquisition versus alternative land protection and management strategies, such as scenic easements and zoning; (d) address recreational development plans for the area; and (e) establish acquisition priorities.
- Sell back to the highest bidder, including previous owners or other private individuals, all land compatible with the recreation area. This would include the modest homes, the lodges, and the restaurant. The NPS could attach scenic or developmental restrictions to the deeds before the properties are resold to assure that their use would be consistent with the enabling legislation.
- The NPS endorsed and implemented the recommendation to produce a Land Acquisition Plan for Lake Chelan National Recreation Area. Subsequent versions of this plan came to be known as a “Land Protection Plan” as opposed to a “Land Acquisition Plan” to be consistent with other parks and to reflect the overall planning purpose: to ensure the resources and values of Lake Chelan NRA, including the character of the Stehekin Community, remain protected from adverse development and incompatible activities on adjacent private land. Several updates to the Land Protection Plan have been made since the GAO recommendation.
- The NPS and the DOI did not endorse or implement the second recommendation of the GAO report. To the contrary, the NPS and the DOI sharply disagreed with the GAO recommendation to sell back land that had been previously purchased. The NPS and the DOI noted that land acquisition practices reflected the spirit and intent of Congress. At the time the GAO report was issued the NPS and DOI welcomed another GAO recommendation that to clear the air and to clarify congressional intent, Congress would hold oversight hearings; however those hearings were never held.
- More than 30 years have passed since the GAO report was produced. Since that time Congress has continued to authorize and appropriate funding for land acquisition, purchase of scenic easements, and three land exchanges in Lake Chelan NRA. Most recently, Congress authorized funding to enable the NPS to work with willing sellers and to conduct land exchanges that would relocate landowners away from the flood risks imposed by changing con-

ditions in the Stehekin River. The NPS therefore continues to act within this land protection authority and direction provided by Congress.

- As noted above, the NPS does not intend to purchase all of the private land within Lake Chelan NRA. Rather, as Congress directed, the NPS responds to willing sellers (property owners) who approach the NPS seeking to sell or exchange their property. The revision to the Land Protection Plan associated with the SRCIP is intended to continue to guide the NPS when this happens.

58. CONCERN STATEMENT: The NPS should reinitiate a GAO study. (4 comments)

Public Comments:

- (EM44p) . . . the NPS should request that GAO support a current socioeconomic analysis of the Stehekin community.
- (EM71e) A Government Accounting Office (GAO) Report dated 1981, I believe, stated that the NPS had no business purchasing land in the quantity and manner in which they did between 1968 and the report date. . . I recommend inviting the GAO back for an update look at the intervening years to see what they would say now.
- (EM105b) . . . petition the Government Accountability Office to reopen the investigation that was done in the early 1980's - assessing compliance with existing rules, regulations and laws.

Response: The Government Accounting Office works at the direction of Congress. GAO studies are requested and funded by Congress, not by the executive branches, such as the Department of the Interior, of which the NPS is a part. Therefore the NPS is not in a position to initiate a GAO study. Nonetheless, the NPS has acted, and continues to act, in accordance with legislative intent for Lake Chelan NRA, with congressional oversight and, therefore does not believe another GAO study is warranted. To address some of the issues that arose during the public comment period, the impact analysis provided in the DEIS has been expanded to characterize impacts associated with socioeconomic measures that pertain to the Stehekin Community where these could be affected by the actions proposed in the plan. This revised analysis is provided in the FEIS.

L. Hiking Trails

59. CONCERN STATEMENT: Extend the Lower Valley Trail. (1 comment)

Public Comments:

- (CorID753i) To fulfill its requirement to provide for public access and recreation, as called for in all management policies before this time, the NPS should extend the Lower Valley Trail that has been proposed for another section of the Getty property. The trail could continue along the Stehekin River up valley, allowing access as called for in the enabling legislation, and connect with the Lower Rainbow Loop Trail. This would also move horse traffic that travels from the corral near the Bakery off the Stehekin Valley Road and adjacent private property. It would increase visitor safety and enhance the recreational experience.

Response: Routing the Lower Valley Trail through the Getty property was considered but dismissed because of its proximity to the river and to private land. The alignment in that location is an attempt to use existing trails and the fire break. The NPS also sought to limit the cost of the trail by using existing trails.

60. CONCERN STATEMENT: The Lower Valley Trail should follow a different alignment.

Public Comments:

- (LET11o) [Lower Valley] Trail should start above Harlequin Bridge and go to High Bridge following historical wagon road where possible making sensitivity to private property a priority and moving the trail alignment as needed. Where trail passes private property existing road right-of-way should be used.
- (EM28a, 41b, 42b, CorID701d, 711a, 712a, 717b, 735a) fully support the construction of an 11 mile horse and hiker trail in the valley, but ask that you do so at a location laid out by Stehekin Heritage [to maintain the road in its current location]
- (CorID673h) The Lower Valley Trail should begin from the Bakery.
- (CorID672n) The Lower Valley Trail should have fewer grade increases (less variability).
- (CorID672r) The Lower Valley Trail should cross the road in several places to allow visitors to experience the riparian area.
- (CorID672s) The Lower Valley Trail should avoid areas that affect resident's privacy, alluvial fans and areas likely to be impacted by flooding.
- (LET26b) Since the NPS preferred alternative is abandoning the existing road near the lower field, I do question the decision to route the new trail in that abandoned road area. I think it will be hard to maintain a trail there when the river moves into the former road area and it sounds like NPS expects that to happen.

Response: The Lower Valley Trail alignment would be modified in the vicinity of the Stehekin Valley Ranch to minimize impacts to private property and to provide a better visitor experience by staying closer to the river. It would also include another section of multi-use trail from the Stehekin Valley Road to Buckner Orchard using the alignment of the historic entrance (as recommended in the Buckner Homestead Historic District Management Plan). The proposed Lower Valley Trail would be constructed as described in the DEIS except that the trail would not go behind the ranch and would instead connect to the Stehekin Valley Road by linking with the trail at Bullion. Bicycle use would also be allowed on the decommissioned portion of Stehekin Valley Road (McGregor Meadows Access Road and area above Milepost 6.5) but there would be no manipulation of the Stehekin River to protect this trail alignment for bicycles. In the future, additional bicycle access would be available by implementing the Buckner Homestead Historic District Management Plan recommendation to construct a multi-use trail from the Stehekin Valley Road to Buckner Orchard along the historic entrance road, instead of Buckner Lane (which would be closed to bicycle use).

Other ideas suggested during the public comment period, including a second trail from Stehekin Valley Ranch to Coon Run, and constructing a parallel trail along the lower portion of the Stehekin Valley Road would not be incorporated into the revised proposal. Two separate trails are not required for such low use and the road from the Landing to the Bakery would continue to be used by visitors. Paving the existing top-width of the road (See the response to Concern Statement #18) would improve the ability of both pedestrians and vehicles to share that section of road. Other alternatives to hiking on the road as called for in the GMP would use the existing Rainbow Loop Trail and a section of new trail along the historic wagon road to McGregor Meadows Access Road. From there, the old road bed in McGregor Meadows would be used to go around the Lower Field. The trail would then go up Thimbleberry Creek on an old road to the ranch. Instead of the proposed path behind the ranch, hikers, horses and bicyclists could continue along the upper section of road above the Stehekin Valley Ranch and hikers and horses could use the existing stock path.

M. General Impacts: LPP/SRCIP

61/62. CONCERN STATEMENTS: 61 - The LPP will increase the amount of development and decrease the amount of preserved lands in Stehekin (6 comments, 1 duplicate). 62 - Proposed land exchanges will expand, rather than consolidate, development (1 comment).

Public Comments:

- (Let2c) The amount of undeveloped land will be decreased; the amount of developed land will be increased.
- (CorID713c, 716d, 756c) Exchanges have contributed to increased development, and to spreading of development along the lower valley road, damaging the original rustic character of the lower valley, while adding nothing in the way of public amenities or services.
- (CorID751d) While the EIS was a study of protection of the river corridor, not of the valley as a whole, the land protection plan is a plan for protection of the valley as a whole, which it will fail to achieve, because of its emphasis on land exchange and spreading development out from the river.
- (CorID751p) The current exchange plan . . . will actually expand the zone of human impact, rather than, as asserted in the LPP, “consolidating new developments.” [p.29. . . [this does not] advances the public interest.

61 / 62 Response: Although any land exchange or acquisition in Stehekin is dependent on Congressional appropriations and the number of private landowners who are voluntarily willing to pursue a land exchange or sale with the NPS, the NPS believes that the implementation of the revised LPP would increase the preservation of valuable habitat, consolidate development, and provide further protection to resources as structures are removed from the flood plain / channel migration zone.

At the same time, the NPS agrees that it is possible that a land exchange could result in a net loss of public acreage and a short-term increase in development in Lake Chelan NRA if the property sold to the NPS is developed and the property disposed of is not developed. The impacts from increased development in upland areas, however, would likely be offset by the decreased development adjacent to the river. By seeking to relocate development away from the Stehekin River, the quality of the riparian habitat zone and shoreline environment would improve over time. Because of the value of the wetland habitats, expanding protection of these ecologically sensitive areas would have disproportionate beneficial effects on preservation of lands within Lake Chelan NRA. Finally, the land the NPS is proposing for exchange is generally contiguous to other private property and existing development. The likely result would therefore be to cluster development in more sustainable areas, reducing impacts from what could be otherwise more widely dispersed development in flood-prone areas.

In the 44 year history of Lake Chelan NRA, the NPS has conducted three land exchanges involving Lake Chelan NRA properties, two of which resulted in a small net reduction in public acreage in the Stehekin Valley. If the past volume of land exchanges is any indication of future land activities, then several more land exchanges can be expected through LPP implementation.

The proposed changes to the LPP would reduce the amount of federal land available for exchange from 50 acres in the 1995 Land Protection Plan to 23.81 acres in Alternatives 2-4 and 29.41 acres in Alternative 5. This reduction is proposed because certain NPS lands previously

identified for exchange in the 1995 LPP are threatened by flooding and migration of the Stehekin River channel and/or contain high value resources that would be adversely affected if transferred into private ownership and then developed. In addition, the prioritization criteria for acquisition of private land tracts in Stehekin have been changed to place a greater emphasis on relocating development from the channel migration zone and away from sensitive resources. Washington State and Chelan County regulations are increasingly protective of the shoreline environment and restrict development within the floodplain.

63. CONCERN STATEMENT: Moving the road will have greater impacts than leaving it in place. (1comment, 1 duplicate)

Public Comments:

- (LET10b) If the road is moved, massive amounts of woody debris, silt, sand and gravel would be washed into the river. This deposit would further elevate the river bed and increase the size and number of log jams - the outcome of which could likely be catastrophic damage downriver to roads, utilities, bridges, residences, campgrounds and historic sites, resulting in continued expense and disruption to the community of Stehekin.
- (LET10c) If the road is moved, much of the historic wagon road would be obliterated, and an important link to Stehekin history would be lost.

Response: Although there would be additional impacts from relocating a portion of the Stehekin Valley Road as proposed in Alternatives 2 and 3 in the DEIS and FEIS Alternative 5 , the proposed alignment for the road avoids the most historic alignment of the Old Wagon Road completely. Although the alignment is closer to other parts of the old road, it would also avoid these other portions of the road that are not eligible for the National Register.

Not moving the road would have greater impacts on sand, silt and gravel deposition in the Stehekin River than the impacts from moving the road. Not moving the road would continue to allow the Stehekin River to wash away sections of the road in the floodplain / channel migration zone. Because the road is bare of vegetation, it would wash away more quickly, contributing to rapid bank erosion. Although there would be impacts to currently undeveloped forest upland in the alternatives where the road would be relocated, this portion of the road is not within the floodplain / channel migration zone and would not result in impacts to the Stehekin River. Elevating and hardening the road in the floodplain would also likely accelerate movement of the river through McGregor Meadows and increase the amount of gravel and large woody debris in the channel downstream. The primary source of gravel in this area is cut-bank erosion on the west side of the channel. Based on analysis for the SRCIP, it would likely cost taxpayers more over the long run to keep the road in place (Alternatives 1 and 4). Of note, the Stehekin River watershed, as a whole, contains only approximately two percent floodplains. Protecting these limited floodplain resources would have greater ecological value than protecting additional forested upland, which dominates the watershed.

N. LPP General Impacts

64. CONCERN STATEMENT: The LPP exchange process could result in speculative land purchases by those interested in trading for more desirable properties. (1 comment, 1 duplicate)

Public Comments:

- (Let2f) [If lands are identified for exchange] the prospect of their being tradable for potentially desirable and valuable land could lead to their calculated acquisition for the purpose of trading up with them. I am worried that this has already occurred.
- (Let2e) [It is] expected that the implementation of this policy will serve as an incentive to development.

Response: Although this may occur, there is no guarantee that the NPS would be interested in the private property offered for exchange as a result of a speculative purchase. A primary driver in the revision of the LPP is to assist landowners in moving out of the channel migration zone, which provides long-term protection to the natural resources of the Stehekin Valley. The NPS would evaluate any potential offer of exchange or acquisition to determine if that goal is met.

65. CONCERN STATEMENT: The ability to exchange formerly private lands may affect the desire of donors to bequeath their land to the park and could set a precedent in other national parks. (1 comment, 3 duplicates)

Public Comments:

- (Let2h) There are many property owners in the Stehekin Valley who are dedicated conservationists, and who would be inclined to leave their park property to the Park, assuming that the property would thereby be preserved in perpetuity in its undeveloped state by the NPS, in observance of its statutory obligations to preserve wilderness land in the Park. But since the proposed Implementation . . . Plan would render any privately owned land vulnerable to designation as “available” for trade and development, these potential donors to the Park would not be able to bequeath their land to the Park safely.
- (Let2i) . . . Someone who gives or sells undeveloped land to the NPS does so with the expectation that that land will be preserved in its undeveloped state in perpetuity, and not that it will be traded to someone else for development.

Response: We are unaware that any land has been donated to the NPS in Stehekin. Rather, private property owners have sold their property to the NPS. It is possible that some property owners may, in the future, consider donating land to the NPS with the intention that it remain in the public domain. Should such donations occur the NPS would honor the terms of the gift.

Some property owners have chosen to sell their lands to the NPS, in part to add to this public park.

Lands that are proposed for exchange are being evaluated to determine if, through an exchange they could help reduce resource impacts or improve visitor experience if traded for another parcel. Each parcel would then undergo further evaluation and public input through an environmental assessment if a specific exchange is proposed. Key to this somewhat complex process is

the principle that by exchanging lands with relatively lower resource value for lands with higher resource value, as well as benefits gained by consolidating development and minimizing habitat fragmentation, the end result is one of overall greater park enhancement.

66. CONCERN STATEMENT: Land exchanges will result in implementation of associated infrastructure, including roads and fire protection in intervening undeveloped areas. (1 comment)

Public Comments:

- (Let2k) Since the properties tradable for flood plain properties will tend to be at the peripheries of the Stehekin Valley community, there will be infrastructure costs associated with the trades that will be borne by the NPS and not the individual property owners or developers. Roads will have to be cut to the developed properties; fire protection will have to be extended to them. These extensions not only imply new expenses for the NPS, they also imply the further destruction of previously undeveloped land as intervening spaces between the traded parcels are swept into the development process.

Response: In an effort to cluster future development, many of the available exchange properties were selected because they are located in or are adjacent to areas of existing development. Because the exchange properties are near other developed areas, they are also close to infrastructure including existing roads and generally electricity and all are within or near existing Fire Fuels Reduction Areas where fuel reduction work has been underway over the last 15 years.

67. CONCERN STATEMENT: Land exchanges will affect neighboring properties, including privacy and property values. (1 comment)

Public Comments:

- (Let3t) The impact on existing private homes should be considered when making tracts available for exchange. Nearby development will impact neighbor's privacy and property values.

Response: Exchange properties were selected primarily because they are located in areas of existing development, thereby consolidating development. Development on exchange lands can only occur consistent with county zoning regulations. Development on private property and therefore impacts to adjacent property are regulated by the county through zoning and permitting processes.

68. CONCERN STATEMENT: There is indirect protection offered by the Stehekin Valley Road for private property that will no longer be available when the road is moved. (5 comments, 1 duplicate)

Public Comments:

- (EM5e) You say that by law you cannot protect your neighbor's property (private property) so by moving the road you say you can no longer protect the river bank where there is no longer going to be a road. This is indirect policy being used to enact policy: by removing the road you are in effect removing future protection along that section of river, thus any protection that private property owner may have had.
- (LET10m) . . . leaving the road where it is offers some protection for private property.

Response: There are a few properties that are indirectly protected by the current alignment of the Stehekin Valley Road. Among these include: Upper Company Creek Road and the Stehekin Valley Ranch. Although the portion of the road that offers some buffer area between the river and these properties would be maintained as the McGregor Meadows Access Road, catastrophic road failure could cause flooding of these parcels. Even if the road remained in place, this could also occur because the road in these locations is within the floodplain / channel migration zone.

Maintaining the road in place in McGregor Meadows by elevating and hardening it (DEIS Alternative 4) would also likely have direct negative impacts to private property by raising floodwater height, increasing flood water velocity, and accelerating movement of the river through this area. Right now, the alignment of the road and river could threaten private property because the road is a weak point in the floodplain that may be exploited by future large floods to form large new side channels that could grow to become a primary river channel.

69. CONCERN STATEMENT: Implementation of the reroute will cause the NPS to abandon access to private property in McGregor Meadows. (1 comment)

Public Comments:

- (EM44w) Current NPS policy allows for maintenance of private property access from Stehekin Valley Road to the extent feasible; clearly, the NPS is relocating the road because it is not feasible to maintain it in its current position. We can only come to the conclusion that the NPS will determine that private property access to McGregor Meadows will no longer be feasible in the very near future.

Response: While the McGregor Meadows area will continue to flood and it is likely that eventually the Stehekin Valley Road in this area would become impassable, provisions have been made in the DEIS and FEIS for continued vehicle access to this area, including identification of the need for new access from the proposed reroute in a revised alternative in the FEIS. In the FEIS, in response to Public Comments:, an access route from the Stehekin Valley Road (proposed reroute section) to tie-in with the existing road in McGregor Meadows has been identified, surveyed and designed This 1000 ft. long, 12 ft. wide road would be constructed with the reroute.

70. CONCERN STATEMENT: The LPP will increase private development rather than protect additional land. (3 comments, 2 duplicates)

Public Comments:

- (CorrID1c) . . . the only management action the NPS appears to be taking to address private development is to work with landowners on a case by case, voluntary basis and at best “encourage” them to exchange property.
- (LET211) . . . in general the new LPP, which now has admirable goals to protect the river, does not take into consideration enough the overall planning for the valley and the preservation of its wildness, which is a major reason why people come to experience it and what we treasure about it.

Response: The SRCIP, like the GMP, recognizes that people will continue to live and work in the lower Stehekin Valley. The NPS projects that development will, during the life of this plan, increase in the Stehekin Valley. This will likely happen through a combination of development on undeveloped private property, subdivision and development of existing development and

potentially re-development of existing property to a higher capacity or density. NPS policy in the Stehekin Valley is to encourage relocation of private development from the floodplain / channel migration zone at the discretion of the private landowner. This is to protect the integrity of the Stehekin River, which is one of the primary natural features in Lake Chelan NRA. Riverine areas are among the most ecologically valuable, especially given the relative rarity of riparian ecosystems within the broader landscape. The NPS cannot and will not coerce private landowners in the Stehekin Valley to relocate. Land acquisition or exchange would therefore continue to be on a willing seller / willing buyer basis and subject to available appropriations.

71. CONCERN STATEMENT: There should be a moratorium on further development in Stehekin.

Public Comments:

- (LET20g) . . . a moratorium on further development should have been instituted many years ago, as the county and state governments have failed to control over-development in general, such that the enjoyment of the lower valley is significantly reduced from thirty years ago.

Response: This issue is outside the scope of the SRCIP. The NPS cannot issue a moratorium on development of private lands. Jurisdiction over development on private lands resides with Chelan County. Congress provided authority for use of eminent domain only to prevent or remove incompatible uses in Stehekin and included single family homes, small scale lodging and visitor services as compatible uses for Lake Chelan NRA. Development has increased in the Valley since the creation of Lake Chelan NRA and under existing land use, county and state regulations the NPS projects that additional development on private property will continue.

O. Impacts on Socioeconomics

72. CONCERN STATEMENT: The NPS has not adequately analyzed the socioeconomic effects of the plan on the Stehekin Community. (5 comments, 1 duplicate)

Public Comments:

- (EM119f) . . . the National Park Service has [not] developed the capacity or the language to address socioeconomic/socio cultural issues with the same capacity they address land acquisition and protection.
- (EM25q) Although they have been written with some careful and thoughtful consideration for the impact these changes will have, further study is needed especially regarding . . . the socio-economic threats NPS policies will pose to the Stehekin community.
- (EM79a) neither plan provides data or dialogue clearly examining the impacts of planning recommendations on the social, cultural and economic life of the Stehekin Community.
- (EM36g) This is an incomplete and flawed document. It has studied an issue and proposed a solution that if implemented as stated will fail to meet two of three goals on which it is to be based. It does not address the social and economic consequences of implementation and should be revisited.

Response: In an effort to address these concerns, the NPS has revised the socioeconomic sections in the Affected Environment and Environmental Consequences chapters of the SRCIP FEIS and provided additional information in the LPP.

73/74. CONCERN STATEMENTS: 73 - A socioeconomic impact analysis would determine what is needed to maintain a sustainable Stehekin Community (6 comments). 74 - The NPS should cooperate with Chelan County to conduct a socioeconomic impact analysis regarding the impacts of continued land acquisition by the NPS on the Stehekin Community (37 comments).

Public Comments:

- (Let12a, 23b, 25b, 27c, 29c, 30b; EM48q, 50b, 53f, 59b, 63a, 64e, 66h, 68c, 69e, 73g, 74c, 76d, 77b, 78d, 79c, 82d, 87v, 90l, 91i, 93e, 97e, 102e, 103e, 106q, 107a, 112g, 113b, 115n, 116c, 118b, 119dd, CorID758u). We request that the National Park Service (NPS) cooperate with Chelan County to conduct a socio-economic impact analysis and investigation of the effects of continued land acquisition on the future of the Stehekin Community.
- (EM61j) An unbiased and well researched socio/economic study should be made to determine what is the minimum land-base/population required to maintain a vibrant community.
- (EM44n) The County reiterates its commitment to work with the NPS and the Stehekin community to develop creative zoning and development solutions that would maintain the vitality of Stehekin, and we are unequivocal in our support of a socioeconomic study of the Stehekin community.

73 / 74 Response: The NPS has revised the socioeconomic sections in the Affected Environment and Environmental Consequences chapters of the FEIS to more clearly articulate the impacts of potential land exchanges and acquisitions in the Stehekin Valley. This revision includes more information on the Stehekin socioeconomic environment, including the fact that both population and housing have increased since the creation of Lake Chelan NRA and that a majority of houses are used for vacation/recreational purposes. It is not the role of the NPS, as a land management agency, to define the characteristics of a vibrant community; rather, this role is one of the responsibilities of that community and its local governing agency. Therefore, the NPS would support the Stehekin Community and Chelan County in conducting work that explores the full range of attributes needed to support a vibrant community in Stehekin.

75. CONCERN STATEMENT: The following are ways to mitigate the socio-economic impacts on the Stehekin Community. (1 comment)

Public Comments:

- (EM79yy) . . . [Alternative solutions to the] socio-economic impacts of the totality of NPS administration . . . could include: Selling back property and business as was recommended by the GAO to private interests, returning the transportation system to private hands, encouraging privatization of solid waste collection and facilities in conjunction with Chelan County responsibility and contracting NPS disposal needs to this company, Contracting maintenance for the road, facilities, lakeshore erosion and dock maintenance, trails, and campgrounds to companies that already have tools and machinery. . .

Response: The 1981 GAO report made several recommendations, including the development and periodic update of Land Protection Plans for Lake Chelan NRA, that identify priorities for the NPS and for Congress to hold oversight hearings. The NPS agreed with both of these recommendations. The GAO report also recommended selling back land, which the DOI/NPS strongly disagreed with. Since that time Congress has continued to exercise oversight of NPS in Lake

Chelan NRA and has periodically appropriated funding to the NPS to enable it to respond to property owners that have requested to sell their land to become part of the public park.

The NPS currently spends an average of approximately \$329,000 per year (based on FY2006-2010) for contracts with businesses in the community for operations and incidents (such as for responding to flood damage). From 2006-August of 2011 (including obligated funds), the NPS spent over 1.8 million on contracts with five Stehekin businesses.

The NPS also has a contract with private business to operate the concession for food, lodging and transportation services operated by private business.

The NPS agrees that it should not be handling solid waste in Stehekin. The NPS recognizes Washington State regulations which affirm that solid waste management is the responsibility of Chelan County. The NPS is working with Chelan County to both change federal regulations to allow the siting of a solid waste transfer facility in Stehekin and to establish a partnership to have solid waste handling done by a private business under jurisdiction of, or handling by, the County.

P. Impacts to Stehekin Airstrip

76. CONCERN STATEMENT: To minimize adverse impacts on the Stehekin airstrip, NPS should consult with WSDOT Aviation during housing and maintenance area planning. (1 comment, 5 duplicates)

Public Comments:

- (EM17b) We are prepared to provide technical assistance to the NPS that will facilitate safe airport operations and protect the airport as an essential public facility.
- (EM17c) . . . the Stehekin Airport is used for firefighting. . . Helicopters are the main aircraft used . . . WSDOT Aviation would like to work with NPS to accommodate helicopters at the airport and will provide technical assistance in reviewing location plans for the supporting infrastructure.
- (EM17d) One of the main issues that will need to be addressed for helicopters and other aircraft operating from the airport will be to ensure that clear approaches are available for arriving and departing aircraft.
- (EM17e) If land exchange is to remain as a selected alternative, WSDOT Aviation can review and provide recommendations on parcel selection that would benefit protection of the airport.
- (EM17f) . . . to minimize encumbrances on the airport and reduce risks associated with wild-life attraction at or near the airport, WSDOT Aviation can provide technical assistance on re-vegetation efforts . . . to insure mitigation efforts do not adversely impact the airport influence, airspace, and safety zones.
- (EM17j) WSDOT Aviation will submit an airport airspace obstruction removal proposal in the near future based on the before mentioned airport boundary survey and airspace obstruction analysis. We would like to coordinate future obstruction removal efforts with potential NPS development plans to see if shared opportunities are available.

Response: WSDOT is aware of the proposed development, which has been part of area management plans since 1995. The NPS will seek information from WSDOT Aviation during the planning process for the proposed housing and maintenance projects. NPS looks forward to further cooperation with WSDOT Aviation and other organizations with an interest in these projects.

Q. Impacts to Stehekin Community

(See also: Land Acquisition)

77. CONCERN STATEMENT: There have been cumulative impacts from unplanned growth and development in Stehekin; these would continue under the LPP. (3 comments)

Public Comments:

- (CorrID1a) Over the past 30 years I have seen a continued decline in the character and quality of the Stehekin Valley due to incremental growth and development – much of which appears to have been fostered or sanctioned by the NPS.
- (Let2d) the Stehekin community will be expanded outward—when it really should be in the Park’s interest and purpose to restrain any expansion of developed land.

Response: The NPS recognizes that the Stehekin population and development have increased since the establishment of the Lake Chelan NRA, and that this physical growth has occurred largely on private property. Private property land use is regulated by Chelan County’s local zoning ordinance and the Washington State Growth Management Act (GMA). Under the LPP, the NPS has identified criteria for compatible uses on private property that are intended to guide both NPS management and Stehekin Valley residents in determining which land use proposals and practices are in harmony with the purposes of Lake Chelan NRA, and which are not. The criteria are resource-based and have been developed to ensure the long-term protection of the natural, recreational, scenic, scientific, and historic values of the area. The NPS has also developed a proposal for a Stehekin Overlay District that is further described in Chapter 4 in the LPP. The proposed overlay district would create a review board comprised of Stehekin private landowners and designated resource specialists to review all land use and development proposals within the district and to make recommendations to Chelan County regarding the appropriateness of each land use proposal. While this district is proposed as a means of encouraging uses on public and private lands that could be developed and used compatibly with the purposes of the Lake Chelan National Recreation Area, it has not been adopted by Chelan County to date (see Chapter 4 in the LPP).

The NPS has identified land acquisition and exchange as a means of land and resource protection in the Stehekin Valley. However, the NPS does not intend to own all of the land within the Stehekin Valley. The NPS may only purchase land from willing sellers and Congress must appropriate funding to make these purchases. The NPS expects a relatively limited number of landowners who are interested in selling or exchanging their property to/with the NPS and limited funding. Therefore, for the life of this plan, the NPS anticipates that existing development will largely remain. The NPS also anticipates additional development will continue to occur on private property as undeveloped lots are developed and existing development lots are redeveloped to a higher density. Development on private property within Stehekin falls under the regulatory purview of Chelan County’s local zoning ordinances and the Washington State GMA and the NPS will continue to provide input into this process.

78. CONCERN STATEMENT: Impact thresholds identified in the SRCIP and the LPP conflict. (2 comments)

Public Comments:

- (LET7a) The statement: “Additional negligible effects would result from changes in population related to acquisition of private lands in Stehekin” [p.367 in the SRCIP appears to conflict with the statement: “Acquisition has the greatest potential for significant change in the lives of individuals or in the composition of the community” [in the LPP]
- (LET9c) Since 1968, the private land base within the valley has been reduced by seventy five percent, affecting the future character of Stehekin. (417.74 remaining private acres [from] 1700 original private acres = 75% Reduction in Private lands [of] 62,000 surrounding acres of the Lake Chelan Recreation Area)

Response: The statement in the LPP was intended as a broad statement regarding overall impacts of fee simple land acquisition. The statement in the SRCIP is the actual impact that continued land acquisition would have in Stehekin based on the recent history of land acquisition and the intent to purchase properties only from willing sellers and/or properties that are undeveloped.

79/80/81. CONCERN STATEMENTS: 79 - The DEIS does not discuss the value of private land (for taxation, county services, commerce or visitor accommodations) (8 comments). 80 / 81 - The DEIS does not describe the values of or impacts to the Stehekin Community, such as from more expensive and/or fewer parcels of private land (14 comments, 4 duplicates).

Public Comments:

- (EM51f) In the EIS we find no input as to the value of private ownership of land in the valley. We would submit that there is significant value for taxation, commerce and Accommodations for visitors to the park.
- (EM119c) This Appendix addresses multiple measures to minimize or mitigate impacts on: Land Use, Air Quality, Soils, Vegetation, Noxious Weeds, Water Resources, Prevention of Fuel Spills, Wildlife, Special Status Species, Archeological Resources, Cultural Landscapes, Visitor Experience, Wild and Scenic River Values, Park Operations, Socioeconomics and Hazardous Waste. The desire to mitigate impacts on the list above is understandable; however, at no time reading the draft plans did I find any sense that planners considered the effects of these plans on the community of Stehekin in an equally conscious manner.
- (CorID675m) Shrinkage of private land base equals shrinkage of the tax base and thus county services
- (LET9q) [The following community characteristics are dependent on a] Private Land Base: Commerce-the ability to make a living; Location and ability to gather-bakery, post office, community hall, church, School property and building; Resources (water, sand, rock, gravel, timber); Roadway and Access, Airstrip, Trails; Transportation up the lake (Boats and barges); Private Local Service providers: Carpenters, Heavy Equipment, Freight Barge, Fuel, Well Drillers; Power Supplier (Chelan County PUD); Communication with Emergency Help (Sheriff, medevac)
- (CorID758f) . . . the SRCIP and LPP. The focus of the document seems unbalanced, in that the cultural, historic, and practical values of the Stehekin community are underrepresented, as are the potential impacts of policies on the community.

79 / 80 /81 Response: The NPS agrees that there are numerous socioeconomic factors that support the existence and health of the Stehekin Community, some of which could be affected by the SRCIP and LPP. Based on Public Comments: and additional analysis, the NPS has revised the socioeconomics sections in the Affected Environment and Environmental Consequences chapters in the FEIS.

82. CONCERN STATEMENT: The DEIS has not adequately considered the impacts of the reroute on the Stehekin Community. (4 comments, 1 duplicate)

Public Comments:

- (EM44t) The reroute of the Stehekin Valley Road has not adequately considered the long-term impacts to the community and private property base.
- (EM44u) It is not clear that NPS or Federal Highway Administration has adequately considered local impacts of a road reroute.
- (EM61n) If the road between the Stehekin Landing and High-Bridge is moved from the valley floor (in places where the river is washing it away) to higher ground, land along the abandoned road-bed will be threatened by the river and not easily protected by private landowners.

Response: The DEIS considered a wide range of impacts from the reroute. Additional analysis of the impacts of the reroute, including from potential impacts to private property by changing the road from the Stehekin Valley Road to the McGregor Meadows Access Road has also been included in the FEIS. (See also response to Concern Statement #63)

R. Impacts to Visitor Experience

83. CONCERN STATEMENT: The loss of private land in Stehekin will affect the viability of the Stehekin Community and in turn, its ability to provide visitor services. (12 comments)

Public Comments:

- (EM47a) Any future land acquisition by the Park would have a detrimental effect on the very small community that exists and their ability to survive and prosper. If they do not survive and prosper, the visitor is left with the possibility of lesser services or no services to enable them to benefit and enjoy the natural resources that have been set aside for them and for future generations.
- (EM102b) The survival of Stehekin depends on the survival of the private community. Every year hundreds of visitors visit the Stehekin Pastry Co. and the Stehekin Valley Ranch. A great number are repeat visitors. “Crest Trail” hikers hear stories of the bakery for a thousand miles. Many tourists are attracted to Stehekin by the private accommodations offered by the valley residents. Numerous properties on the “high” priority list have been featured in national magazines, attracting hundreds of visitors each year. Horseback trips, rafting and fishing adventures are all offered by the private sector.
- (EM79x) Private land provides the opportunity to enhance the visitor experience with quality accommodations and diverse recreational opportunities.

Response: The NPS recognizes the valuable services and experiences that the Stehekin Community provides for park visitors. The NPS, however, does not believe that the implementation of the LPP would result in major loss of private property in the valley. Land exchanges and acquisition must be initiated by individual landowners and funding must be appropriated from Congress. Analysis and an examination of the trend of NPS land acquisition over the last 20 years clearly demonstrates a decrease in the relative number of land acquisitions and an increase in easement acquisition and land exchanges since the 1995 LPP. It is also notable that two of the three land exchanges in Lake Chelan NRA have resulted in a net increase in private land acreage and development in the Stehekin Valley.

The revised socioeconomic analysis section of the SRCIP indicates that over the last 40 years, development of private property has continued, the population of Stehekin has grown, and the number of businesses has increased in Stehekin.

As noted in the socioeconomic impact analysis in the FEIS, there are numerous factors that influence the vitality of the Stehekin Community which are beyond the purview of the NPS. While commenters notably identified some of these factors, a more thorough list has been compiled in the FEIS. The NPS has offered to support the Stehekin Community and Chelan County in conducting work that explores the full range of attributes needed to support a vibrant community in Stehekin.

84/85. CONCERN STATEMENTS: 84 - Visitors to Lake Chelan NRA sustain the Stehekin Community (2 comments). 85 - The Stehekin Community is a unique component of providing visitor services. (11 comments, 4 duplicates)

Public Comments:

- (CorID701b) livelihoods [of Stehekin residents] depend upon the appeal of this special place.
- (EM36f) This is a community that currently serves the overall goal of providing visitor services to public land within a National Recreation Area. Recreational access is the reason the public supported the creation of the National Recreation Area.
- (EM61g) Full time and summer residents, local businesses and social interaction, give character and structure to the visitors' experience. This is beyond the values of natural and scenic resources and touches on family and community.
- (LET9n) Stehekin is a unique community and dwelling place due to its location in the mountains, isolation, the history of pioneer families, seasonal beauty, and the mountain-lifestyle's influence upon people's lives. The visiting public enjoys the difference of this culture that is recognized in enacting legislation.
- (EM115c) The community of Stehekin existed long before the North Cascades National Park existed, they are an important part of our cultural heritage, and indeed, are one of the main attractions to visitors of the valley.
- (CorID758d) there is a great benefit to having knowledgeable locals who can provide lodging and guide services, while preserving historic traditions.

84 / 85 Response: The NPS acknowledges and supports the role of the Stehekin Community in providing visitor services. In addition to traditional visitor services provided by the NPS, the Stehekin Community enhances the experience of Lake Chelan NRA for many visitors.

86. CONCERN STATEMENT: The Stehekin Community should be protected because it is a critical part of visitor services in Lake Chelan NRA. (6 comments)

Public Comments:

- (EM68a) To not protect the balance of private interest, entrepreneurship, and creativity with wilderness and seclusion, would be a failure to protect for future generations, the uniqueness of Stehekin.
- (EM72c) The preservation of the “community” and their ability to live and do business is central to attracting visitors to the southern reaches of the Park.

Response: Although the NPS acknowledges the role of the Stehekin Community in providing visitor services, it has no legal authority to take an active role in directing the community. Rather, the NPS believes that this responsibility resides with private residents and landowners in Stehekin and Chelan County. The NPS continues to be interested in working with the County to explore the needs of this vibrant community.

S. Water Resources

87. CONCERN STATEMENT: An NPDES permit from WDOE and Stormwater Pollution Prevention Plan are required for SRCIP projects. (1 comment, 4 duplicates)

Public Comments:

- (EM18a) The NPDES Construction Stormwater General Permit from the Washington State Department of Ecology is required if there is a potential for stormwater discharge from a construction site with disturbed ground.
- (EM18d) [The NPDES] permit requires that Stormwater Pollution Prevention Plan (Erosion Sediment Control Plan) is prepared and implemented for all permitted construction sites. These control measures must be able to prevent soil from being carried into surface water (this includes storm drains) by stormwater runoff. Permit coverage and erosion control measures must be in place prior to any clearing, grading or construction. . . . Sand, silt, and soil will damage aquatic habitat and are considered pollutants.
- (EM18e) Best management practices must be used to prevent any sediment, oil, gas or other pollutants from entering surface or ground water.
- (LET12c) Please correct the statement in the draft SRCIPIEIS that the project will require at least one nonpoint source discharge (NPDES) permit (p. 411). The National Pollutant Discharge Elimination System (NPDES) permit controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

Response: The NPS and FHWA are familiar with the NPDES permit and would obtain one for the reroute and other qualifying work, such as relocation of the maintenance and housing area, if proposed for implementation. FHWA obtains federal NPDES permits from the Environmental Protection Agency (EPA) in Washington. Non-federal NPDES permits are issued by the Washington State Department of Ecology. Relocation of existing facilities currently in the floodplain would result in long-term improvements in water quality.

Applications for these permits have not been submitted because an alternative has not been selected from the FEIS. Upon completion of the 30-day wait period for implementation of the

Record of Decision, these applications (as applicable) would be submitted for the selected alternative. (Note: The NPDES permit application information has been corrected in the FEIS.)

88. CONCERN STATEMENT: What part of the rising flood level peaks is caused by lack of river bedload removal? (1 comment)

Public Comments:

- (EM40b) Without routine maintenance, the river bed load is causing a spread out. Your graph clearly shows increasing peaks at the gage. How much of this increase is caused by a rising bed load

Response: Peak flood discharge is measured at the gauge near Boulder Creek, where gravel accumulation on the channel bed is minimal. The USGS adjusts the flood discharge estimate to accommodate any channel changes at this site. Rising flood peaks are related to changes in the timing, intensity, and duration of rainfall.

89. CONCERN STATEMENT: The results of cross-sections are missing from the water resources analysis. (1 comment)

Public Comments:

- (EM40c) Have you done cross section soundings to determine the elevation increase of the bed? This fact is missing from your interpretation.

Response: While developing the plan, the NPS spent a great deal of time and resources resurveying several river cross sections at the river mouth and in McGregor Meadows to measure gravel accumulation on the river bed. These are summarized in Appendix 18, in the DEIS, along with a Corps of Engineers estimate on the rough cost of gravel extraction. At both sites the amount of gravel deposited and cost of removal is in excess of \$12 million.

T. Wildlife Impacts

90. CONCERN STATEMENT: The reroute will adversely affect a migration corridor / winter feeding area for wildlife as well as northern spotted owl habitat. (2 comments)

Public Comments:

- (LET10d) The proposed reroute is in an area that has been a major migration route for deer, elk, cougar and all migratory animals. The area is also a winter feeding area during mild winters.
- (LET21f) I support the reroute of the road from McGregor Meadows to the higher ground. However I am concerned about the interference with the spotted owl habitat and am not sure this can be accomplished.

Response: The DEIS discloses impacts on the northern spotted owl that would occur as a result of the reroute. USFWS concurrence with the determination of effect has been received and is included as Appendix 20 in the FEIS. Other effects on wildlife are also acknowledged. Surveys of the reroute area have not shown it to be a “major migration route” for wildlife. Although intermittent signs of wildlife have been seen, this area is neither near a water source nor does it provide

other unique habitat components for wildlife. Rather, as noted in the DEIS, it is within a common forest type in the Stehekin Valley. If the reroute is implemented, it is likely that most species of wildlife would benefit from removal of the road from within the riparian zone.

91. CONCERN STATEMENT: Include fish and wildlife impacts in the executive summary. (1 comment)

Public Comments:

- (LET15p) . . . it would seem desirable to have explicit mention of fish in the summary, since the environmental focus is on the river. Perhaps say “wildlife including fish” in the summary.

Response: Fish are described in the wildlife and special status species Affected Environment and Environmental Consequences sections and are summarized in Figure II-ii in the DEIS Executive Summary. (Although the term “wildlife” also generally includes fish, “Fish” has been added to the titles of these sections.)

U. LPP Compatibility Criteria

92. CONCERN STATEMENT: The LPP should have clear, enforceable covenants for exchange lands. (2 comments)

Public Comments:

- (LET15l) . . . there [should] be very clear, explicit and enforceable covenants on NPS land returned to private ownership through trade that prevent developments compromising the purposes of the recreation area and the traditional character of the community. . . . [a] more specific statement stood out (e.g. in Section 4.5.2 specifically about exchanges).

Response: Both land exchanges conducted to date have included enforceable conditions, covenants and restrictions (CCRs) on exchange lands. This practice would continue under the proposed LPP. Covenants are crafted specifically for each exchange, however, the DEIS contains a list of those commonly used for recreation area land exchanges in Appendix 9. This selected list of covenants was identified specifically to protect the character of Lake Chelan NRA. Each parcel of land also has unique characteristics; therefore the land exchange process would include additional environmental and public input to tailor the CCRs for each parcel to site-specific circumstances.

93. CONCERN STATEMENT: Other comments on LPP Compatibility Criteria. (2 comments)

Public Comments:

- (CorID671jj) Identify why the six items on page 20 of the LPP are incompatible.
- (LET8c) [Since establishment of Lake Chelan NRA] two main topics have been at the forefront: 1) What are the compatible uses and activities in an NRA? . . . (See Concern Statement 99).

Response: These six items include illegal subdivision of property or development of parcels inadequate to accommodate development; construction of buildings in hazardous areas; illegal dredging or filling of wetlands; commercial timber harvesting; commercial clear cutting; and min-

ing. These uses are primarily incompatible with the purposes of Lake Chelan NRA because they are unlawful or would adversely affect resources that Lake Chelan NRA is mandated to protect. The last three apply to commercial ventures which would remove resources from within the Stehekin Valley for use or sale outside the Stehekin Valley. The revised LPP has edits to several of these to more clearly reflect these concerns.

V. Land Acquisition

94/95/96. CONCERN STATEMENTS: 94 - Enact a moratorium on federal land acquisition in Stehekin pending the results of a socioeconomic analysis (64 comments, 2 duplicates). 95 - Do not approve the LPP until a socioeconomic impact analysis is completed (1 comment). 96 - The DEIS does not adequately describe the impacts of land acquisition on the Stehekin Community. (3 comments, 3 duplicates)

Public Comments:

- (EM21c, 24b, 27f, 29h, 32b, 33dd, 38c, 39e, 45g, 46e, 48r/48u, 50c, 53g, 54e, 55f, 59c, 63b, 64f, 65g, 66i, 68d, 73h, 74d, 76e, 77c, 78e, 82e, 84m, 90m, 91j, 92b, 93f, 97f, 102f, 103f, 106r, 107c, 112h, 113d, 115p, 116e, 118d, 119ff, CorID689b, CorID758v, EM79d, LET9v, 27d) 2. Until this socio-economic impact analysis is completed, we request that the NPS support Chelan County and enact an immediate moratorium on Federal purchase of private property in Stehekin Valley.
- (EM80c, 104d) I am in favor of a moratorium on all further private property land acquisition unless it is an exchange for land of comparable value/size.
- (LET35c) We all need to do all we can to control government spending – and purchasing new land is not in our best interests.
- (EM119m) Neither the 95 [n]or 2011 (sic) LPPs, developed the language to assess the impacts of continued land acquisition on the community.
- (LET9j) Before the Land Protection Plan is finalized, it is essential that the NPS acknowledge and identify the effects of land acquisition upon the community of Stehekin in a far more comprehensive and in-depth manner than is currently available in the Draft Land Protection Plan.

94 / 95 / 96 Response: As noted in the response to other comments, the NPS has revised the socioeconomic sections in the Affected Environment and Environmental Consequences chapters in the FEIS. Also as noted in the response to other comments, the NPS also would support the Stehekin Community and Chelan County in conducting work that explores the full range of attributes necessary to support a vibrant community in Stehekin. The NPS will continue to respond to requests from private property owners seeking to explore exchanges, sale or sale of easements. The NPS response to these requests would continue to be guided by the LPP.

97. CONCERN STATEMENT: The NPS and other agencies should set a goal of no net loss of private land in Stehekin. (20 comments, 11 duplicates)

Public Comments:

- (EM33bb, 46c, 79e, LET9f, 25f) Our goal is to preserve and protect what remaining private lands exist in Stehekin and call for “No further net loss of private land base value.” We champion the cause that all pertinent governing agencies recognize, adopt and support this principle, thereby displaying support for the future of the private community within Stehekin, by assuring permanence of our land base.
- (CorID758k) . . . management practices to accommodate a river with dynamic borders should result in no net loss of the land base for the community.
- (LET9s) “No net loss of private land base value” is essential for these reasons: 1) Stehekin is a valuable community for visitors, residents and the NPS; 2) Legislation set aside the LCNRA largely due to the existence of the Stehekin Community; 3) Security, investment and family life into the future depend on a healthy, viable community which can only exist on private lands.

Response: While the NPS does not intend to acquire all private property in Stehekin, Congress provided authority and direction to the NPS to respond to private property owners that approach the NPS to sell or exchange their property. Congress provides oversight of this authority and must make appropriations to either purchase or exchange lands. If appropriations are made, the NPS will continue to respond to property owners that request us to purchase their property. In addition, since the establishment of Lake Chelan NRA, Stehekin’s population and development have continued to increase despite the decrease in the number of acres of private land in the valley. Proposed NPS land exchanges in the DEIS would allow additional infilling of land within existing developed areas. As shown by the response to other comments, there is no reason why the private Stehekin Community cannot continue to be a vibrant resource for residents and visitors. (See also the socioeconomic section in the Environmental Consequences chapter in the FEIS and the responses to Concern Statements #83, 94 / 95 /96, and 101/102).

98. CONCERN STATEMENT: Prioritization of properties for acquisition implies that the NPS intends to acquire all private land in Stehekin. (17 comments, 10 duplicates)

Public Comments:

- (EM44f) We are concerned that only 23.81 acres of NPS property have been identified in the LPP as being available for exchange and that all private property in Stehekin except for 4.75 acres has been identified as a medium or high priority for acquisition.
- (EM79gg) The NPS communicates that changes in the LPP are necessary for land trades and that the NPS goal is not to endanger the community. The oral promises by the NPS are not supported by specific language in the LPP. In fact, specific language would enable the acquisition of all but 4.75 acres of private property.
- (EM115h) Though the language is tempered by phrases such as “provided there are willing sellers,” it is clear from the numbers that are outlined in these documents what the long term outcome would be.
- (LET8h) we have been assured that just because the plan says that property is identified as high priority does not mean the NPS will seek to actually move to acquire or protect the

property. There is absolutely no trust that future administrators will be so benevolent. One should also consider that at any time congress could chose to fully fund the Land and Water Conservation Fund or allocate other funding for acquisition of private property within federal areas and plans like the LPP will be exactly what they will use for priority targets.

- (LET9i) There are no limitations cited in the LPP or any NPS policies regarding how much land in Stehekin will be purchased by the NPS over time. In fact, the Current Draft LPP lists all properties except 4.7 acres as desirable for their ownership.
- (EM111s) The acquisition of more land under the façade of river and natural resources protection should not be even a consideration when the erosion of the community is at stake.
- (CorID671a) There is concern that the term “acquisition” as used in the LPP represents a change in NPS philosophy regarding land acquisition in Stehekin. This term conveys intent by NPS to purchase all private land within Stehekin.

Response: This statement and the numerous other similarly worded statements are simply a misperception. As stated in the DEIS on page 251 and at the public meetings and elsewhere in these comment responses, the NPS has no intention of purchasing all of the private land in Stehekin.

As part of the LPP process, the NPS is, however, required to identify priorities for land within the boundary of Lake Chelan NRA. Many of the private lands within Stehekin contain important resources, such as wetlands, riparian areas or wildlife habitat. In the 2010 revised draft LPP, a resource-based criteria system, that includes acknowledgement of changing conditions on the Stehekin River, was used to set relative priorities. These ratings do not mean that the NPS intends to purchase the private land. Rather, this serves as a guide for the NPS when a private property owner approaches the NPS to explore selling or exchanging their property. The NPS expects the rate of real estate transactions to similar to those that have occurred over the last 16 years. Since the completion of the 1995 Land Protection Plan, which actually listed more acreage as High Priority than did the 2010 draft LPP, only five tracts have been purchased by the NPS, totaling roughly 4.8 acres.

99. CONCERN STATEMENT: The NPS should identify the number of residences in the channel migration zone.

Public Comments:

- (CorID671t) Language used on page 5 of the LPP “Actively support removing. . .” implies that NPS wants to remove all private land from the channel migration zone.
- (CorID671s) Identify the number of dwellings in the channel migration zone.

Response: Within the Channel Migration Zone of the Stehekin River there are approximately 170 structures located on 82 parcels of private land. This figure includes approximately 98 houses and 72 outbuildings, including two houses that have been swept away by previous flooding and are now part of log jams. Several other structures and houses face a similar fate in the near future due to their tenuous proximity to the Stehekin River and the active migration of the channel.

100. CONCERN STATEMENT: Only three of the nine LPP prioritization factors are related to flooding.

Public Comments:

- (LET8g) The matrix used on page 58 to determine which property to target for acquisition . . . leaves a scant 4.75 acres that remain out of the high or medium priority for acquisition. . . .[and is explained by] “The number of low priority tracts was reduced substantially, reflecting the more severe flood conditions”. The fact is that only three of the nine factors have anything to do with flooding.

Response: This comment points out that fully one-third of the factors used in the 2010 draft LPP focus on removing development from within the channel migration zone of the Stehekin River. A fourth factor (presence of a permanent structure) is also indirectly related. The others relate more to the overall mission of the NPS (as embodied in the Organic Act) and to the preservation of land for resource values and public use. All of these factors are weighted relative to each other. While flooding represents one of the driving concerns behind the revised LPP, it is not the only concern.

101/102/103. CONCERN STATEMENTS: 101 - The Stehekin Community is at a critical point with regard to its ability to sustain itself based on continued land acquisition (10 comments, 2 duplicates). 102 - Continued land acquisition in Stehekin threatens the sustainability of the Stehekin Community (29 comments, 11 duplicates). 103 - Although the SRCIP and the LPP contain language identifying the importance of the Stehekin Community, actions in the plans would adversely affect the community by reducing the amount of land available to the community (2 comments).

Public Comments:

- (EM33g) we are at a tipping point as to whether Stehekin will just become a retirement community with few avenues for income, or maintain its special character of people who choose to live a lifestyle that is superior for their children.
- (EM33aa, 46b, 79h, LET9d, 25d) With lands being removed from private ownership, without limitation, we are at a critical point in time as to whether the value and one of a kind culture can continue.
- (CorID674g) Stabilization point will come soon in valley regarding the balance between development and preservation.
- (EM441) Continued acquisition of private property by the NPS in Stehekin removes a critical component of economic development and long-term community sustainability . . . vitality.
- (EM78a) The actions presented in the LPP and the SRCIP plans, specifically, the acquisition of private property by the NPS, threatens that community is in direct conflict with the mission of the NPS.: The National Park Service website states: “We are proud that tribes, local governments, nonprofit organizations, businesses, and individual citizens ask for our help in revitalizing their communities , preserving local history, celebrating local heritage, and creating close to home opportunities for kids and families to get outside, be active, and have fun. . . . Taking care of the national parks and helping Americans take care of their communities is a job we love, and we need – and welcome – your help and support. [1]”

- (CorID758h) The SRCIP and LPP recommends policies that at the very least would be extremely disruptive to the community, if not leading to its demise altogether. There are critical elements of the local economy that could be entirely disabled, at least temporarily, by displacing or bankrupting even single individuals, which would in turn affect the rest of the economy within a very isolated community.
- (LET6h) . . . both plans contain verbiage supporting the continued existence of the community; however, too many recommended management policies may actually be detrimental to the continued existence of a community.
- (LET6h) . . . both plans contain verbiage supporting the continued existence of the community; however, too many recommended management policies may actually be detrimental to the continued existence of a community.

101 / 102/ 103 Response: As discussed in the revised socioeconomic impact analysis in the FEIS and as stated in previous comments, the NPS does not believe that the implementation of the LPP will result in a significant change in private property in the valley. Land exchanges and acquisition are initiated by individual landowners and require funding from Congress. The NPS anticipates perhaps the same level of requests from private property owners as has been seen over the last 15 years. The trend of NPS land acquisition over the last 20 years clearly demonstrates a decrease in the relative number of land acquisitions compared to the first 5 years after establishment of Lake Chelan NRA and an increase in easement acquisitions and land exchanges since the 1995 LPP. It is also notable that two of the three land exchanges in the last 15 years in Lake Chelan NRA have resulted in a net increase in private acreage and development in the Stehekin Valley.

Furthermore, the revised socioeconomic analysis section of the SRCIP indicates that the over the last 40 years, development of private property has continued, the population of Stehekin has grown, and the number of businesses has increased. As noted within the socioeconomic impact analysis in the FEIS, there are numerous factors that influence the vitality of the Stehekin community, most of which are beyond the purview of the NPS. For example there are a relatively large percentage of homes serving as vacation or recreational properties and properties owned by non-Stehekin residents. These two factors will likely have a greater impact on community character than anticipated land exchange or acquisition by the NPS. (See also the socioeconomic section in the Environmental Consequences chapter in the FEIS and the response to Concern Statements #72, 73 / 74, 83, 94 / 95 / 96, and 98).

104. CONCERN STATEMENT: Continued acquisition of private land in Stehekin violates the intent of the park’s enabling legislation. (9 comments, 2 duplicates)

Public Comments:

- (LET9l, EM87h) Any further reduction of the Private Land Base by NPS purchase in Stehekin creates a deficit which we believe violates Congressional intention when passing PL 90-544. This legislation spoke of the value, character and importance of the Stehekin Community. Legislators listened to public testimony and removed Stehekin and the LCNRA from the North Cascades National Park in 1967 and set aside this area for national recognition and the specific purpose to preserve the unique character of the Stehekin Community.
- (EM62c) We were given several promises by the NPS during the hearings before the final bill was passed and one of those promises was that “no land would be purchased or taken from the private land owners unless it was used in an incompatible way”. And then “incompatible”

was defined. Also I recall that when Mr. Evans asked the Secretary of Interior about land purchases the Secretary said he “would not purchase private land even if it was offered”. . . .And then the bill was passed.

- (EM79w) Private property and the goods and services that result from residents living here are a major reason that the community was and is unique. Original legislation speaks to this value and was a major element for the creation of the LCNRA.

Response: As noted in previous responses, the enabling legislation for Lake Chelan NRA included authority to acquire land and to conduct exchanges. In addition, Congress has continued to provide to appropriate funding to respond to private property owners seeking to sell their land to the NPS so that it may become part of the public park. Therefore, actions with respect to land acquisition continue to fulfill the intent of Congress.

105. CONCERN STATEMENT: The LPP should identify the purpose of continued land acquisition in Stehekin. (4 comments, 1 duplicate)

Public Comments:

- (EM33n) I would like the NPS to state in their LPP plan, if they are going to continue to purchase lands, what their need is of that land. What use is it for them? What does it mean to the total lands of to have a few more acres considering the 62,000 surrounding acres of the Lake Chelan Recreation Area?
- (LET8c) [Since establishment of Lake Chelan NRA] two main topics have been at the forefront: . . . and 2) How much property should the NPS acquire or otherwise consume before the community that congress sought to protect would no longer resemble the character and value that was recognized at that time of the act?
- (CorID671e)The beginning of the LPP should include a priority statement that states the intent of the NPS regarding the acquisition of land in Stehekin.
- (CorID674x) What reasons does the NPS use to say ‘no’ to a property owner that would like to conduct an exchange?

Response: The primary purposes of continued land acquisition include protecting resources, providing recreational opportunities, and responding to private property “hardship cases.” The NPS has not said “no” to a proposed exchange, but exchanges also have not moved forward because of the inability of the NPS and private landowners to reach agreement on the terms of the exchange, principally related to the fair market value of the parcels. To conduct an exchange the property would need to be a relatively high priority and be of approximately equal value to the proposed exchange parcel.

106. CONCERN STATEMENT: Ongoing land acquisition by the NPS would affect the following characteristics of the Stehekin Community: historic and current culture, opportunities for commerce, investment, community life, authentic interpretation of history, interpretation of mountain life, land prices, and taxes. (1 comment)

Public Comments:

- (LET9k) [Among the effects should include] how land acquisition affects: Stehekin’s community/culture (historical and current); Stehekin citizens’ opportunities to create future businesses, investment security, residential security and community life; The human interest

currently available to the visiting public: Local, authentic interpretation of history, homes and defining characteristics of mountain life; [and] Effects of NPS land acquisition on land prices, taxes and other economic considerations from 1968 to the present.

Response: The impacts from the 2010 Draft LPP were assessed in the DEIS and include analysis of impacts on a variety of resources. Additional analysis regarding the cumulative effects of land acquisition, including those related to land prices and property taxes, is provided in the FEIS. Although the NPS also agrees there are many factors that affect the vitality of a community, including the mix of year round residents, seasonal residents and second or vacation homes, the NPS also acknowledges that most of these factors are outside NPS purview. (See also the socio-economic section in the Environmental Consequences chapter in the FEIS and the responses to Concern Statements #72, 73/74, 83, 94 / 95 /96, 98, and 101/102.)

107. CONCERN STATEMENT: Elevated prices paid by the NPS for land acquisition have adversely affected market prices in Stehekin. (3 comments)

Public Comments:

- (EM79p) NPS has been willing to pay high prices, possibly above market value and possibly above what would be considered reasonable. This affects the level of our property taxes, as well as driving up the costs of successive land purchase as owners know they can ask a high price. This also drives up the market price of other parcels.
- (CorID7511) . . . the identification of specific lands to be exchanged away and for acquisition through exchange creates moral hazard (develop on the flood plain and the Park will make you whole if you get flooded) and artificially drives up the market value of otherwise valueless land (thus, the policy of land trades creates the very value that Park appraisers measure in the course of making the deals).
- (CorID714b) Many of the recent Park purchases of private lands have been at above market value. One may say there was a willing seller, but at what price?

Response: The NPS is required to pay “fair market value” for land it purchases. Determination of fair market value requires an intensive appraisal process that is coordinated by a separate agency within the DOI to minimize any appearance or possibility of a conflict of interest. By law, the appraisal process must follow procedures that have been promulgated by the Department of Justice. All acquisition of land within Stehekin has followed this formal appraisal process. The purchase price is identified using professional appraisers and must be verified by a comparison process.

At the same time, the NPS acknowledges that it responds to private property owners who approach and ask the NPS to purchase their land. In recent years, and continued under this LPP, the NPS may be more interested in some parcels offered by private landowners than others because the NPS is specifically interested in land that is subject to flooding and erosion by the Stehekin River. In other words, the NPS may be more willing to purchase a private parcel, when approached by a property owner, than the private market. This reflects the fact that the NPS purchases land for different reasons than the private market: to protect park values rather than to create and sustain development. By law, however, the NPS is required to follow the appraisal process promulgated by the Department of Justice which identifies the market value for land based on its development potential. Based on sales data from the Chelan County Assessor’s office, the NPS has participated in only 9% of all parcel transactions since 1992 in Stehekin.

As elsewhere in Chelan County land values have increased in Stehekin since the creation of the Lake Chelan NRA in 1968 due to many factors. Perhaps the most significant of these is that the area around Lake Chelan is a popular recreation and vacation destination that has supported decades of second home development. As noted above, it is commonly understood that land values are influenced by:

- national trends;
- local and regional economic growth;
- increase in demand (e.g. increase in number of vacation homes);
- local and county zoning regulations;
- community amenities;
- parcel characteristics such as size, location, presence and type of structures; and
- proximity to infrastructure, amenities, and other development.

(See also the socioeconomic section in the Environmental Consequences chapter in the FEIS and the responses to Concern Statements #72, 73/74, 83, 94 / 95 /96, 98, 101/102, and 103.)

108. CONCERN STATEMENT: Priority lists should be used to exchange rather than acquire land. (14 comments)

Public Comments:

- (EM29w, 32j, 33ll, 38g, 46i, 48y, 65o, 76i, 84v, 87i, 92j, 111m, CorID689h1) Priority lists [should] only be for trading purposes.
- (EM58d) I strongly support dropping the land acquisition strategy from the plan, or as the residents recommend, changing it to an exchange strategy.

Response: The purpose of the priority list system is to guide the NPS in responding to requests from property owners to explore both exchanges and acquisitions, including acquisitions of easements. While the NPS acknowledges the benefits of land exchanges, this is not a viable option, nor interest, for all landowners. Private property owners are motivated by many factors and it is up to them to determine their own actions for the disposition of their property. This is particularly true for landowners who have experienced flood damage along the Stehekin River. Since land exchanges must be between tracts of relatively similar assessed values, some landowners may want to exchange their tract with a publically owned tract.

W. LPP Land Exchanges

109/110. CONCERN STATEMENTS: 109 - The Boulder Creek (Getty) property should not be exchanged or subdivided. If it is offered for exchange, scenic covenants on 05-119 should be removed (1 comment, 9 duplicates). 110 - The Boulder Creek properties should not be exchanged (2 comments, 3 duplicates).

Public Comments:

- (CorID753a) The proposal of small-lot subdivision, as has been stated in testimony, is an incompatible use. To offer this parcel as exchangeable land is a drastic change and is contrary with those Acts and laws that govern the Getty property. The Getty property should be removed from the proposed exchangeable lands.

- (CorID753k) If the NPS continues with the development of the Getty property, the Park should lift the restrictions on parcel 05-119 and allow for it to be dealt with as Chelan County regulations dictate.
- (Let3u) [re:] Boulder Creek lands proposed for exchange: The plan shows some land on the SW side of the road above Boulder Creek as proposed for exchange . . . the NPS paid a lot of money to buy development rights from the properties across the road from this land. It seems like exchanging this land contradicts and undermines the earlier purchase of those property rights.
- (EM89t) . . . NCCC would question the identification as exchange properties in Fig. 5 that are upstream of Boulder Creek and along the Stehekin River. This would promote development in a way to block visitors from the Stehekin River corridor and despite the minimal buffer from the river would put private property between the visitor and the river.

109 / 110 Response: Existing and anticipated new development of private property adjacent to or near these parcels has reduced the scenic value of these parcels. As such, future development of these limited areas that would be allowed through exchanges is now less of a concern. As with the adjacent properties on which the NPS holds scenic easements, this property would have a similar scenic easement. In the FEIS, the NPS has retained the Boulder Creek properties for exchange because the area is out of the channel migration zone and adjacent parcels have already been developed or are anticipated to be developed during the life of this plan. If this property were exchanged, it would have similar easements to the adjacent properties. The SRCIP and proposed LPP revision have identified properties for exchange that are within or adjacent to other developed areas to consolidate new structures in areas of existing development which would provide for larger contiguous blocks of habitat elsewhere in the Valley. As with other properties identified for exchange, it is a tradeoff, but this offering would enable another homeowner threatened by the river to get out of the floodplain / channel migration zone and would be adjacent to existing development.

111. CONCERN STATEMENT: The Rice property should not be exchanged. (2 comments, 14 duplicates)

Public Comments:

- (LET13a) The Stehekin School District . . . [is] concerned about the impacts that may arise if the Rice property, which is adjacent to the Stehekin School, is one of the options for exchange.
- (LET13b, 17c) . . . the district has no intention of granting easement on to the Rice property across school property. [because] . . . Access across school property would create a potential safety hazard with traffic when the school is in session as well as creating noise, dust and other distractions. Students and staff would also have to cross the driveway in order to go to the out buildings including the outhouses.
- (LET13d, 17e) There is no buffer between the school, playground and the Rice property due to the physical characteristics of the land as well as being adjacent to the school property. This would potentially create distractions and interactions between property owners and students during school hours. The district would prefer to limit activity near the school that would distract students from school activities.
- (LET13i) The Stehekin School District would like to recommend that the Rice Property be identified in the Revised Land Protection Plan as a potential parcel for the Stehekin School District to use if the need arises for school purposes such as teacher housing as allowed under Washington State laws and regulations.

Response: The NPS acknowledges the concerns from the Stehekin School District. As a result, this parcel will remain on the exchange list but would only be available for school purposes. This could include exchange pending purchase of other private lands.

112. CONCERN STATEMENT: The Webb (Rainbow Falls) property should not be exchanged. (1 comment)

Public Comments:

- (LET21q) The Webb property raises another very serious issue as well as representing more density too. As you know, this property belonged to my father and mother in law. They sold to the Park (at what they considered a low price) with the belief that the property (and the whole section) would never be developed and would protect the whole area across from the Falls from development. As we know now with sadness, the piece next to it was sold and developed. This now seriously damages the naturalness of the whole section. This, however, does not justify another development and further increases the density. Oliver Webb has been gone since 1991, but Peggy Webb is more recently on record as protesting the possible trade of this piece when it was proposed as a trade to the Stifiers in exchange for the hill above their present property. Her letter is in your files. Any trade flies in the face of Oliver and Peggy's intentions. For this reason I oppose the Webb property being put back into private hands. What kind of precedent is this to go against the wishes and intentions of a person who works and sacrifices to preserve a place in its natural state forever? And what kind of an inhibition is this to anyone else wishing to put beautiful natural land in the hands of the public?
- (EM89q) NCCC would discourage the inclusion of property in the vicinity of Rainbow Falls in the exchange lands category. There are several reasons for this. First, it appears that property was one purchased by NCCC members when the NPS was not able to accommodate the requests of all willing sellers in the early day of the NPS. The intent was to be sure it remained in NPS jurisdiction. NCCC understands that is not the way the system works, however, NCCC would suggest that that property proposed for exchange might be better reserved for campground use.

Response: This parcel will remain available for exchange in the FEIS because of adjacent development, which was not anticipated when the Webb family sold the parcel to the NPS. It thus meets the NPS goal of clustering development outside the channel migration zone. If exchanged, scenic values can be protected with CCRs. If the adjacent property had not been sold and developed, the NPS would not now be offering this property for exchange.

113. CONCERN STATEMENT: The land opposite Keller (Brownfield) should not be exchanged. (1 comment)

Public Comments:

- (LET21p) I oppose the piece on the other side of the road [from Keller] between the bakery and Tom's garage for the same reasons. Right now one gets a little relief there from what is already too much development around the bakery and on the other side of the road.

Response: This area of the Valley does contain much of the existing private property development. In addition, the NPS has three homes used as employee housing in this area. The NPS anticipates that this development will remain and that adjacent undeveloped private property will, as has been the trend for the last 40 years, continue to be developed. LPP priorities have been guided by the NPS goal of clustering development in the valley within sustainable existing devel-

oped areas, while removing unsustainable development elsewhere, thereby creating or adding to larger areas of undeveloped land. As a result this will remain as part of the exchange portfolio.

114. CONCERN STATEMENT: Add the maintenance / housing area lands to the exchange list. (2 comments)

Public Comments:

- (EM79kk) Because of the difficulty identifying property for exchange (currently, there are only 24 acres available for exchange) the maintenance/housing facilities should not be placed upon property that could otherwise be exchanged.
- (LET28i) It seems to me the area of the proposed compound is more valuable just for its open space and as land available for trade if desired.

Response: A portion of this area will remain available for exchange in the FEIS. It meets the criteria of being outside of the channel migration zone and off the main valley road. This site has also been previously disturbed.

115. CONCERN STATEMENT: There is overlap between the maintenance / housing area and the exchange parcel. (2 comments)

Public Comments:

- (LET26j) . . . there are parcels available for trade in the middle of the proposed development. Why would any private individual want to build in the middle of an NPS Maintenance /Housing Compound?

Response: Like other exchange parcels, this one offers another opportunity to remove a threatened property owner from the floodplain / channel migration zone. Because development plans for this parcel have not been fully identified or designed, it is unknown how much land would be available or how they would impact the area proposed for exchange. This information will be identified in subsequent planning for the maintenance and housing area.

116. CONCERN STATEMENT: Add the Airstrip to the exchange list. (2 comments)

Public Comments:

- (EM89o) NCCC would support the inclusion of the area in the vicinity of the Airstrip. In fact, NCCC would support the identification of the airstrip itself as exchange land because it meets all of the criteria. Decommissioning of the airstrip would remove an incompatible use in the view of NCCC, provide significant easily accessible land for residences not in the floodplain, and discontinue a hazardous activity [difficult landing pattern, numerous fatalities, potential for fire, intrusion in beaver habitat, etc.].
- (EM89p) . . . the NPS should be encouraged to close the airstrip and offer properties for exchange – over time revegetation could take place, invasive species would be naturally controlled, etc. We note this alternative was considered but rejected as in conflict with the 1995 GMP. By allowing this conflicting and hazardous use to continue the NPS is creating an attractive nuisance as well as keeping a scar on the landscape second only to the Holden Mine tailings

Response: Because the 1995 GMP calls for retaining the airstrip, this action would be inconsistent with that plan. The SRCIP is consistent with the 1995 GMP, which calls for continued use of the emergency airstrip. (See also response to Concern Statement #114.)

117. CONCERN STATEMENT: Add the Lower Field to the exchange list. (1 comment)

Public Comments:

- (EM23a) Lower Field should be an exchange property. It is a large area that is ideal for grazing, crops and raising livestock - an agricultural opportunity.

Response: The Lower Field will not be made available for exchange in the FEIS version of the LPP. Although the Lower Field is expected to remain in agricultural use, it is inappropriate to offer it for exchange because the Stehekin River could move in that direction and this movement could place a future property owner at risk. Due to a lack of development in this area it also does not meet the NPS goal to cluster development. It also has unique value as open space for wildlife habitat.

118. CONCERN STATEMENT: Add the former Holcomb property to the exchange list. (1 comment)

Public Comments:

- (EM23b) The former Holcomb property below the log office should be an exchange property it offers a business opportunity in the hub-of-activity area, with access to the lake

Response: This property offers a benefit to the public of access to the lake that makes it less desirable as an exchange property. It supports public use as a site for picnics and access to Lake Chelan.

119. CONCERN STATEMENT: Add Buckner Orchard to the exchange list. (1 comment)

Public Comments:

- (AL4000) (LPPEXCH) (EM23c) The Buckner Orchard Area should be considered an exchange property. This is one of the best pieces for opportunity - which has been removed from trade for obvious reasons. I believe the NPS needs to figure out how to compensate the Stehekin Community for the loss of such property with trade property that is of equal value - with potential for business opportunities.

Response: This property has been recognized nationally as the best example of an historic orchard in the NPS and is therefore a nationally significant cultural landscape. As a demonstration of this, the orchard is listed on the National Register of Historic Places. The orchard is also an important resource for telling the story of the Stehekin community. Keeping as public park land offers the public an ability to see, experience and learn about this cultural heritage. This large parcel adjacent to the river is also important for its habitat values. Because of these nationally significant resources it will not be available for exchange.

120. CONCERN STATEMENT: Subdivision of exchange lands should be in conformance with Chelan County laws and guidelines. (5 comments)

Public Comments:

- (Let3s) [If NPS tracts are subdivided] NOCA should follow the same laws and guidelines . . . as the rest of the community (lot sizes, etc.) unless there are very compelling reasons.
- (CorID671ss) The NPS should not receive variances to develop areas less than 5-acres.

Response: As expressed by these concerns, the NPS will need to work with Chelan County on subdivision for some exchanges. Where smaller parcels are considered for exchange these would potentially need to share utilities. Chelan County has indicated that they will work to facilitate and enable subdivisions and permitting to conform to county regulations.

121. CONCERN STATEMENT: Consider the effects of cluster development and other zoning on exchange lands. (2 comments)

Public Comments:

- (EM44h) We strongly encourage the NPS to reconsider its evaluation criteria, perform more detailed field inspections as noted on p. 38 of the LPP, and consider the effect of cluster development and other zoning and land use tools on the exchange portfolio.
- (LET21m) I can support a concentration of density for added human population. That is good planning and allows then for open natural areas to remain natural and accessible to the public.

Response: The impact analysis in the DEIS does include an analysis of the potential effect of clustering development outside the floodplain. This analysis is provided in the “Land Use” section of the Environmental Consequences Chapter. It is important to note that the LPP is a programmatic document intended to provide broad policy direction. Specific actions such as land exchanges would require a site-specific impact analysis informed by the specific circumstances of the land considered in the exchange. Therefore, further consideration of the effects of clustering development would take place when a land exchange is proposed.

122. CONCERN STATEMENT: Additional exchange lands should be identified. (49 comments, 5 duplicates)

Public Comments:

- (EM50e, 53h, 59e, 63d, 64h, 65n, 66k, 68f, 69h, 73j, 74f, 77e, 78g, 82g, 84u, 90p, 91l, 92i, 93h, 97h, 102h, 103h, 106t, 112j, 113e, 115q, 116f, 118e, 119gg, CorID758x, LET27h) If the goal of the NPS is to “trade” properties endangered by the river (a goal we support) then the amount of land identified for trade purposes must be increased considerably.
- (EM51c, 51d) . . .members of the valley community be involved in locating those lands that would be available for trade. . .all the land that was in private ownership when the area was transferred to the NPS in 1968 totaling some 1203 acres should be reviewed for that purpose.
- (EM79cc, 80d, 104e, 107g) Much more federal land would need to be made available for exchange if the intent is truly to support removing threatened private properties along the river corridor (if no development can take place in the CMZ).
- (CorID673c) The number of exchange properties does not equal the number of high priority parcels identified in the LPP.

- (CorID674r) What would happen if the small amount of land available for exchange is exhausted?

Response: In the 40+ years since the creation of Lake Chelan NRA the NPS has completed three land exchanges in Stehekin. All of these have occurred since 1995. Based upon the number of private property owners that have been active in exploring exchanges with the NPS, it is likely that the number of parcels available for exchange will satisfy the anticipated demand during the lifespan of this plan.

123. CONCERN STATEMENT: Exchange lands should have full development rights. (15 comments, 3 duplicates)

Public Comments:

- (EM 29y, 29x, 32l, 33nn, 38h, 46i, 48z, 84x, 87k, 92k, CorID689i) Value is defined not only by dollar amount but also by potential uses of the original property.
- (EM 29f, 32k, 33mm, 38h, 46i, 48z, 65p, 84w, 87j, 92j, CorID689i) Land trades should be carefully crafted so that the owner receives the same value for their original piece with all property rights intact.
- (LET11d, LET8l) Exchange must allow reasonable use and development according to local standards and compatible with the intent of Congress in SR 700, uses identified as being essential or allowed).

Response: All lands made available for exchange are expected to be developed. To ensure protection of park values, however, the parcels would have site-specific Covenants, Conditions and Restrictions (CCRs) tailored to the individual conditions of the property. The purpose of the CCRs would be to ensure that any future development on lands obtained via exchange remains compatible with the rural character of the Stehekin Community and does not harm the resources and values of Lake Chelan NRA. These CCRs are a site-specific expression of the Land Protection Plan guidelines provided in Chapter I of the LPP. These guidelines enable a variety of options for reasonable use and development including certain commercial and residential uses that adhere to sustainable design principles and conform to the local vernacular style of the area. If the NPS were to no longer apply appropriate CCRs to exchange property, another federal means of ensuring that subsequent development remained compatible would be condemnation. The use of covenants / CCRs is a routinely practiced method of ensuring compatibility of development within a community. For these reasons the NPS will apply appropriate CCRs that are binding in perpetuity.

124. CONCERN STATEMENT: Honor current land exchanges with no net loss of private property and value. (63 comments, 1 duplicate)

Public Comments:

- (EM25d, 29q, 32d, 33ff, 38e, 39f, 46g, 48t, 49d, 50d, 53h, 59d, 63c, 64g, 65j, 66j, 68e, 69g, 73i, 74e, 77d, 78f, 82f, 84p, 90o, 91k, 92d, 93h, 97g, 102g, 103g, 106s, 107e, 111j, 112i, 113d, 115p, 116c, 118d, 119ff, CorID689d, 758w, LET12b, 27g) We hope the NPS will continue to honor current land trade activity (with no net loss of private property land base value) but agree to a moratorium on all land acquisition until the above investigation is conducted.
- (EM54c) The concept of “trading land” for flood “impacted” areas deserves strong consideration, but only if it is determined to be land of equal value and does not disrupt the economic vitality of the Valley residents.

- (LET11d) Land trades . . . [should] be made available on a basis of most at risk to least, under a policy of no net loss of existing land base or private property value.

Response: The NPS will continue to respond to requests to explore exchanges. Exchanges are done based upon a “nearly equal value” basis, not equal acreage basis. The fair market value for both of the exchange parcels is determined by a detailed appraisal process promulgated by the Department of Justice. The priorities in the LPP will guide the NPS response to private property owners that approach the NPS seeking to explore an exchange. Generally, the priorities account for risk from flooding as well as other important resource values. Exchanges are made on a first-come, first-served basis with the highest priority tracts also receiving the highest priority. Criteria for making decisions when more than one landowner wants to exchange for the same parcel are discussed in Chapter 5 of the LPP. (See also responses to Concern Statements #94 and 123.)

125. CONCERN STATEMENT: Reduce the number of properties in the high priority category to conform to the number of acres offered for exchange. (2 comments)

Public Comments:

- (CorID754d) Since there are only 24 acres of land identified for exchange and funds would be scarce for acquisition of properties, it only makes sense to limit the number of parcels that are in the high priority category.
- (EM44f) We are concerned that only 23.81 acres of NPS property have been identified in the LPP as being available for exchange and that all private property in Stehekin except for 4.75 acres has been identified as a medium or high priority for acquisition.

Response: The number of parcels in the high priority category does not indicate intent by the NPS to acquire or purchase these. Rather, these properties are identified based on the criteria in the plan and are reflect high resource value to the NPS. In turn, this information is used by the NPS when a private property owner approaches the NPS seeking an exchange or to sell (either in fee or an easement.) In the 40+ years since the creation of Lake Chelan NRA the NPS has completed three land exchanges in Stehekin. All of these have occurred since 1995. Based upon the number of private property owners that have been active in exploring exchanges with the NPS, it is likely that the number of parcels available for exchange will satisfy the anticipated demand during the lifespan of this plan.

It is anticipated that future revisions of the LPP could result in other NPS lands being made available for exchange (see also Concern Statement #122).

X. LPP Language

126. CONCERN STATEMENT: Edit / Rewrite the LPP to demonstrate the value of the Stehekin Community. (1 comment)

Public Comments:

- (Let3o) [Rewrite the LPP so] . . . that the tone, purpose and intent of the NPS more clearly states support for an ongoing viable Stehekin community in the Lake Chelan NRA. . . this intent is not stated as clearly as it could be and the tone/terminology of the document is somewhat ambiguous and open to interpretation.

Response: The revised 2010 LPP has been revised as part of the FEIS process to incorporate Public Comments. This includes clarifying the goals of the LPP. (See also the responses to Concern Statements #83 and 84.)

127. CONCERN STATEMENT: Change “acquisition priorities” to “exchange priorities.” (45 comments, 1 duplicate)

Public Comments:

- (LET12e, EM25m, 29r, 32e, 33gg, 38j, 39h, 43a, 46l, 48d, 50f, 53i, 59f, 63e, 64i, 66l, 68g, 69i, 73k, 74g, 77f, 78h, 82h, 84q, 87l, 90q, 91m, 92e, 93i, 102i, 103i, 106u, 107i, 110a, 112k, 113f, 115r, 116g, 118f, 119hh, CorID689e, CorID758y, LET27j) 5. Change the acquisition priorities to exchange priorities. See section 5.2
- (LET6j) We believe that continued land acquisition by the NPS is incompatible with the vision Congress had for the management of this area.

Response: When Congress created Lake Chelan NRA it provided authority for the NPS to acquire land and to exchange land from willing owners. Since the creation of Lake Chelan NRA, Congress has periodically appropriated funding to enable land acquisition and exchanges. The NPS will continue to respond to private property owners that request to either sell or exchange their land.

NPS policies require Lake Chelan NRA to indicate what “interest” in private lands would advance park purposes through public ownership. For this LPP, the NPS has developed a list of resource-based criteria to objectively and transparently determine that interest. “Interest” can be acquired through multiple techniques, as discussed in Chapter 4 of the LPP. A term that was used often in the revised 2010 LPP was “acquisition of interest” (used three times on the summary page of the draft alone), which acknowledges there are different options available for a willing seller to consider; fee purchase is one of those options, as are land exchanges and easements. (See also the responses to Concern Statements #108 and 122).

128. CONCERN STATEMENT: Location of a property in the channel migration zone (CMZ) implies that it is targeted for acquisition and is an incompatible use. (3 comments)

Public Comments:

- (LET8f) . . . a vast majority of the valley as part of the CMZ and then to state that any building with in that zone would subject the owner of the property to a determination that the use the property is being put to is incompatible. This is what this plan currently does in section 3.4.4.
- (LET11b) Alternatives 2-4 talk about implementing a CMZ with the intent that all private lands in the CMZ would be moved or purchased.

Response: The identification of the channel migration zone is intended to show that this is the area within which the Stehekin River has migrated over the past 1,000 years. It is also; therefore, the area that could be affected by future channel changes in the Stehekin River. Properties within the CMZ could be subject to future flooding if these channel changes occur. As a result, the NPS has identified a need to remove its public facilities (buildings and structures, such as the road) out of this area if possible. Private landowners are encouraged to do the same; however remaining in the CMZ is their choice. Chelan County also, decides whether to permit construction of new de-

velopment on private property within the CMZ. Once the river affects a property, the ability for a landowner to participate in a land exchange with the NPS is greatly limited because the assessed property value is likely reduced.

Incompatible uses (currently defined on page 20 of the 2010 draft LPP) are different. Simply because a structure is located in the channel migration zone does not mean that its use is incompatible with the purpose or intent of Lake Chelan NRA. Development in the CMZ is not by itself incompatible with the purpose or intent of Lake Chelan NRA. The language within section 3.4.4 has been revised to acknowledge that Advanced Protection Measures identified by the Army Corps of Engineers, such as elevating a structure, constructing a ring dike around a structure, etc. can be options to mitigate threats to water quality and natural resources when a property is located within the CMZ.

Y. LPP Priorities

129/130. CONCERN STATEMENT: 129 - Land exchange priorities should be determined based on those most threatened by the river (15 comments, 3 duplicates). 130 - The criteria should be focused less on the channel migration zone and more on actual changes that have occurred as a result of the river (4 comments, 1 duplicate).

Public Comments:

- (EM23e, 29d, 29v, 32i, 33kk, 38f, 30g, 46h, 48x, 79o, 111m, CorID689h) If the goal of the NPS is to “trade” properties endangered by the river, “Let the River Decide” which pieces are most threatened and need prioritized, and trade only those vulnerable lands.
- (CorID754c) the impetus for the plan seems to be the recent extreme flood events. Why not prepare a ranking system that focuses on whether a property has had actual flooding of structures and septic systems or were in danger from bank erosion during these events.
- (EM23d) The LPP criteria and scoring placed too great an emphasis on private property in the Channel Migration Zone.
- (EM89i) The Draft LPP seems heavily focused on the relationship of each parcel of land to the Stehekin River which is appropriate given the changing nature of the river and the geologic and hydrologic processes driving its potential impacts on public and private structures and property. This emphasis responds to the increased risk and uncertainty related to occupancy of properties exposed to the new flood regime and it provides the NPS and property owners with viable options for adjustment that were not available or as high a priority in the previous LPP.

129 / 130 Response: The LPP has been revised to focus on the two most threatened gravel deposition zones at McGregor Meadows and the Stehekin River mouth. Sites that are most threatened within McGregor Meadows were given an even higher priority ranking vs. the river mouth because channel changes here are more advanced and likely to be more rapid and hazardous due to the steep river gradient. Other criteria used to evaluate NPS interest included wetlands and cultural resources.

131. CONCERN STATEMENT: Apply the rating system to exchange tracts. (1 comment)

Public Comments:

- (Let3r) All NPS tracts proposed for exchange should be rated according to the same priorities as privately owned tracts, and that data should be published. . .

Response: Information about the ratings the exchange tracts received has been provided in the revised LPP. The exchange parcels were carefully chosen by using the same criteria used to rank private parcels. They are sites that are out of the channel migration zone and floodplain, that have no wetlands or endangered species habitat, and no known cultural resources.

132. CONCERN STATEMENT: Apply the rating system using future scenarios. (2 comments)

Public Comments:

- (Let3r). . . scores should be calculated according to various likely future land use scenarios (e.g., as if a home, shop, etc. were placed on the properties).

Response: Because the criteria rating system is intended to show which properties are the most at risk from future flooding and which would, if flooded, cause the greatest resource damage, this is an unnecessary factor. The LPP is also intended to be revised as conditions change.

133. CONCERN STATEMENT: The LPP should show how the priority rankings were derived based on the criteria. (9 comments, 2 duplicates)

Public Comments:

- (EM16b) We and other homeowners would be interested in seeing how our “priority” rankings (listed on pages 36 – 42) were arrived at--the points allotted for each of the nine criteria spelled out on pages 33 – 34.
- (EM20d) The revised LPP identifies new priorities for acquisition and exchange of private property in the CMZ weighted towards river protection more than scenic qualities. NPCA believes this shift in position is positive, because while scenic qualities within the Lake Chelan NRA are an important value, the long term benefits to the river and all of Stehekin by restoring a functional river system outweigh subjective scenic qualities.
- (EM44i) Chelan County requests that NPS release the raw data and scores used in the development of the SRCIP and LPP alternatives to the public and include all of this information in the SRCIP appendices and LPP.

Response: This information was provided during the public comment period on the project website and in PEPC. It has also been added to the FEIS as part of the revised Land Protection Plan.

134. CONCERN STATEMENT: The criteria should include a factor that shows whether the property provides visitor services. (2 comments)

Public Comments:

- (EM20g) . . .NPS should consider a means by which to possibly lower the acquisition priority of a parcel if it provides important visitor services, even if it is within the CMZ.
- (CorID674v) The provision of visitor services on private land should be reflected in the scoring process.

Response: The provision of recreational opportunities or visitor services on a parcel of land is a benefit to Lake Chelan NRA and visitors. These activities, however, are not (for the most part) contingent on certain properties and could be provided elsewhere. Because the intent of the revised LPP is to respond to increased flood risks from changes in the hydrology of the Stehekin River, acquisition or exchange priorities are primarily focused on properties that could be affected by or could affect the Stehekin River.

135. CONCERN STATEMENT: Reconsider criteria based on additional field inspections. (1 comment)

Public Comments:

- (EM44h) We strongly encourage the NPS to reconsider its evaluation criteria, perform more detailed field inspections as noted on p. 38 of the LPP, and consider the effect of cluster development and other zoning and land use tools on the exchange portfolio.

Response: As land exchanges or acquisitions are proposed the NPS would conduct more detailed field inspections. (See also the response to Concern Statements #121 and 129). The revised (2012) LPP is based on additional analysis of the evaluation criteria, and incorporates detailed information on the activity of the river. This information was gleaned from field studies of soils and vegetation, historic aerial photographs, and sophisticated hydraulic models.

136. CONCERN STATEMENT: Modify LPP criteria and ranking system. (8 comments, 4 duplicates)

Public Comments:

- (EM20f) . . . NPCA supports the use of criterion number eight – Presence of permanent structures (development) on a parcel. This criterion gives a higher priority to developed land that is within the CMZ. Permanent structures in these parcels have the potential to enter the river system during flood events, which could significantly damage the integrity and health of the river. Acquiring these parcels in order to remove septic systems and other permanent structures should be included in the scoring system.
- (EM79ff) Criteria number eight shows absolute bias against the value of private development and community life in the Stehekin Valley. Shows no recognition of Stehekin’s unique legislative history and legislation.
- (CorID751h) The Park’s criteria for prioritizing private land parcels for acquisition are faulty. Why should threat to development be of any concern to the Park Service? Your concern is properly with threats to the scenery and wilderness, not threats to private property. Therefore threat of development is a reason for acquiring property.

- (CorID751i). . . why [does] the presence rather than the absence of permanent structures gives a property acquisition priority. While I recognize that development in the flood migration zone creates pressure for constraining the river, the most precious land for acquisition in Stehekin is as-yet undamaged, undeveloped land. Visibility to the public is missing in this list as well.

Response: The criteria and ranking system have been modified in the revised LPP to better highlight those parcels that would be most affected by changes in the Stehekin River or that would most affect it by their flooding. The reason development in the CMZ is of concern is because of danger of being undercut by bank erosion, which will result in septic systems, glass, plastic, shingles, and other building materials into the river. This would threaten water quality, wildlife and the scenic values of the river.

137. CONCERN STATEMENT: Scenic resources should continue to receive priority for protection in the LPP. (5 comments, 1 duplicate)

Public Comments:

- (EM16g) . . . we shared the underlying commitment of the NPS to “preserve the scenic value of the said land.” Predictably, we were surprised and disappointed to hear at the October 19 meeting that this value is no longer a particularly significant NPS commitment.
- (EM89j) NCCC would suggest that, in addition to this emphasis, the NPS consider revising the priorities to give high priority to lands that enhance scenic beauty and or buffer visual impacts of development as experienced by visitors.
- (EM89n) . . . NCCC would like to elevate visual quality of Stehekin Valley visitor [or resident] experience as part of the LPP priorities.
- (CorID751g) Glaringly absent from the list of guidelines that form the basis of the land protection plan is preservation and restoration of scenic and wild views.

Response: Based on Public Comments: a factor for scenic resources has been added back into the analysis. The revised (2012) LPP has been revised to consider aesthetic concerns primarily by identifying the minimum proposed interest in a parcel, particularly those at the head of Lake Chelan.

138. CONCERN STATEMENT: Where the NPS has spent money to obtain scenic easements, these should continue to be protected. (3 comments)

Public Comments:

- (EM16h). . . we urge that, if only to protect investments it has already made in the scenic quality of this stretch of road, the NPS, in any future negotiations with prospective owners of the Boulder Creek lots, make every effort to retain an interest in the properties sufficient to protect this value.

Response: A scenic easement would be used to mitigate the effects of development from this proposed exchange parcel. The NPS has no intention of abandoning scenic easements purchased in the past, and intends to continue to use this less-than-fee acquisition method to protect scenic and other resources.

Z. Materials Use - Rock

139. CONCERN STATEMENT: The SRCIP should identify the annual cost to barge in rock to Stehekin. (1 comment)

Public Comments:

- (CorID671g) Identify the annual average cost to barge in rock and gravel to Stehekin.

Response: The annual average cost to barge in rock and gravel to Stehekin is approximately \$38,000, which is paid to a local contractor. Most of this cost, however, comes from the years following large floods and can be attributed to road repair, and installation of rock barbs and other new structures to protect the road.

AA. Materials Use - Wood

140. CONCERN STATEMENT: Facilitate an interagency approach to managing large woody debris. (1 comment)

Public Comments:

- (EM44e) We encourage the NPS to facilitate development of an interagency approach to LWD management so that the multiple agencies with jurisdiction over LWD management will have a coordinated approach that is easily understandable to the public.

Response: NPS has and will continue to coordinate with other agencies responsible for managing the river, primarily by obtaining permits for hydraulic projects. An example of this cooperation is the work done on the 1948 channel. The SRCIP technical committee also reviewed and generally supported the idea of a change in wood management at the river mouth lake backwater zone, which will bring NPS management of large wood closer to the Washington Department of Fish and Wildlife policy of allowing wood to be moved within the floodplain for bank protection and restoration projects.

The recent accumulation along certain parts of the river is part of a natural process and comprises a key habitat component. Further, not all of the large wood is being stored on the floodplain; a large amount is flushed out into the lake during these flood events. NPS has proposed limited manipulation of large woody debris in the backwater-influenced zone of the Stehekin River in one alternative and more widespread manipulation in another alternative. These options have been retained in the FEIS.

BB. Overlay District and Zoning (1 comment supporting, 49 against)

141. CONCERN STATEMENT: Provide rationale for overlay district. (1 comment) / Remove Overlay District. (45 comments, 1 duplicate).

Public Comments:

- (Let3z) [Provide] rationale for [determining] that an Overlay District is appropriate. . .
- (LET16f, 23d, 27l, EM29aa, 32n, 33pp, 38n, 39j, 43b, 46p, 48j, 50h, 53k, 59h, 63g, 64k, 66n, 68i, 69k, 73m, 74i, 77h, 78j, 82j, 87t, 90c, 90s, 91o, 92n, 93k, 97k, 102k, 103k, 106w, 107m,

111p, 112m, 113h, 115t, 116i, 118h, 119jj, CorID671bb, 689k, 758aa) Remove appendix C - the Overlay District - from the plan.

- (CorID672e) Chelan County has not discussed the Stehekin Overlay District (among themselves or with the Stehekin Community).

Response: The concept has been used successfully by Chelan County in the Icicle Valley to protect community character. If designed by Chelan County and Stehekin Valley residents, in cooperation with the NPS, this would give certainty to property owners that proposed development was compatible with Lake Chelan NRA. An overlay district is the administrative mechanism through which these objectives would be achieved. The overlay district would provide a locally-mediated process for engaging the Stehekin Community to determine whether proposed development would be compatible with Lake Chelan NRA. The overlay district would be administered by Chelan County. As proposed the NPS would be a non-voting technical representative. Because Congress directed the NPS to ensure that uses of private property were compatible, this would be a key tool in ensuring future development meets that requirement the overlay district proposal has been retained. It is up to Chelan County, however, to enact this process.

142. CONCERN STATEMENT: The Growth Management Act and County Zoning adequately regulates development in Stehekin. (3 comments)

Public Comments:

- (CorID671eee) The Washington Growth Management Act and county zoning adequately regulate development.
- (CorID674f) Some members of the Stehekin Community want to be protected from incompatible development.

Response: The NPS generally agrees that state land use controls can substantially guide development and retain the character of the community in Stehekin. As a result, much of the LPP defers to local zoning and related land use controls. Unfortunately, zoning can change over time and variances can be requested and granted and therefore zoning may not provide enduring land use protection. Zoning also does not specifically address all potentially incompatible uses, which Congress directed the NPS to consider through the enabling legislation for the Lake Chelan NRA.

143. CONCERN STATEMENT: Analysis is needed to determine whether incompatible development in Stehekin would occur based on County zoning and related land use ordinances. (3 comments, 1 duplicate)

Public Comments:

- (Let3aa) [If] there are [a] few parcels that are large enough to legally support development that is incompatible with the character of the Stehekin community. . . those parcels should be identified and the various options should be discussed in the plan (possibly including an Overlay District, as appropriate).
- (Let3y) . . . NOCA determine if the existing Chelan County ordinance [based on 5-acre subdivision size in the Stehekin Growth Management Plan] provides adequate protections to maintain the character of the Stehekin community in a compatible manner with Lake Chelan NRA's goals and vision. (. . .if each property was developed as allowed by Chelan County, would Stehekin's character be significantly altered?)

- (CorID671ee) Chelan County restrictions and the Growth Management Act provide enough regulation for property in Stehekin.

Response: There was disagreement in the comments as to whether development was adequately or inadequately regulated based on the Growth Management Act and Chelan County zoning. There is insufficient information to conduct this analysis without specific development proposals to evaluate. Because the zoning process is not rigid, conditional use permits, variances and related authorizations would further complicate an objective analysis. Because of this, the NPS does not entirely defer to local zoning and land use controls for guiding compatible development in Stehekin.

CC. Planning Process

144/145. CONCERN STATEMENTS: 144 - Separate the SRCIP and the LPP to allow an extended period to evaluate the impacts of the LPP (and to incorporate the socioeconomic study) (21 comments, 1 duplicate). 145 - Extend the timetable to evaluate the impacts of the LPP. (36 comments)

Public Comments:

- (EM25j, 29s, 32f, 33hh, 38k, 38l, 46m, 48v, 65k, 84r, 87o, 92f, CorID689f, LET27k) Separate the SRCIP from the LPP to allow an extended timetable for study of the impacts of the LPP
- (EM29k) I believe that the two documents should be separated and the work to maintain the road in its present alignment should be able to move forward.
- (CorrID679b) The plan for the Stehekin River is immediate and likely can be worked out fairly easily. But the land acquisition question is so fundamental to whether the community of Stehekin can or will continue to exist that it calls for a much more comprehensive dialog over a broader time frame.

144 / 145 Response: The NPS thoughtfully considered this request and decided against it. If the documents were put on separate tracks, the NPS would continue to have to work under the 1995 LPP. Although the 1995 LPP identifies high/medium/low priorities for acquisition it offers less flexibility in responding to requests for land exchanges by homeowners threatened by the changing hydrologic regime of the Stehekin River. There is no reason to expect that revision to the LPP at a later date would be any less controversial than at present. Revising the LPP is inextricably linked to the purpose of the SRCIP and is also considered a connected action under the NEPA. (See also responses to Concern Statements #87 and 97).

146. CONCERN STATEMENT: The NPS and the Stehekin Community should work together to revise the plan in a way that ensures community sustainability. (8 comments, 1 duplicate)

Public Comments:

- (EM21f) . . . Keep the community alive and . . . listen to the requests and opinions of the residents. . . every guest to the valley will also be a beneficiary of decisions made to protect and nurture the Stehekin Community.
- (EM93d) the community and the NPS can work together to strike the right balance between protection and access, and public and private use of the land.

- (EM106o) We would be interested in being involved in crafting some documents that support a vital, private community in the present generation, and on into the future.

Response: The NPS has taken community and other Public Comments: into consideration in revising the SRCIP and LPP in the FEIS but, as a result of the Federal Advisory Committee Act, has a limited ability to create a team that includes members of any particular group. Revisions to the 2010 Draft LPP were based on substantial public input. It is also expected the LPP will be revised again in the future when the direction provided in this LPP revision no longer adequately address the issues and concerns of that time, as is the case now with the 1995 plan. The NPS agrees that there are many factors that contribute to a vibrant community and most of these factors are beyond NPS purview. As noted in other comment responses, the NPS would be willing to participate in an effort, led by Chelan County, to explore what these factors are and how they may need to be sustained (e.g. reliable and consistent ferry service, increase of vacation homes vs. year round residences, local ownership vs. non-local ownership of property, improvement in general economic conditions, etc.) (see also responses to Concern Statements #31, 73, 74, 83, 86, 94, 97, 105-108, 126, and 128).

DD. Range of Alternatives

147. CONCERN STATEMENT: The range of alternatives for the DEIS should be revised. (2 comments, 3 duplicates)

Public Comments:

- (CorID751c) The EIS fails to consider any but a narrow range of alternatives, which will not achieve protection of the scenic and wilderness values of the Stehekin Valley unimpaired.
- (CorID751e) . . . revise this draft to consider more effective alternatives, including land purchase and rigorous and well-publicized enforcement of compatibility criteria, as well as the genuine no-action alternative of letting nature take its course.

Response: The NPS is required to consider a no-action alternative that incorporates ongoing management. Although this alternative is termed “no action” under NEPA, it actually should be called “continue current management” as in the DEIS. The range of alternatives is also limited through past overarching planning, such as the GMP. Finally, the range of alternatives responds to direction NPS has been given through the enabling legislation for Lake Chelan NRA and NPS policy. The area within which the proposed action would occur is not wilderness, and the legislation and GMP recognize that people will continue to live and work in the lower Stehekin Valley.

EE. River access point

148. CONCERN STATEMENT: The river access point should be screened from nearby properties. (1 comment)

Public Comments:

- (EM5n) make a dense planting of native plants for a screen for the up valley private property.

Response: The proposed design for the river access point has been modified to include screening from upstream private property.

149. CONCERN STATEMENT: The new river access point (river access point) will adversely affect the visitor experience. (1 comment)

Public Comments:

- (EM7e) the public will be shortchanged because the rafts would no longer get into the Lake Chelan/Stehekin River interface which has much birdlife

Response: Individuals are not required to use the river access point and could continue down valley to another location and river access point along the lakeshore, thus taking advantage of more opportunities to experience the river mouth. Having a river access point will not preclude people from continuing further to the head of the Lake. The new river access point could also serve as an entry point to access the head of Lake Chelan.

150. CONCERN STATEMENT: The Pickens property should be considered as a river access point instead. (2 comments)

Public Comments:

- (EM7f) as an alternative, the NPS owned Pickens property across the full pool channel from Silver Bay could be used instead and it already has a road into it.
- (CorID671uuu) The river access point should not be included in the plan in the identified location. Consider relocating it near the Pickens cabin or at Boulder Creek.

Response: There is no access road near Boulder Creek and it is much further away from the river mouth. Similarly the Pickens property is located on a private road and is also not adjacent to the river; therefore, it did not meet the criteria for an appropriate river access point.

151. CONCERN STATEMENT: Consider Stehekin Landing or A-frame at Silver Bay or behind Torkelson for River access point. (1 comment)

Public Comments:

- (LET31f) No to the boat launch/take out on what is the Stehekin River Resort road. Suggest doing so at Stehekin landing or at the A-frame over off Silver Bay area. No land purchase required, no road changes, park owns land. Or have the river access point up behind Carrie's house and Torkelson house.

Response: The suggested locations are beyond the river mouth and do not provide room for public parking. The river access point proposed in the SRCIP is located on public land, as is the proposed access road.

152. CONCERN STATEMENT: The river access point could affect nearby properties (3 comments)

Public Comments:

- (EM6b) Our only concern is that the exit area for the rafting does not become an ingress for floodwaters when the river is overflowing the banks!!!!!! . . . If the river overflows the banks because of this new ingress area, it impacts all the property below the bakery all the way to the wetlands and can be very destructive to private property and roads.
- (CorID672aa) Could the river access point indirectly cause water to go back around the developed area near Silver Bay?

Response: The proposed location of this river access point would provide some erosion protection benefit and would not adversely affect private property or promote the ability of the Stehekin River to avulse in this location. During public scoping, several people identified concerns with private rafters exiting on private land. This was a primary reason why the new access point was proposed—as a means to address this issue.

153. CONCERN STATEMENT: The river access point will primarily benefit private property (the Stehekin River Resort). (4 comments, 1 duplicate)

Public Comments:

- (CorID671xxx) What are the public purposes of the river access point? How does it benefit the public?
- (CorID671yyy) The river access point is for commercial users.

Response: The NPS will meet a recreational need for both public and commercially guided river users by constructing the river access point and reducing potential trespassing conflicts with private landowners. The NPS would add native vegetation to provide screening from private property per public suggestions. Since the NPS is concerned about possible river avulsion here, this provides some erosion protection benefit in the backwater zone. There is an additional benefit of removing the failing rip-rap.

FF. Reroute

154. CONCERN STATEMENT: Maintain and protect the Stehekin Valley Road in place

Public Comments:

- (EM29e, 29z, 30c, 32m, 33oo, 38i, 46k, 48aa, 61v, 62g, 65q, 84y, 92l, 94d, LET27i) Maintain the Stehekin Valley Road at its present location and protect the road from the river both adjacent to the road and also at strategic locations away from the road where it can be predicted, with a high degree of certainty, to harm the road if allowed to erode.

Response: Alternatives 1 and 4 in the DEIS consider retaining the Stehekin Valley Road in place. Alternative 4 would also take proactive measures to retain it in place, while under Alternative 1, these measures would likely be reactive (see also responses to Concern Statements #68 and 69).

GG. Reroute Safety

155. CONCERN STATEMENT: The reroute will increase safety hazards (general) as well as from avalanches and rock / mudflows. (3 comments, 3 duplicates)

Public Comments:

- General
 - * (LET10g) [Moving the road will increase] the potential hazard to travelers [and] the maintenance of such a road will be costly.

- * (LET10j) . . . the recent reroutes along the Stehekin road [have]. . . blind corners, steep hills, dangerous shoulders - and a roadway that is difficult to use and maintain in winter.
- Avalanches (3 comments)
 - * (LET10f) [Moving the] road moved from the valley floor, closer to the hillside will increase the potential for damage from snow slides in winter, and dirt and rock debris washing down during summertime “gully washers”.
 - * (CorID672l) Ensure that winter road conditions (icy roadway) are considered in reroute design.
- Rock / Mudflows (2 comments)
 - * (EM61q) - [Some problems we envision are] Periodic rock/mud-flows (witness Wilson and Hazard Creeks)
 - * (LET10f) [Moving the] road moved from the valley floor, closer to the hillside will increase the potential for damage from snow slides in winter, and dirt and rock debris washing down during summertime “gully washers”.

Response: The differences in risk between flooding of the road and a reroute of the portion most affected by flooding is considered in the DEIS. Because the reroute alternatives have been professionally designed by FHWA to meet or exceed modern road standards, the alignment meets key principles for safety, design and maintenance. The NPS acknowledges that there are some trade-offs in moving this road closer to the hillside. The proposed route, however, does not cross an active snow avalanche chute (the 2009 avalanche did not reach it).

156. CONCERN STATEMENT: The reroute is adjacent to a steep unstable hillside. (2 comments)

Public Comments:

- (LET10e) The preferred alternative does not adequately address the safety issue of the building of a road at the foot of a very steep, unstable, hillside.
- (EM25c) Relocating it would route it further from the flood zone, but would result in close approximation to a steep hillside that is vulnerable to slides and would result in a road that is narrower, windier and potentially less safe than the one we currently have. The proposed relocation would result in a road more dangerous to residents and visitors to the valley.

Response: The cut and fill slopes adjacent to the proposed reroute in Alternatives 2 and 3 have been designed to minimize the potential for rock and snow slides. These potential risks were taken into consideration in determining how far the slopes should be laid back along the proposed reroute. Where possible, the road was also designed with long, sweeping curves, rather than tight curves. The proposed reroute would be the same as or wider than the current alignment of the Stehekin Valley Road. Wider areas are as a result of formal turnouts designed for passing. A range of measurements taken along the current roadway resulted in modifications to the design of the rehabilitation and reroute because it was found to have an average width that is wider than stated in the GMP.

157. CONCERN STATEMENT: The reroute will increase sliding accidents. (1 comment)

Public Comments:

- (EM61r) - [Some problems we envision are] Serious accidents due to sliding on very steep icy hills during Winter

Response: Although the proposed reroute as designed is expected to be steeper in some locations, surfacing with a chipseal and clearing of some shade trees is expected to minimize the potential for an icy roadway. Depending on icy conditions, sanding may also be used to reduce hazards. All profile grades along the proposed reroute were designed with a maximum of six percent to minimize sliding during icy conditions. The grade is consistent with other sections of the existing Stehekin Valley Road.

158. CONCERN STATEMENT: The reroute is will increase speeding accidents. (1 comment)

Public Comments:

- (EM61s)- [Some problems we envision are] High-speed bicycle/auto/bus accidents (many bicycle riders LOVE speed!)

Response: As suggested by Public Comments:, until or unless the McGregor Meadows Access Road becomes impassable, bicycles would continue to be able to use this area to avoid the steeper sections of the proposed reroute. The proposed reroute was designed for 25 mph. Intervisible pullouts are provided to provide areas for vehicles, including bicyclists to exit the travel way. If observed traffic speeds prove to be excessive, supplemental measures could be implemented to reduce speeds in problem areas.

159. CONCERN STATEMENT: The reroute will increase large vehicle conflicts. (2 comments)

Public Comments:

- (LET11g) The proposed reroute is too narrow, steep and curvy and generally unsafe, and would be very difficult to maintain and keep open during seasonal flooding and in the winter.
- (LET10k) The NPS shuttle buses which run on a mandated schedule --four months of the year, four times a day from the landing to High Bridge-- would be unable to pass with the specifications that are preferred by the NPS (LET10k)

Response: The existing road is subject to closure due to seasonal flooding. The proposed reroute area would not be subject to seasonal flooding because it has been designed with appropriate drainage and is distant from the river. The road was also designed based on several factors, including the width of vehicles that regularly use the road. As noted above, the existing Stehekin Valley Road was measured in many locations and these measurements were averaged to design the rehabilitation of that road and the proposed reroute. In short, the reroute will be the same width as the road between the Landing and Harlequin Bridge. A full analysis of guardrail warranted along the reroute was also performed, taking into consideration accident history, local driver conditions, average daily traffic and road classification. As noted in another comment response, profile grades along the reroute were designed at a maximum of six percent to provide for winter travel. The proposed road width is much wider than the recommended American Association of State Highway Transportation Officials (AASHTO) minimum (11.5 - 13 feet) for this type of facility.

160. CONCERN STATEMENT: The reroute will cause lane width conflicts. (1 comment, 1 duplicate)

Public Comments:

- (LET10h)[re: Intervisible single lane road] Chelan County has looked at this approach through the years and has not used it as an alternative, nor does it allow developers to use it.
- (LET10i) Some of the adverse aspects of single lane intervisible turnout roads are: Too many signs required (by the Manual of Uniform Traffic Control Devices - MUTCD), extra construction costs to develop turnout sections, potential liability, traffic does not stop or wait at turnouts.

Response: The road reroute will be the same width as the road between the Landing and Harlequin Bridge. Although there are some drawbacks to a single lane road with turnouts, FHWA has designed this road as an appropriate model for the rerouted section of roadway based on several issues, including the direction from the GMP, the low usage of the road compared to other national park unit roads and consistency with the existing paved road network. The goal is to create a seamless visitor experience from the Landing to High Bridge. The proposed template for the roadway is predominantly 16-20 feet top-width. This is more than the AASHTO standard of 11.5 to 13 feet and is consistent with the current usable road width. This additional width allows for vehicles passing through the majority of the reroute, minimizing the need for introduced intervisible turnouts. Site specific signing is not anticipated and MUTCD permanent signing for the corridor would be minimal.

HH. Reroute Maintenance

161. CONCERN STATEMENT: The reroute will increase maintenance costs, including maintaining two roads. (6 comments)

Public Comments:

- (EM55d) if the present road is to be maintained in any case, it seems superfluous to have two roads with many of the same problems.
- (LET26n) . . . the reroute means an additional two miles of road to maintain and I believe this new section of road will prove to be expensive and time consuming to maintain properly. 18 new culverts means 18 more problems when it rains hard, plus there are many avalanche slide tracks that the new road location goes quite close to.
- (CorID675b) Identify the maintenance cost predicted on the new section of the road (reroute).

Response: Maintenance costs are generally higher on the existing road because parts of it are in an active floodplain (the road is frequently flooded). Gravel roads also require higher maintenance, primarily for periodic grading and to replace surface material. Moving the road out of the floodplain and converting it from gravel to a hard surface would reduce maintenance costs. The cost of maintaining the McGregor Meadows Access Road would diminish compared to existing conditions because it would be maintained to a lower standard. Nonetheless, as noted in the DEIS, there would be costs associated with maintaining both roads.

162. CONCERN STATEMENT: It would be less expensive to maintain the current road than to construct a new one. (4 comments)

Public Comments:

- (LET34b) over the past few years Stehekin has experience a 100, 200 and most recently (2006) a 500 year flood, yet the valley, the people, their houses and the road are still there and functioning. Yes some damage occurred but the repair costs are minimal in relation to what would be spent on removing the road and buying land.
- (EM29l) [Although] the price to protect the road from damage during floods can be costly, but when it is maintained for the visiting public and such maintenance allows year-round access to private homes, trail heads, businesses, bike tours along the valley floor and the overall enhancement of the visiting public's experience in Stehekin, then such cost is justified.

Response: The NPS and SRCIP contradict this assertion. Danger to the road in McGregor Meadows has grown progressively worse with each flood since 1995. Maintaining the current road would require the proposed actions in Alternative 4 of the DEIS. As currently described in the DEIS, the cost of implementing Alternative 4 is approximately \$2 million less than Alternative 2. Implementing Alternative 4, however, would adversely affect the ability of the Stehekin River to use its floodplain; would require nearly twice the number of erosion protection measures in the near term; and would likely require more measures over the long-term. These additional measures would likely be especially in the vicinity of McGregor Meadows where a catastrophic avulsion could not only result in flooding of existing private property, but could also result in loss of the road itself over a long-period of time, with access to the upper valley precluded by the need for repairs. More people would also be exposed to the river at flood stage. As noted in the FEIS, Alternative 4 would have more adverse effects than Alternatives 2, 3 and 5. Maintaining the road in place would likely increase flood depth and velocities in McGregor Meadows and would require more imported rock and gravel fill material.

II. Other Reroute Issues

163. CONCERN STATEMENT: The character of the Stehekin Valley Road has changed with NPS management. (2 comments, 3 duplicates)

Public Comments:

- (EM23i) If the NPS wants to “maintain the existing character” -- the consideration should be based on the way the road was in 1968. At that time two vehicles could pass anywhere on the road except for right above Harlequin Bridge (by the rock slide), and Wilson's Corner.
- (EM23k) We believe that the road was 24 feet wide with shoulders when it was acquired by the NPS. The NPS received from the county a 60 foot wide right-of-way from the landing to Cottonwood. The character of the road at the time of acquisition was wide enough to pass except for a very few places that required turn-outs because of the rough terrain -- it was a “mine to market” road. The road has narrowed considerably since that time because of encroaching trees and bank erosion.
- (EM23l) If surface upgrading is to be done, we would recommend that the drainage and subsurface be adequate before surfacing. Minimum upgrade width standards are normally 18 feet - but we think 24 feet would be more appropriate, especially considering the larger buses that run up and down the road 4 times a day during the busiest season- and the ever growing number of bicyclists.

Response: The road from the Landing to Harlequin Bridge was paved in 1973, five years after Lake Chelan NRA was established. It's possible the road was wider prior to paving similar to the way the road above Harlequin Bridge is wider than the existing blacktop section. On gravel roads, turnouts can become part of the road and the road can widen as edge vegetation is lost due to grading and snowplowing. The proposed road width in the SRCIP has been updated based on recommendations in the GMP and measurements taken from the existing paved section of road.

164. CONCERN STATEMENT: Berms, rather than guardrail should be used on the reroute. (1 comment)

Public Comments:

- (CorID672t) Use berms rather than guardrail on the reroute where possible.

Response: Berms and guardrail are not interchangeable. They are used for different purposes. Berms allow for gentler side slopes, while guardrail allows for steeper side slopes. Guardrail is also designed to prevent cars from leaving the surface of the road.

165. CONCERN STATEMENT: Consider additional guardrail to minimize safety hazards on the reroute in winter. (1 comment)

Public Comments:

- (CorID672m) Consider guardrail where needed to minimize safety hazards associated with winter road use.

Response: A full analysis of guardrail warrants along the proposed new route was performed, taking into consideration accident history, local driving conditions, average daily traffic and road classification. FHWA plans call for 231 feet of guardrail in one location in Alternatives 2, 3 and 5. Additionally, all profile grades along the proposed reroute were designed with a maximum grade of six percent to reduce safety concerns during winter conditions. There is nothing to preclude adding guardrail in the future if observed conditions warrant it.

166. CONCERN STATEMENT: Additional mitigation may be needed to protect the northern spotted owl from reroute impacts. (2 comments, 2 duplicates)

Public Comments:

- (EM89x) We do have concerns about some aspects of road rerouting in the vicinity of what has been identified as habitat of the spotted owl but we hope the NPS has exercised due diligence in its consideration of that concern.
- (EM89z) NCCC review of the wildlife and special status species mitigation measures (pp 77-79) is noted but the question remains if Fig. ii-11 ranks impacts before or after mitigation [hopefully before].
- (EM89y) When one looks in the aggregate at the impact categories [Fig. ii-11, p. xli], however, one is struck by the lack of benefits and major adverse impacts absorbed by Wildlife and Special Status Wildlife. It is difficult to recreate the specific rankings for the Figure, but it points to a need by the NPS to consider significant mitigation for these adverse impacts to wildlife or to seek ways to reduce or avoid these impacts. Alternatively, if the rankings improperly reflect the impact of management actions under the Plan, they should be revised.

- (LET21f) I support the reroute of the road from McGregor Meadows to the higher ground. However I am concerned about the interference with the spotted owl habitat and am not sure this can be accomplished.

Response: The proposed road reroute will permanently impact four acres of upland spotted owl habitat. The rehabilitation of the obliterated section of road along the Stehekin River will restore 1.46 acres of riparian habitat which is also used by spotted owls (there is far less riparian than upland habitat in Stehekin – in fact, only 2% of the entire watershed is classified as floodplain). The measures proposed to mitigate impacts associated with construction include delaying construction activities within the historic nesting area until spotted owl nesting surveys are completed. The surveys conducted to USFWS protocol would be completed prior to each construction season. If spotted owls are determined to be nesting in the area, no construction would occur until the young have fledged. USFWS concurred that with these mitigation measures in place the project will not jeopardize the continued existence of spotted owls in this area. (See also the response to Concern Statement #90.)

JJ. Reroute Access

167. CONCERN STATEMENT: The NPS should make a firm commitment to restore access to private property in McGregor Meadows in the event of future washouts. (10 comments, 1 duplicate)

Public Comments:

- (CorrID7e) Commit to provide continued access to McGregor Meadows property owners in the event of future catastrophic damage to the “McGregor Meadows Access Road” (i.e., the current road). For instance p.92, paragraph 3, line 5 should read, “...the NPS would work with private landowners to determine HOW [not “whether”] to restore access...” The Park should identify an alternative plan for access from the Meadows area to the re-routed road that can be implemented promptly in the event of such catastrophic damage, and consult with private landowners regarding the proposed alternative.
- (CorID673s) Identify whether the potential access route to McGregor Meadows from the reroute been surveyed.
- (Let3j) [Instead of McGregor Meadows access] in the case of a catastrophe. . . should be modified that the NPS will provide access from the new road upon property owner request (i.e., they shouldn’t have to wait for a catastrophe). . . the new road passes close to several homes and those owners may choose to access their properties from the new road immediately upon construction.

Response: Under the revisions in the FEIS, the NPS would continue to maintain the access road into McGregor Meadows to provide for access, emergency services, and utility maintenance. However, if part of this road were claimed as a major river channel during a flood, the NPS would not attempt to rebuild it, and would then rely on the new spur off of the reroute as the primary access for private residents and the public.

168/169. CONCERN STATEMENTS: 168 - The NPS should provide continued, year-round access to McGregor Meadows (including plowing) (13 comments, 4 duplicates). 169 - There should be a streamlined process to reconstruct access to McGregor Meadows from the reroute (1 comment).

Public Comments:

- (EM5f) long term access to private property in McGregor Meadows . . . as long as it is practical the old road will be kept open, however only maintained as long as it is practical. Well, what happens when it is no longer practical?
- (EM16m, LET28o, CorID6731) The McGregor Access Road—the existing road—should be plowed and maintained both for the property owners’ use and for the NPS, PUD, and other agencies that must provide fire suppression, law enforcement, and other public services to that neighborhood.
- (CorrID7f) * Ensure year-round access to McGregor Meadows property owners by snowplowing the “McGregor Meadows Access Road” (i.e., the current road) as far as the Leader driveway. It is difficult to predict when any of us, or our family members, may need or wish to visit our homes in winter, and we should be able to do so without being obliged to acquire snowmobiles.
- (LET11i) It is the responsibility of the agency that maintains the road to also maintain good access to all private property.
- (CorrID8g) Ideally, we’d like to see streamlined procedures to allow private residents to design and build access to the road reroute across NPS land, at their own cost, when/if they desire to do so (i.e. well in advance of future damage to the McGregor Access Road)

168 / 169 Response: Based on public comments and FHWA analysis a proposed route from the reroute to the McGregor Meadows Access Road has been designed and is incorporated into FEIS Alternative 5. (See also response to Concern Statement 167.)

KK. Reroute - Scherer / Vavrek Proposal

170. CONCERN STATEMENT: The Scherer/Vavrek reroute extension would improve the visitor experience. (7 support + Scherer/Vavrek)

Public Comments:

- (LET1k] By extending the NPS proposed reroute there are great benefits to the public in the road corridor also there are many benefits to the public in the river corridor. The main benefit in the road corridor being the enriched experience of traveling on the road without the intrusion of private development. The main benefit in the river corridor to the public is enjoying the river without the intrusion of a heavily traveled road nearby.
- (EM16p). . . new Valley Road—rerouted and paved--would go all the way from the Rainbow Falls area to the Stehekin Valley Ranch as an uninterrupted natural-area route--except for one stretch, where it would pick its way among the sawmill, gardens, parking area, and residential yard of the Scherer-Vavrek household. Apart from scenic considerations. . .

Response: After careful consideration of the potential resource impacts and possible benefits of rerouting around this landowner, a decision was made to retain the road in its current location. Rerouting the road around this section would result in the loss of 1.1 acres for the road and

additional area for its construction and it is anticipated that the existing alignment would serve as a driveway and would not be restored, therefore having greater overall impacts. Based on the estimated cost of this action, the environmental and fiscal impacts would not be in the interest of the federal government.

171. CONCERN STATEMENT: The Scherer/Vavrek reroute extension is short, level terrain and would minimize costs. (6 comments, 5 duplicates – all comments Scherer-Vavrek)

Public Comments:

- (EM7m) an independent estimate of building new road on NPS property adjacent to our property, extending the proposed reroute .2 of a mile starting at Bear Trap Spring and the estimate was \$100,000 or less based on the easy terrain.
- (LET1e) . . . the proposed reroute around [Scherer / Vavrek] property. . .is very easy terrain to build a road in. It is flat and open for much of the distance with some scattered trees. . .

Response: The cost of building a new road around this property is high given the short length, and the NPS decided not to include as part of the FEIS. There is no doubt the reroute would better serve the private landowner, but there are limited benefits to the public.

172. CONCERN STATEMENT: The Scherer / Vavrek reroute extension would provide other benefits. (2 comments)

Public Comments:

- (LET1o). . .by extending the road reroute less than a quarter mile there would also be a better firebreak for [Scherer / Vavrek]
- (EM16r) Fire is always a concern in the valley, and for homeowners in and above McGregor Meadows the proposed rerouted road would be a reassuring last-ditch fire break—again, with the single exception of homeowners Scherer and Vavrek.

Response: The reroute would provide some fire protection as a fuel break. Fuel reduction work around public and private lands has been completed in many parts of the valley. For areas such as this property, however, similar fuel reduction work can be completed, regardless of whether a road is nearby or not. This is a very low volume local road. Most users are familiar with the route. The road currently functions as a two-way, one-lane road with pullouts. The accident history does not support a reroute for safety improvements at this location. The proposed reroute around this private property would introduce a sharper horizontal curve and reduce stopping sight distance for vehicles when compared to the existing alignment of the Stehekin Valley Road in this area.

173/174. CONCERN STATEMENTS: 173 - The Scherer / Vavrek reroute extension would improve safety (8 comments, 4 duplicates – 9 Scherer/Vavrek). 174 - The Scherer / Vavrek reroute extension would avoid some impacts to the Stehekin River and to private landowners (2 comments, 1 duplicate).

Public Comments:

- (CorrID7i) Begin the reroute slightly further down valley, passing behind the Scherer-Vavrek property line. Doing so will improve the visitor experience and additionally improve safety by avoiding the Scherer milling operation (an active current homestead) along the current road.
- (CorrID8j) . . . an additional short reroute be added so that the Stehekin Valley Road passes behind, rather than through, the Scherer/Vavrek property. Either option would improve the visitors' experience of Stehekin. . . would improve safety for all road users (drivers, bikers, pedestrians) by adding curves to straight stretch of road where drivers tend to accelerate and are more likely to do so once the road is paved.
- (LET1) . . . life and safety issues that exist on [Scherer / Vavrek] property due to the road going through and on [Scherer / Vavrek] property. Many vehicles travel much faster than is safe both for private and public. When this stretch of road is paved the danger will increase to everyone. . . imperil [Scherer / Vavrek] even more than currently as traffic will be traveling much faster on a paved road through . . . property with no planned speed humps.
- (Let3i) [Road reroute around Scherer Vavrek would] avoid potential conflicts as fast downhill down-valley bikes and cars pass through the Scherer-Vavrek property.
- (Let4g) . . . snow removal. There is much gravel from the road blown onto our land and we have also had broken windows in our cabin caused by the snow blower.
- (Let4i) If this graveled road is paved and the reroute does not go around our property, the road in front of our buildings will be the first straight stretch coming off the reroute and we expect many vehicles to add 5-10 mph to already unsafe speeds.
- (Let4l) Road paving and road building equipment so close to the river spread over a two year construction period will impact the riparian habitat much more than it would if the road was moved to the northeast.
- (Let4m) The two year road construction and paving work will have an enormous impact on us and our property and the river corridor here. As planned we won't reap any benefits but will bear the brunt of the impacts as the equipment travels back and forth continuously. Noise, dust and unsafe road conditions will be constant during construction.

173 / 174 Response: A best fit reroute alignment was surveyed and reviewed in the field. Additionally, some of the existing Stehekin Valley Road would not be obliterated because access would continue to be needed to the existing private driveway.

LL. Reroute Views

175. CONCERN STATEMENT: The reroute should provide an uninterrupted view of natural areas. (5 comments)

Public Comments:

- (CorrID7h) Enhance the visitor experience on the road re-route by, insofar as possible, keeping the latter out of view of private buildings and residences.

- (LET28j) As we walked the proposed reroute of the road many commented on the fact that the new road would provide visitors with better views of the river and the mountains across the river and residences would not be as visible as they are now, with the notable exception of our place.

Response: The reroute would not be seen from most private property in McGregor Meadows.

MM. Shooting Range

176/177. CONCERN STATEMENTS: 176 - The shooting range should be retained or relocated in the preferred alternative (10 comments). 177 - There are two other viable locations for the shooting range (1 comment).

Public Comments:

- (EM119z) It is imperative that a recreation area that permits hunting has a shooting range available to NPS law enforcement officers, the Sheriff's Department, valley residents and visitors.
- Provide an alternative location for the rifle range. Although we are not regular users of the range, it is important to many Valley residents and removing the range is a needless obstacle to their acceptance of the overall plan. In addition, a safe and authorized location is preferable to random target practice.
- (LET28q, CorID671zzz) An alternate spot for a shooting range should be identified (perhaps behind Torkelson). The current one is used and it's safer to have a range rather than random shooting.

176 / 177 Response: If the NPS /FHWA choose to proceed with a road reroute, the current shooting range would close due to its close proximity and direction-of-fire toward the reroute. The existing shooting range has also been identified as a hazardous waste site (due to the lead bullet waste) that will require costly cleanup. A new shooting range on public land is not proposed because it is inconsistent with NPS policies regarding hazardous materials and hazard waste management. Specific policies state "The Service will make every reasonable effort to prevent or minimize the release of contaminants on or that will affect NPS lands or resources, and the Service will take all necessary actions to control or minimize such releases when they occur. (NPS Management Policies, Section 9.1.6.2). Further, the NPS is directed to ensure "...the parties responsible for contamination or threatened contamination of NPS property bear the responsibility for addressing such contamination." Addressing contaminant issues throughout the country reflects a nationwide approach for the last 20 years to prevent new contamination and to close and cleanup existing hazardous materials sites. Under the Comprehensive Environmental Response, Compensation, and Recovery Act (CERCLA), lead is considered a hazardous substance, and the Act imposes liability on past and present owners or operators of properties where a release of a hazardous substance into the environment exists.

Impacts from a shooting range are also not confined just to the range itself, as noise impacts carry significant distances from the range. Subject to county zoning, a shooting range could potentially be created on private property within the valley, although this would not eliminate the contamination that would then occur on private land. NPS law enforcement rangers now complete their required range shooting at facilities downlake. Hunters coming to Stehekin from outside the val-

ley can sight in their firearms prior to coming to the valley. Valley residents who use firearms can reasonably sight in their guns on private land within the valley, thereby relieving taxpayers of the expensive costs of creating a new range and incurring the associated cleanup costs that inevitably will occur.

178. CONCERN STATEMENT: Use Mechanical Devices to Contain Lead at the Shooting Range (3 comments)

Public Comments:

- (CorID671sss) Acquire the necessary structure (such as a log boom and sand) to contain and collect lead bullets that would allow relocation of the shooting range.
- (CorID671ttt) The shooting range should be maintained up valley, above reroute with capability of containing bullets – similar to all modern new ranges. Not having a range will lead to dispersed shooting in non-range areas.

Response: If the reroute is implemented the shooting range would be closed and the identified hazardous materials must be cleaned up to comply with NPS policy and CERCLA. Subject to county zoning, a new range could be created on private property in the valley. Mechanical devices can be installed that “catch” bullets, but construction costs and ongoing hazardous materials cleanup costs required for a new facility are high. Further the existing range is used by only a few people, most of which have other options outside of the valley.

NN. Support Stehekin Heritage Comments (Non-Substantive Category)

OO. Use of Channel Migration Zone (Non-Substantive Category)

179. CONCERN STATEMENT: A shorter time frame should be used for the channel migration zone (CMZ). (2 comments)

Public Comments:

- (EM61e) Outlining a 1000 year CMZ is interesting as a first criterion for land acquisition priorities, but for present planning purposes, please narrow the time of observation to first mappings of the river, looking at subsequent mappings, during the last 100 years, again at mappings from 1968 on, to the present. This shorter span may give a more reasonable picture of the speed of what happens over many generations. How much does the river migrate in 100 years and why? The 1000 year migration zone is too broad. . .
- (EM79ee) Basing the CMZ boundaries on a 1000 year projection is as much conjecture as it is science. . . CMZ zone seems based on Global Warming Trends.

Response: The CMZ was mapped based on traces of old river channels. This area is the area within which the Stehekin River has migrated over time and was identified to adequately protect private homeowners from flooding related to future channel changes on the Stehekin River.

180. CONCERN STATEMENT: Use Low Impact Development techniques in carrying out the provisions of the SRCIP (1 comment)

Public Comments:

- (LET 12b) We encourage NPS to consider use of Low Impact Development (LID) techniques where applicable in project activities because of their potential to reduce stormwater volumes and thus mimic natural conditions as closely as possible. Use of these techniques can also provide energy and other utility savings.

Response: In future planning for NPS administrative facilities relocation/construction, the NPS intends to seek silver or greater LEED certification. As designs for these areas are prepared the NPS and its consultants will use low impact development techniques.

181. CONCERN STATEMENT: Identify the water quality standards that the Stehekin River meets (1 comment)

Public Comments:

- (LET12d) Information in the draft SRCIP/EIS states that because of meeting tested standards for water quality, the Stehekin River is on Washington State's list of Category 1 water bodies (p. 181). If data are available, it would be useful to know the parameters tested and associated numeric water quality standards. . .

Response: The following information has been added to the FEIS in the water quality section: "An average of values from three stations below McGregor Meadows (River Mile 6) show: 10.7 mg/L of dissolved oxygen; 41.91 uS/cm (microsiemens per centimeter); specific conductance; 7.49 pH; and 1.22 Nephelometric Turbidity Units (NTUs) for turbidity. Temperature data is pending."

182. CONCERN STATEMENT: The EIS should include a separate discussion of climate change and should also identify how existing data collection supports analysis of climate change (2 comments)

Public Comments:

- (LET12e) . . . We recommended that the draft SRCIP/EIS discuss the effects of climate change on park resources and potential project impacts on climate change. EPA agrees that climate change modeling for the project is not necessary (p. 47). However, we believe that the final EIS would be enhanced by inclusion of a separate discussion on climate change in the region in terms of observed changes to date, expectations for the future, and how those relate to this project and associated park resources.
- (LET 12f) We note that the NPS has set up the Inventory and Monitoring Program to collect and analyze data to detect ecological changes associated with climate change. In addition, NPS is developing the landscape-scale dynamics project, or NPScape, to provide information about changes and trends in landscape indicators, including human population trends, road density and land cover. If the North Cascades National Park Service Complex engages in those efforts, it would be valuable to discuss data collected for that purpose and implications for the proposed project activities.

Response: Additional information about why this impact topic was dismissed from further analysis is included in the Impact Topics Considered But Dismissed section of the FEIS.

Researchers predict that in the Pacific Northwest, global climate change may cause some types of disturbances, such as fires and floods, to increase in frequency and severity. The North Coast and Cascades Network (NCCN) has developed a protocol for Landscape Dynamics monitoring using remote sensing. At the North Cascades National Park, the goal of the program is to track the location, type, severity and duration of eight types of landscape disturbances: avalanches, clearings, development, fires, mass movements, changes in riparian areas, vegetation decline due to disease or insect infestations, and forest collapse due to wind throw events or disease. The first report documenting changes from 1985 to 2009 at 0.5-ha resolution is expected by the end of 2012. As a result, information from these studies is currently unavailable to inform the SRCIP. SRCIP information, therefore, was informed by the existing USGS stream gauge network, and by the University of Washington Climate Impacts Group projections for future change on the Stehekin River. These projections are for less snow and smaller snowmelt floods combined with larger and more frequent peak flows in fall and early winter (Littell et al. 2011).



**Appendix 22: Agency,
Organization and Business DEIS
Comment Letters**



Rainbow Falls (Michael Liang).

APPENDIX 22: AGENCY, ORGANIZATION AND BUSINESS DEIS COMMENT LETTERS

The following section shows reproductions of the comment letters from federal, state, and local governments; businesses; and interest groups and organizations (see Table 1 below) that provided comments on the draft plan. Due to the extensive number of comment letters, comment letters from private citizens are not included in this final volume.

Copies of all letters are available in electronic format, with individual names and addresses removed, and are available upon request. The responses to these letters and other substantive public comments are located in Appendix 21.

Table 1: Agencies, Businesses, and Organizations that Commented on the DEIS

PEPC ID	Comment Code	Page Number	Commenter
Federal, State, and Local Governments			
739	EM44	318	Chelan County Commissioners
734	Let13	322	Stehekin School District
761	Let17	324	Stehekin School Board
875	Let18	325	United States Environmental Protection Agency
544	EM19	329	Washington Department of Ecology
553	EM18	331	Washington Department of Transportation Aviation
Businesses			
744	EM47	333	Lake Chelan Recreation Inc.
Interest Groups and Organizations			
873	Let33	335	Buckner Homestead Heritage Foundation
796	EM89	336	North Cascades Conservation Council
670	EM20	343	National Parks Conservation Association
783	Let6-Let12	346	Stehekin Heritage
863	Let24	391	The Mountaineers
311	EM13	392	Whidbey Environmental Action Network
Form Letters			
various	various	393	Backcountry Horsemen (<10 received)
10	EM10	394	Citizen Letter sent though National Parks Conservation Association website (629 received)
various	various	395	Stehekin Heritage (first)
various	various	396	Stehekin Heritage (second)



BOARD OF COMMISSIONERS
CHELAN COUNTY

STATE OF WASHINGTON
COUNTY ADMINISTRATION BUILDING
400 DOUGLAS STREET, SUITE #201
WENATCHEE, WA 98801
PHONE (509) 667-6215 FAX (509) 667-6599

CATHY MULHALL
County Administrator
cathy.mulhall@co.chelan.wa.us

SALLY TAYLOR
Clerk of the Board
sally.taylor@co.chelan.wa.us

Chip Jenkins, Superintendent
North Cascades National Park Service Complex
810 State Route 20
Sedro-Woolley, WA 98284

February 7, 2011

Dear Mr. Jenkins:

Chelan County is pleased to provide comments on the draft Stehekin River Corridor Implementation Plan (SRCIP) Environmental Impact Statement (EIS) and Land Protection Plan (LPP). We appreciate the comment deadline extension provided by the National Park Service (NPS) as well as the additional public meetings NPS held to provide community members more opportunity to consider these important documents. Our recommendations below build upon our comments submitted to NPS in October 2008 regarding the Stehekin River Corridor Implementation Plan (SRCIP) Environmental Impact Statement (EIS) Range of Alternatives. While our comments cover a number of topics, we are most concerned about the impacts of the LPP and future private property acquisitions on the local community. We request that the NPS suspend land acquisitions in Stehekin and delay adoption of the LPP until the effects of these actions on the local community can be fully understood. We believe that our recommendations below lay out a path forward to resolve these issues.

We have provided our October 2008 comments in *italics* below with additional response based on our review of the current versions of the SRCIP and LPP.

Our comments are as follows:

- 1. The SRCIP must include active and ongoing management of large woody debris (LWD) in the Stehekin River and provide opportunities for re-location of LWD within the system. We recognize that multiple agencies have jurisdiction over LWD management and that only through a coordinated approach will a viable LWD program be established.*

We support Management of Large Woody Debris (LWD) Alternative 4, which allows for logjam manipulation anywhere along the Stehekin River below Bullion Raft Launch just below High Bridge. We encourage the NPS to facilitate development of an interagency approach to LWD management so that the multiple agencies with jurisdiction over LWD management will have a coordinated approach that is easily understandable to the public.

RON WALTER - 1st District
ron.walter@co.chelan.wa.us

KEITH W. GOEHNER - 2nd District
keith.goehner@co.chelan.wa.us

DOUG ENGLAND - 3rd District
doug.england@co.chelan.wa.us

PEPC# 739 - Chelan County Commissioners

- 2. The criteria used to determine NPS property eligibility for exchange should reflect the priorities of the SRCIP effort first (i.e. channel migration zone) and consider other priorities, such as wildlife, to a lesser extent; otherwise, very few properties will be available for exchange.*

We are concerned that only 23.81 acres of NPS property have been identified in the LPP as being available for exchange and that all private property in Stehekin except for 4.75 acres has been identified as a medium or high priority for acquisition. The primary driver for these priorities is the process outlined in the LPP, pp. 33-48. The NPS process for establishing land acquisition priorities and lands available for exchange requires substantially more review and consideration. It is particularly unclear that the priority categories (high, medium and low) for private property acquisition reflect appropriately the priorities of the SRCIP or the needs of the community or that the NPS properties for exchange were adequately considered. We strongly encourage the NPS to re-consider its evaluation criteria, perform more detailed field inspections as noted on p. 38 of the LPP, and consider the effect of cluster development and other zoning and land use tools on the exchange portfolio. Chelan County requests that NPS release the raw data and scores used in the development of the SRCIP and LPP alternatives to the public and include all of this information in the SRCIP appendices and LPP.

- 3. Land exchanges with private property owners in flood-prone areas should be a high-priority action in the final plan and must consider long-term impacts to the private land base in the Stehekin community. We are concerned that an overall erosion of the private land base in Stehekin will have long-term negative effects on the community. Chelan County is committed to working with NPS to address zoning and cluster development opportunities that may help to facilitate additional land exchanges.*

The County continues to be concerned that erosion of the private land base in Stehekin is negatively affecting the ability of Stehekin to remain a viable community. Community vitality and economic productivity are intricately linked to available land base. Continued acquisition of private property by the NPS in Stehekin removes a critical component of economic development and long-term community sustainability. The County requests that the NPS delay adoption of the LPP and discontinue immediately land acquisitions in Stehekin until a socioeconomic analysis of the community, including an evaluation of the role of the private land base in the community, can be completed. The County continues to support exchanges with private property owners, although given our comments above regarding the small amount of NPS property available for exchange, exchanges do not appear to be a viable option for the NPS. The County reiterates its commitment to work with the NPS and the Stehekin community to develop creative zoning and development solutions that would maintain the vitality of Stehekin, and we are unequivocal in our support of a socioeconomic study of the Stehekin community. We encourage the NPS to review the findings of the January 22, 1981 GAO report on Stehekin that recommended that private lands purchased in Stehekin by the NPS should be returned to private ownership, and the NPS should request that GAO support a current socioeconomic analysis of the Stehekin community.

PEPC# 739 - Chelan County Commissioners

Chelan County requests that the NPS include specific language in the LPP that a viable and thriving local community in Stehekin is not only consistent with NPA goals and objectives but also essential in supporting and enhancing visitor experiences to the Lake Chelan National Recreation Area and North Cascades National Park.

- 4. Current bank stabilization projects must be maintained, and future bank stabilization projects where both private and public lands are involved must be approached in a comprehensive manner. Many projects over the years have only partially (and usually ineffectively) addressed bank stabilization due to inappropriate design driven by split land ownership. A reach-based approach that considers an entire project regardless of land ownership should be used to design bank stabilization projects.*

The County supports Erosion Protection Measures Alternative 2 with consideration of additional rock barbs outlined in Alternative 4. We encourage the NPS to work with private property owners during the design of these measures to ensure that site-specific treatments address the full extent of erosion and not only threats to federal property. There are many examples in the Stehekin where erosion control measures were limited by property boundaries and resulted in inadequate protection of both federal and private property.

- 5. Rerouting the Stehekin Valley Road near McGregor Meadows should be closely coordinated with private interests in the area to determine potential negative impacts to private businesses or access to private property.*

The re-route of the Stehekin Valley Road has not adequately considered the long-term impacts to the community and private property base. While we generally support the location of public infrastructure away from natural hazards, such action must also consider socio-economic impacts to local communities. It is not clear that the NPS or Federal Highway Administration has adequately considered local impacts of a road re-route.

We are very concerned that rerouting the Stehekin Valley Road will essentially cut off access to private property owners in McGregor Meadows. Current NPS policy allows for maintenance of private property access from Stehekin Valley Road to the extent feasible; clearly, the NPS is relocating the road because it is not feasible to maintain it in its current position. We can only come to the conclusion that the NPS will determine that private property access to McGregor Meadows will no longer be feasible in the very near future. We believe that the NPS should enter into permanent agreements with residents of McGregor Meadows stating that private access will be maintained by the NPS so long as residences are located in McGregor Meadows.

- 6. The SRCIP should include an implementation plan with a timeline and identify potential funding sources, both public and private.*

We reiterate that an implementation plan with a timeline and funding sources should be included in the SRCIP.

PEPC# 739 - Chelan County Commissioners

We request a meeting with you at your earliest convenience to discuss these issues and how to address them. Please contact us at (509) 667-6215. We appreciate the opportunity to comment and look forward to continued collaboration with the National Park Service in Stehekin.

Sincerely,

BOARD OF CHELAN COUNTY COMMISSIONERS



SECRET: SALLY TAYLOR

Sally Taylor
Clerk of the Board

Doug England
DOUG ENGLAND, CHAIRMAN

Keith W. Goehner
KEITH W. GOEHNER, COMMISSIONER

Ron Walter
RON WALTER, COMMISSIONER

- CC:
- | | |
|--|----------------------------------|
| U.S. Senator Patty Murray | WA Senator Linda Evans Parlette |
| U.S. Senator Maria Cantwell | WA Representative Mike Armstrong |
| U.S. Representative "Doc" Hastings | WA Representative Cary Condotta |
| U.S. Representative Jay Inslee | |
| U.S. Representative Rick Larsen | |
| U.S. Representative Cathy McMorris-Rodgers | |
| U.S. Representative Norm Dicks | |
| U.S. Representative Jim McDermott | |
| U.S. Representative Dave Reichert | |
| U.S. Representative Adam Smith | |

PEPC# 734 - Stehekin School District

Stehekin School District No. 69
P.O. Box 37
Stehekin, WA 98852

January 5, 2011

Chip Jenkins, Superintendent
North Cascades National Park
810 State Route 20
Sedro-Woolley, WA 98284-1239

Dear Chip,

The Stehekin School Board and staff have reviewed the Draft Stehekin River Corridor Implementation Plan, specifically the identification of the Rice property as possible land exchange in the revised Land Protection Plan. The Stehekin School District comments the National Park Service's effort to identify property that can be utilized for land trades in the Stehekin Valley. We are however concerned about the impacts that may arise if the Rice property, which is adjacent to the Stehekin School, is one of the options for exchange. Enclosed with this letter is a resolution passed by the Stehekin School Board approving the comments in this letter.

Our main concern is the accessibility to the property. As you are aware, the school is situated between the Stehekin Valley Road and the Rice property. Currently there are no access roads directly to the property. The board would like to make clear that the district has no intention of granting easement on to the Rice property across school property. The existing driveway to the school does not go back far enough to reach the Rice property and continuation of the driveway would pass very closely to the back of the school. Access across school property would create a potential safety hazard with traffic when the school is in session as well as creating noise, dust and other distractions. Students and staff would also have to cross the driveway in order to go to the out buildings including the outhouses. Accessibility on National Park Service property upvalley from the school would also pose some of the same concerns.

Our second concern has to do with a residential area being located in close proximity to the school property. There is no buffer between the school, playground and the Rice property due to the physical characteristics of the land as well as being adjacent to the school property. This would potentially create distractions and interactions between property owners and students during school hours. The district would prefer to limit activity near the school that would distract students from school activities. Furthermore, if a private residence were placed in such close proximity to the school, the students would no longer have access to areas that have been used for play, recreation and exploration. The Stehekin School District would like to avoid such impacts.

Thirdly, the school district is in the process of identifying possible sites for teacher housing. Once a site has been determined, the district will seek voter approval by the registered voters in

PEPC# 734 - Stehekin School District

the Stehekin School District as required by state law. The district has considered various options including renting from private land owners, purchasing existing housing or property, and building on the current Stehekin School property. After reviewing the pros and cons of each option such as availability and expense of private property, the preferred alternative currently is to build on the existing property.

While we don't support the Rice property as a building site for a private residence for the reasons listed earlier, the property would be an ideal location for teacher housing. In the event that the district would not be able to build teacher housing on the existing school property, another option the district would like to consider is the Rice property. First of all, the issue and impacts of accessibility to the property if it was privately owned would not be a concern. The teacher would be able to limit the accessibility during the school hours. Secondly, the relative closeness of the current school property would be financially beneficial and efficient in dealing with maintenance and staffing issues. Lastly, in order for the school district to attract future teachers to the position, it is necessary for the district to provide housing since available housing for individuals or families to rent or purchase is limited in the Stehekin community.

If the Rice property becomes a possible option with the National Park Service, the school district would prefer to purchase the property rather than do a land exchange – similar to how the school district acquired the current property from the National Park Service in the 1980s as allowed under the Land and Water Conservation Act. Of course, this too would have to be approved by the voters.

The Stehekin School District would like to recommend that the Rice Property be identified in the Revised Land Protection Plan as a potential parcel for the Stehekin School District to use if the need arises for school purposes such as teacher housing as allowed under Washington State laws and regulations.

Sincerely,

Renee Hudak, Board President
Stehekin School District
P.O. Box 37
Stehekin, WA 98852

PEPC# 761 - Stehekin School Board

Stehekin School District No. 69
Resolution No. 2010-03
Pertaining to approval of comments in regards to
The Draft Stehekin River Corridor Implementation Plan

Whereas, the Stehekin School Board and staff have reviewed the Draft Stehekin River Corridor Implementation Plan, specifically the identification of the Rice property as possible land exchange in the revised Land Protection Plan;

Whereas, the Stehekin School District commends the National Park Service's effort to identify property that can be utilized for land trades in the Stehekin Valley;

Whereas, the Stehekin School District is concerned with possible impacts that may arise if the Rice property, which is adjacent to the Stehekin School, is one of the options for exchange;

Whereas, there is currently no access to the Rice property and access across school property would create a potential safety hazard with traffic when the school is in session as well as creating noise, dust and other distractions. Accessibility on the National Park Service property up-valley from the school would also pose some of the same concerns;

Whereas, the Stehekin School District is concerned with a residential area being located in close proximity to the school property in that there are no buffers between the school, playground and the Rice property due to physical characteristics of the land as well as being adjacent to the school property. [that] This would potentially create distractions and interactions between property owners and students during school hours.

Whereas, the Stehekin School District would like to avoid impacts to the district and students as listed above;

Whereas, the Stehekin School District is in the process of identifying possible sites for teacher housing, with the preferred option at this time to build on the existing school property;

Whereas, in the event that building teacher housing on the existing school property is not a viable option, the district would like to consider the Rice Property as an alternative; preferably through purchase similar to how the Stehekin School District acquired the current property from the National Park Service under the Land and Water Conservation Act rather than a land exchange,

Whereas, the issues and impacts as stated above would not be a concern if the Ricer property were available for teacher housing. Accessibility could be limited during school hours;

Whereas, the relative closeness to the current school property would . . . financially as well as efficient in dealing with maintenance and sta. . .

Therefore Be It Resolved, the Board of the Directors of the Stehekin. . . approves the comments sent to the North Cascades National Servi. . . Stehekin School District by the board president in regards to the D. . . Corridor Implementation Plan.

The foregoing resolution was adopted and approved on the 18th da. . . the undersigned directors being present and voting.

Board of Directors

3 signatures



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10**

1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
ECOSYSTEMS, TRIBAL AND
PUBLIC AFFAIRS

February 11, 2011

Palmer L. Jenkins
Superintendent
North Cascades National Park Service Complex
810 State Route 20
Sedro Woolley, Washington 98284

Re: Comments on the Draft Stehekin River Corridor Implementation Plan and
Environmental Impact Statement (EPA Project Number: 08-010-NPS)

Dear Mr. Jenkins:

The US Environmental Protection Agency (EPA) has reviewed the National Park Service (NPS) **Draft Stehekin River Corridor Implementation Plan (DSRCIP) and Environmental Impact Statement (DEIS)** (CEQ # 20100356) on Lake Chelan National Recreation Area (LCNRA) of the North Cascades National Park Service Complex (NCNPKC) in Whatcom, Skagit and Chelan Counties, WA. We conducted our review in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act.

The draft SRCIP/EIS evaluates potential environmental impacts of a proposal to implement management actions to address flooding and erosion threats to NPS facilities, private development, and natural resources within LCNRA. If implemented as proposed, this project would result in long-term sustainability of infrastructure and protection of resources in the planning area from flooding and erosion impacts. Analysis of potential impacts from the project considered four alternative actions (1-4), including a No Action. The NPS's *Preferred Alternative* is Alternative 2 under which there would be relocation and removal of public and private facilities out of the river floodplain, updates to the 1995 Land Protection Plan, and improvement of existing and construction of new recreation opportunities (rafting, camping, and hiking trails). Other activities would include closure of a shooting range, erosion control, and restoration.

EPA supports the goals of the proposed project, which are to protect public resources from flood and erosion risks and ensure persistent public enjoyment of park resources and values. We are particularly pleased with the management strategy of recovering much of the lower Stehekin River's natural floodplain dynamics and functions. This approach will likely yield multiple benefits for habitat, hydrology, and water quality. We also note with appreciation that the draft SRCIP/EIS addresses many of the issues we raised during the project scoping process in March 2008, and that NPS created an interdisciplinary committee to assist with technical and regulatory inputs on a range of issues analyzed in the EIS, especially mitigation measures to offset impacts of the project.

Based on our review of the draft SRCIP/EIS, we have no objections to the proposed project and have assigned a rating of LO (Lack of Objections) to the draft SRCIP/EIS. An explanation of this rating is enclosed. Overall, most impacts by the proposed project are expected to be beneficial. Road and facility construction activities will likely generate some adverse impacts to various resources including air, water and biological resources. We believe the DEIS effectively evaluates potential impacts and identifies suitable measures to avoid, minimize, or mitigate those impacts. We offer the following comments as suggestions to enhance the final EIS.

Water quality and hydrology

The final SRCIP/EIS should include up to date information, as available, on National Pollutant Discharge Elimination System (NPDES), Clean Water Act §401 and 404 permit applications for the project.

We encourage NPS to consider use of Low Impact Development (LID) techniques where applicable in project activities because of their potential to reduce stormwater volumes and thus mimic natural conditions as closely as possible. Use of these techniques can also provide energy and other utility savings. There is some information about LID practices online at <http://www.lowimpactdevelopment.org/> and <http://www.epa.gov/smartgrowth/stormwater.htm>.

Please correct the statement in the draft SRCIP/EIS that the project will require at least one nonpoint source discharge (NPDES) permit (p. 411). The National Pollutant Discharge Elimination System (NPDES) permit controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

Information in the draft SRCIP/EIS states that because of meeting tested standards for water quality, the Stehekin River is on Washington State's list of Category 1 water bodies (p. 181). If data are available, it would be useful to know the parameters tested and associated numeric water quality standards. That will make it easier for the reader to understand the level of potential impacts on water quality described in the SRCIP/EIS and implications for beneficial uses.

Climate change effects

We understand that the basic, underlying need for this project is adapting to hydrologic changes that have occurred as the local climate has changed. In our scoping comments on the project in March 2003, we recommended that the draft SRCIP/EIS discuss the effects of climate change on park resources and potential project impacts on climate change. EPA agrees that climate change modeling for the project is not necessary (p. 47). However, we believe that the final EIS would be enhanced by inclusion of a separate discussion on climate change in the region in terms of observed changes to date, expectations for the future, and how those relate to this project and associated park resources.

We note that the NPS has set up the Inventory and Monitoring Program to collect and analyze data to detect ecological changes associated with climate change. In addition, NPS is developing the landscape-scale dynamics project, or NPScape, to provide information about changes and trends in landscape indicators, including human population trends, road density and land cover. If the North Cascades National Park Service Complex engages in those efforts, it would be valuable to discuss data collected for that purpose and implications for the proposed project activities.

3

Thank you for the opportunity to review this draft SRCIP/EIS. If you have questions or comments concerning our review, please contact me at (206) 553-1601 or Theo Mbabaliye of my staff at (206) 553-6322.

Sincerely,



Christine B. Reichgott, Manager
Environmental Review and Sediment Management Unit

Enclosures
EPA Rating System Criteria for EISs

**U.S. Environmental Protection Agency Rating System for
Draft Environmental Impact Statements
Definitions and Follow-Up Action***

Environmental Impact of the Action

LO – Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

December 10, 2010

Palmer Jenkins
North Cascades NPS Complex
810 State Route 20
Sedro-Woolley, WA 98284

Re: DEIS – Draft Stehekin River Corridor

Dear Mr. Jenkins:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for Draft Stehekin River Corridor Implementation Plan. We have reviewed the documents and have the following comments.

Water Quality

Project with Potential to Discharge Off-Site

The NPDES Construction Stormwater General Permit from the Washington State Department of Ecology is required if there is a potential for stormwater discharge from a construction site with disturbed ground. This permit requires that the SEPA checklist fully disclose anticipated activities including building, road construction and utility placements. Obtaining a permit is a minimum of a 38 day process and may take up to 60 days if the original SEPA does not disclose all proposed activities.

The permit requires that Stormwater Pollution Prevention Plan (Erosion Sediment Control Plan) is prepared and implemented for all permitted construction sites. These control measures must be able to prevent soil from being carried into surface water (this includes storm drains) by stormwater runoff. Permit coverage and erosion control measures must be in place prior to any clearing, grading or construction.



PEPC# 544 - Washington Department of Ecology

Mr. Jenkins
December 10, 2010
Page 2

More information on the stormwater program may be found on Ecology's stormwater website at: <http://www.ecy.wa.gov/programs/wq/stormwater/construction/> . Please submit an application or contact Lynda Jamison at the Dept. of Ecology, (509) 575-2434, with questions about this permit.

Erosion control measures must be in place prior to any clearing, grading, or construction. These control measures must be effective to prevent soil from being carried into surface water by storm water runoff. Sand, silt, and soil will damage aquatic habitat and are considered pollutants.

Any discharge of sediment-laden runoff or other pollutants to waters of the state is in violation of Chapter 90.48, Water Pollution Control, and WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington, and is subject to enforcement action.

Best management practices must be used to prevent any sediment, oil, gas or other pollutants from entering surface or ground water.

If you have any questions or would like to respond to these Water Quality comments, please contact Lynda Jamison at (509) 575-2434.

Sincerely,



Gwen Clear
Environmental Review Coordinator
Central Regional Office
(509) 575-2012

1003

PEPC# 553 - Washington Department of Transportation - Aviation



**Washington State
Department of Transportation**
Paula J. Hammond, P.E.
Secretary of Transportation

Aviation Division
18204 59th Drive NE, Suite B
Arlington, WA 98223-8701
360-651-6300 / Fax 360-651-6319
Toll Free: 1-800-552-0666
TTY: 1-800-833-6388
www.wsdot.wa.gov

December 10, 2010

Palmer Jenkins, Superintendent
North Cascades NPS Complex
ATTN: SRCIP
810 State Route 20
Sedro-Woolley, WA 98284

RE: Comments for Stehekin River Corridor Implementation Plan Draft Environmental Impact Statement (DEIS)

Dear Mr. Jenkins:

The Washington State Department of Transportation (WSDOT) Aviation would like to thank you for the opportunity to review the above DEIS document on the Stehekin River Corridor. We look forward to our continued relationship so that together we can realize the benefits of future infrastructure improvements in the community of Stehekin and the North Cascade National Park.

WSDOT Aviation has reviewed the DEIS and supporting documents and has the following comments:

1. **National Park Service Facilities Relocation:** WSDOT Aviation supports the National Park Service's (NPS) efforts to move their facilities as part of the Stehekin River Corridor relocation plan to a location on or near Stehekin State Airport. We are also prepared to provide technical assistance to the NPS that will facilitate safe airport operations and protect the airport as an essential public facility.
2. **Proposed Helicopter Landing Areas:** Currently the Stehekin Airport is used for firefighting efforts in the region. Helicopters are the main aircraft used during fire fighting staging efforts at the airport. To that end, WSDOT Aviation would like to work with NPS to accommodate helicopters at the airport and will provide technical assistance in reviewing location plans for the supporting infrastructure. One of the main issues that will need to be addressed for helicopters and other aircraft operating from the airport will be to ensure that clear approaches are available for arriving and departing aircraft.
3. **Proposed Land Exchange:** If land exchange is to remain as a selected alternative, WSDOT Aviation can review and provide recommendations on parcel selection that would benefit protection of the airport.
4. **Mitigation and Vegetation Management Options:** In the effort to minimize encumbrances on the airport and reduce risks associated with wildlife attraction at or near the airport, WSDOT Aviation can provide technical assistance on re-vegetation efforts. Our goal is to insure mitigation efforts do not adversely impact the airport influence, airspace, and safety zones.

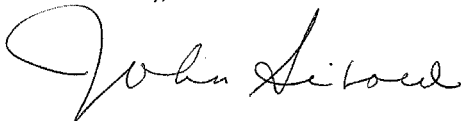
PEPC# 553 - Washington Department of Transportation - Aviation

5. **Airport Runway:** The DEIS (page 221) lists the airstrip (airport runway) as “2,700 feet long and 80 feet wide”, in fact the airport runway is 2,630 feet long by 100 feet wide. A specific airport legal description can be found on the recently completed airport boundary record of survey.
6. **State Managed Airport Designations:** The DEIS (page 221) states that the airport is a “state-maintained emergency airstrip.” In addition to emergency use, WSDOT Aviation, through the Long -Term Air Transportation Study has identified other use classes for the Stehekin airport as recreational usage, Forest Firefighting activity, Transportation Access to Remote Community, Emergency Medical Usage and Flight Safety Enhancement.
7. **Road Rehabilitation:** The DEIS lists the possibility of road rehabilitation efforts for the proposed improvements on or near the airport. WSDOT Aviation would like the opportunity to coordinate airport access improvements to include vehicle parking outside of the airport’s safety zones (some vehicle owners are currently parking in the airport’s safety zones).
8. **Airport Obstruction Removal Management:** WSDOT Aviation will submit an airport airspace obstruction removal proposal in the near future based on the before mentioned airport boundary survey and airspace obstruction analysis. We would like to coordinate future obstruction removal efforts with potential NPS development plans to see if shared opportunities are available.
9. **Airport Utilities Improvements:** WSDOT Aviation understands that NPS may update electrical and water services to the vicinity of the airport for the proposed NPS developments. Due to the current limitations of the existing gravity fed irrigation system and lack of assurances on runway vegetation coverage, WSDOT Aviation would be interested in co-locating utilities for irrigation system improvement purposes.
10. **WSDOT Aviation Reference:** The DEIS sometimes list “Aeronautics Division”. All references of Aeronautics Division should be changed to WSDOT Aviation.
11. **WSDOT Aviation Contact Update:** The DEIS (page 410) lists an outdated WSDOT Aviation contact. Please change the contact information to:

John Sibold, Director
WSDOT Aviation
18204 59th Dr NE, Suite B
Arlington, WA 98223
(360) 651-6300
(360) 651-6319 Fax
www.wsdot.wa.gov/aviation

Thank you again for your comments. If you have any questions, don't hesitate to contact the State Managed Airport Manager, Paul Wolf at Wolfp@wsdot.wa.gov or 360-651-6313.

Sincerely,



John Sibold, Director
WSDOT Aviation

PEPC# 744 - Lake Chelan Recreation Inc.

Lake Chelan Boat Co.
P.O. Box 186
1418 W. Woodin Ave
Chelan, WA 98816
(509) 682-4584

National Park Service Superintendent Chip Jenkins
810 Washington 20
Sedro-Woolley, WA 98284

February 9, 2011

Dear Superintendent Jenkins,

We have been involved in transporting visitors to Stehekin for twenty-eight years and operated the NPS concession facility at the Stehekin landing for fourteen years. We have come to understand how valuable and appropriate it is to provide services for all ages and abilities, so they can enjoy the lands that have been set aside as the National Recreation Area and National Park. We have also learned how challenging that can be at times and that it takes time to develop services to facilitate this.

The needs, of each visitor, vary dependent on age and mobility. We believe the visitor's need for food, shelter and transportation has been carefully nurtured and developed by the National Park Service, Lake Chelan Boat Company and the Community of Stehekin. It takes time to develop and can disappear in the blink of an eye, or even with change of ownership between private parties.

We have learned that the National Park Service may be interested in acquiring more of the remaining private land in the Stehekin Valley. We are stating that we do not want to see that happen. Any future land acquisition by the Park would have a detrimental effect on the very small community that exists and their ability to survive and prosper. If they do not survive and prosper, the visitor is left with the possibility of lesser services or no services to enable them to benefit and enjoy the natural resources that have been set aside for them and for future generations. We do not believe the NPS concession facility can be counted on to always be there to provide services. Because there is no true ownership by an individual, we feel that government facilities like the Stehekin facility could disappear due to a lack of an interested concessionaire or a line item budget cut. If the National Park Service owned all of the lands in Stehekin and this happened, who would be allowed enjoyment of the resources? We feel it would be a limited and select group of very able people.

Aside from the services for visitors, we feel that the community, because of their private ownership, are good stewards of the lands. They are true owners and thus care for, monitor and protect the interest of the valley.

We hope the final draft of the Land Protection Plan states clearly that it supports the survival of the community, and that land trades may occur, but no further purchases of private lands by the

PEPC# 744 - Lake Chelan Recreation Inc.

National Park Service or any other government entity will be allowed.

Thank you for your time.

Sincerely,

Jack Raines, President Lake Chelan Recreation, Inc.

Cc Senator Linda Evans Parlette
Representative Mike Armstrong
Representative Cary Condotta
Congressmen Doc Hastings

PEPC# 873 - Buckner Homestead Heritage Foundation

Buckner Homestead Heritage Foundation
8 Stehekin Road, Stehekin, WA 98852

SRCIP
810 State Route 20
Sedro-Woolley WA 98284

I am writing you on behalf of the Buckner Homestead Heritage Foundation, which is charged with the preservation of the Buckner Homestead and Orchard in Stehekin.

The draft SRCIP makes the briefest of mentions as to proposed plans to stop the erosion of the lower hayfield/former orchard at the Buckner Homestead.

“Restoration: Restoration of a 300-foot-long riparian strip along the Stehekin River at Buckner Homestead lower hayfield and pasture and along the Lower Field would occur, as would bioengineering (layered planting of native shrubs) associated with erosion protection measures.

This appears to be a minimalist approach to what is a very serious threat to the entire Buckner Homestead, including the historically-significant structures there.

Given the nature of the soil, the erosion already having occurred, and the rate at which it has occurred, we strongly encourage the NPS to take a more aggressive approach here. We believe that bioengineering will be too slow a process to ensure even the slowing of erosion, and will not withstand the aggressive forces at work on this part of the river.

We would encourage the NPS to couple bioengineering with additional measures, such as

- A. Returning the river to its more traditional channel, by using mechanical methods to move rock from the river to near the bank so as to create a buffer of rock between the channel and the river flow, and creating a more traditional channel as part of the same process. This would be done during an appropriate season so as to not impact the Stehekin River fisheries.
- B. Or, hauling large rock to reestablish the traditional, non-threatening channel, then backfilling the area between to restore that portion of the property that has been lost in recent years.

Both A and B would then be coupled with the reestablishment of plant life along the river bank to further stability.

Erosion along the 300-foot segment of the river at the Buckner Homestead is not only a threat to this historic site, but one that is growing more so each year. As the bank is eaten away, the rate of erosion has increased.

We strongly encourage you to take more aggressive actions here.

Sincerely,

Herb Sargo, President February 15, 2011

PEPC# 796 - North Cascades Conservation Council

--- Forwarded by Shelley Kluz/NOCA/NPS on 02/14/2011 08:07 AM -----

DAVID FLUHARTY
<fluberg@msn.com>

02/11/2011 05:01 PM

To <noca_superintendent@nps.gov>

cc

Subj NOCA LPP/SCMP/DEIS
ect

Please find attached the comments of North Cascades Conservation Council on the Draft Land Protection Plan, Stehekin Corridor Management Plan and Draft EIS.

Sincerely,



David Fluharty NCCC-CommentSCP-LPP-EIS.docx
Superintendent Palmer Jenkins

North Cascades National Park Service Complex

810 State Route 20

Sedro Woolley, WA 98284

February 11, 2011

Comments by North Cascades Conservation Council on Draft Stehekin River Corridor Implementation Plan: Environmental Impact Statement and Draft Land Protection Plan 2010

Dear Superintendent Jenkins:

North Cascades Conservation Council (NCCC) was formed in 1957 to protect and preserve the North Cascades' scenic, scientific, recreational, educational, wildlife and wilderness values. We thank you for the opportunity to comment on the two draft plans, i.e., Draft Stehekin River Corridor Implementation Plan and companion Draft Land Protection Plan 2010 and Environmental Impact Statement. We commend you and your staff as well as consultants on the professional process through which you have engaged with our organization and with all others who care deeply about the future of the lower Stehekin Valley. The science-based analyses of factors that have altered the fundamental natural forces of the Stehekin River and the thorough study of the implications for management are extremely helpful to NCCC in formulating its comments on the range of management options the National Park Service

PEPC# 796 - North Cascades Conservation Council

At the outset it may be appropriate to clarify NCCC's longstanding interests and positions with respect to the Stehekin Valley, NPS management, and the Stehekin community. First, NCCC regards the Stehekin Valley area as unique in its natural and cultural elements. Second, we regard NPS management as a critical component of preserving the national interest in the scenic and other natural environmental attributes of the area. Third, we are aware that this important NPS role translates into policies that affect the residents and community of Stehekin however we recognize that the NPS has limited authority to affect local determination exercised within the jurisdictions of Washington State agencies and Chelan County, community organizations and individual choices made by residents and property owners. Fourth, we are also aware that many of the services the NPS provides, e.g., waste removal, road maintenance and snow clearing, fire hazard reduction and fire fighting, visitor services, and emergency response, to name a few, also serve the needs of the community and offer employment opportunities for local residents. Payments in lieu of taxes are also made by the federal government. Fifth, NCCC understands the legislative mandate that the NPS only consider land acquisition from willing-sellers. We support the exercise of this option as the right of private property owners to dispose of their property according to their own wishes. Likewise, we understand that NPS purchase of private property is subject to its own determination of the value to the public of those lands and the requirements to assign fair market value through the federal regulations regarding appraisals. NCCC also understands that the NPS is required to consider the identification of potential parcels of land for exchange for public purposes. NCCC supports the NPS in judicious use of its legal authorities in this area. If requested by willing sellers, NCCC would endeavor to assist property owners in appropriate ways in fulfilling their intent to sell property.

NCCC would like to underscore that over 40 plus years, it has sought NPS planning for the upper and lower Stehekin Valley as a composite and not segmented decision processes. In the upper valley the destabilizing floods have clearly indicated that maintenance of roads is impossible without very expensive investments. Such investments are extremely hard to justify given the scant demand and the high cost both fiscally and in terms of the protected environment. We observe, in fact that, recreational usage of the areas without road access appears to be equal to recreational usage when there was road access. When nature speaks, we should listen.

The Lower Stehekin Corridor is right in the middle of dealing with destabilized river sediment transport. If there is justification for public expenditure of management funds, then it should be in the Lower Stehekin Valley where most economic activity occurs, where the NPS facilities are most at risk if not relocated and where private property owners are most at risk. Alternative 2 is estimated to cost \$27.80 million to fully implement and these investments are necessitated by changing conditions in the Corridor and the need to relocate visitor and other facilities. NCCC would emphasize the limited role the

PEPC# 796 - North Cascades Conservation Council

NPS can play with respect to State and County responsibilities. We appreciate the efforts made in both plans for the NPS to clarify its jurisdictions and responsibilities.

NCCC Comments are organized as follows:

Comments on the Draft Land Protection Plan

Comments on the Draft Stehekin Corridor Plan

Comments on the Draft Environmental Impact Statement

Comments on the Draft Land Protection Plan

NCCC is glad to see the previous 1995 Land Protection Plan [LPP] being updated and replaced. Without belaboring the points, NCCC has been disappointed in the implementation of the 1995 Plan. The criteria for selecting lands for exchange were flawed and the processes employed tended to favor private and not public interests.

NCCC is prepared to take a new look at the Draft LPP. It is useful to point out that the land base in private ownership and the number of privately owned parcels has changed very little in the intervening 16 years. The number of structures has increased and this lessens the visitor's experience of a small community located in a remote wild and natural Valley.

The Draft LPP seems heavily focused on the relationship of each parcel of land to the Stehekin River which is appropriate given the changing nature of the river and the geologic and hydrologic processes driving its potential impacts on public and private structures and property. This emphasis responds to the increased risk and uncertainty related to occupancy of properties exposed to the new flood regime and it provides the NPS and property owners with viable options for adjustment that were not available or as high a priority in the previous LPP.

PEPC# 796 - North Cascades Conservation Council

NCCC would suggest that, in addition to this emphasis, the NPS consider revising the priorities to give high priority to lands that enhance scenic beauty and or buffer visual impacts of development as experienced by visitors.

With respect to Sec. 1.4 Guidelines it appears that the NPS is merely restating its limited authority to manage land use. This may be useful to clarify for all parties what the NPS can and cannot do and that is important. However, many of these guidelines are conditioned on uses being “compatible” and that term is defined pp. 17-20 to the satisfaction of NCCC. While we understand that some parties may not like these definitions or not trust them, NCCC would note that they have been applied for a considerable amount of time without challenge. Most importantly, we applaud the NPS for applying these standards to its own activities before and continuing as part of this planning process. This consistency of application should help to clarify NPS intent and practice. Concomitantly NCCC would urge the NPS to continue to pursue with the Stehekin Community acting in concert with Chelan County in adopting and “overlay district” as outlined in Section 4.2.4. This would have the advantages of providing surety to local aspirations for sustainable community development as demonstrated in the Icicle Creek Valley of Chelan County.

NCCC strongly supports the efforts of the NPS in this revised LPP to clarify its limited jurisdiction over private property in the Stehekin Valley and its willingness to engage with individuals, the Stehekin community, Chelan County and the State of Washington in developing predictable and reliable conditions for the future. NCCC finds it frustrating to hear rhetoric about the NPS buying everyone out when the NPS is only identifying as it is required by law to do, those properties of highest value for the public. It is time to get real.

As mentioned above, NCCC would like to elevate visual quality of Stehekin Valley visitor [or resident] experience as part of the LPP priorities.

As far as the identification of exchange lands is concerned NCCC would support the inclusion of the area in the vicinity of the Airstrip. In fact, NCCC would support the identification of the airstrip itself as exchange land because it meets all of the criteria. Decommissioning of the airstrip would remove an incompatible use in the view of NCCC, provide significant easily accessible land for residences not in the floodplain, and discontinue a hazardous activity [difficult landing pattern, numerous fatalities, potential for fire, intrusion in beaver habitat, etc.]. In many respects, the NPS should be encouraged to close the airstrip and offer properties for exchange – over time revegetation could take place, invasive species would be naturally controlled, etc. We note this alternative was considered but rejected as in conflict with the 1995 GMP. By allowing this conflicting and hazardous use to continue the NPS is creating an

PEPC# 796 - North Cascades Conservation Council

attractive nuisance as well as keeping a scar on the landscape second only to the Holden Mine tailings [which the National Forest Service is now in the process of restoring].

NCCC would discourage the inclusion of property in the vicinity of Rainbow Falls in the exchange lands category. There are several reasons for this. First, it appears that property was one purchased by NCCC members when the NPS was not able to accommodate the requests of all willing sellers in the early day of the NPS. The intent was to be sure it remained in NPS jurisdiction. NCCC understands that is not the way the system works, however, NCCC would suggest that that property proposed for exchange might be better reserved for campground use. Please note that the adjacent property is now available for sale. If the owner of the property adjacent were a willing seller 06-106 it would seem a long term prudent action for the NPS to acquire that property so the Rainbow District could be fully devoted to public purposes. Under the present rating regime, this property only rates as “medium” in terms of NPS identification of interest. NCCC would point out this rating turns up because the property is not in the flood plain and is therefore of lower value. This shows the limitations of overemphasizing the floodplain in the 2010 LPP. There needs to be more balance in the purposes served.

Finally, NCCC would question the identification as exchange properties in Fig. 5 that are upstream of Boulder Creek and along the Stehekin River. This would promote development in a way to block visitors from the Stehekin River corridor and despite the minimal buffer from the river would put private property between the visitor and the river.

Comments on the Draft Stehekin Corridor Plan

In preface to NCCC comments on the DSCP, NCCC wants to recognize the difficult task that the NPS has in developing a plan for a river on a slow but steady rampage. The clear and competent descriptions of river processes and how they have changed the floodplain in the recent past and for the foreseeable future are extremely valuable to us in evaluating the Plan alternatives. While, NCCC appreciates the efforts to plan, we also are aware that the combination of rain, snow melt, slides, logjams are impossible to predict and they may surprise even the best laid plans. NCCC applauds the NPS efforts to allow the river to seek its own equilibrium with carefully engineered and geo friendly techniques rather than massive and expensive control structures or similarly expensive and river resource damaging channel dredging.

The NPS preferred alternative # 2 seems to capture most of NCCC concerns and the management directions we would support with some caveats as mentioned above with regard to the criteria for land

PEPC# 796 - North Cascades Conservation Council

acquisition. We do have concerns about some aspects of road rerouting in the vicinity of what has been identified as habitat of the spotted owl but we hope the NPS has exercised due diligence in its consideration of that concern. When one looks in the aggregate at the impact categories [Fig. ii-11, p. xli], however, one is struck by the lack of benefits and major adverse impacts absorbed by Wildlife and Special Status Wildlife. It is difficult to recreate the specific rankings for the Figure, but it points to a need by the NPS to consider significant mitigation for these adverse impacts to wildlife or to seek ways to reduce or avoid these impacts. Alternatively, if the rankings improperly reflect the impact of management actions under the Plan, they should be revised. NCCC review of the wildlife and special status species mitigation measures (pp 77-79) is noted but the question remains if Fig. ii-11 ranks impacts before or after mitigation [hopefully before].

NCCC found it difficult to interpret the NPS meaning with respect to Cultural resources [p.55] and suspect that there needs to some editing where it states that no pre-contact archaeology was found in the Corridor area and therefore it is treated in the DEIS? If no sites are found how can it be treated in the DEIS. NCCC does not want to be seen as trying to second guess the archeologists who made the determination but we would question if the action of the river itself may have covered over potential sites. We would propose that the NPS evaluate this contingency and state how it is prepared to protect and preserve any sites that are exposed by the evolution of the river channel. The issue we are raising here is how the NPS would respond if the river action itself uncovered sites as opposed to the mitigation measures (p. 479-480) for sites and artifacts discovered as a consequence of construction.

NCCC supports the closure of the shooting range.

NCCC supports the construction of trails in the lower valley [Landing to High Bridge] to benefit visitors and to improve safety.

A minor edit but important issue is that it is NCCC understanding that the Board of Geographic Names changed the "Coon Run" "Coon Lake" designation. The Final documents should reflect those decisions [see pp. 91,185, 214, 216, 223, 349, 353, 420, 471, etc.].

Overall, NCCC is pleased with the effort to go with the flow of the river in attempting to plan for the Stehekin Corridor. While NCCC advocated for a more comprehensive look at the Lower Stehekin Valley issues, we accept this more narrowly focused set of plans and DEIS. We look forward to the Final set of Plans and EIS and most importantly toward implementation. In closing, we offer support for finding the necessary funding to implement the plan and we hope there will not be too many surprises.

PEPC# 796 - North Cascades Conservation Council

Sincerely,

David Fluharty on behalf of the Board of NCCC

3621 NW 64th St

Seattle, WA 98107

PEPC# 670 - National Parks Conservation Association

Keep Private: No
Name: David G. Graves
Organization: National Parks Conservation Association
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Correspondence Information

Status: New **Park Correspondence Log:**
Date Sent: 01/26/2011 **Date Received:** 01/26/2011
Number of Signatures: 1 **Form Letter:** No
Contains Request(s): No **Type:** Web Form
Notes:

Correspondence Text

Superintendent Chip Jenkins
North Cascades NPS Complex
Attn: SRCIP
810 State Route 20
Sedro-Woolley, WA 98284

Re: Draft Stehekin River Corridor Implementation Plan/DEIS

Dear Superintendent Jenkins:

On behalf of the National Parks Conservation Association (NPCA) and our more than 340,000 members nationwide, I respectfully submit the following comments on the Draft Stehekin River Corridor Implementation Plan/Draft Environmental Impact Statement (DEIS).

NPCA supports the project's goal of removing flood endangered structures, including NPS facilities and private property, out of the Stehekin River Channel Migration Zone (CMZ). This project will protect water quality, scenic values, habitat and enhance the natural processes of the Stehekin River.

NPCA supports Alternative 2, the preferred alternative and environmentally preferred, for the following reasons:

- Channel Migration Zone and Flood Plain Utilization – Alternative 2 allows floodwater to utilize the natural floodplain instead of being constrained by levees. This utilization of the floodplain reduces flood damage in any one area. Alternative 2 is also preferable because, as the GMP indicates, Alternative 1 and 4 would continue to have moderate to major adverse impacts from development remaining within the CMZ, including private homes, roads and the Company Creek levee. Allowing the river to use the CMZ and therefore the floodplain during flood events aids in river restoration.
- Protection of Private Property – Alternative 2 allows most development in the CMZ to be relocated through long-term actions proposed by the revision of the Land Protection Plan (LPP), which NPCA also supports. Private property in the CMZ under Alternative 2 would either be purchased or exchanged for land outside of the CMZ, but only from willing sellers. NPCA supports the NPS intention not to use condemnation to achieve the goals of this plan. The revised LPP identifies new priorities for acquisition and exchange of private property in the CMZ weighted towards river protection more than scenic qualities. NPCA believes this shift in position is positive, because while scenic qualities within the Lake

PEPC# 670 - National Parks Conservation Association

Chelan NRA are an important value, the long term benefits to the river and all of Stehekin by restoring a functional river system outweigh subjective scenic qualities. Under this alternative, the NPS would also encourage the Chelan PUD to keep Lake Chelan levels as low as possible during spring and fall flood seasons to reduce future floods in the Stehekin Valley. NPCA supports working with private property owners to help move them out of the CMZ while not installing protective measures for those who choose to remain.

- Land Protection Plan Acquisition Priorities – NPCA supports the scoring system used in the Draft Land Protection Plan to identify those properties with a High, Low, or Medium acquisition priority. Among the criteria used for the scoring, NPCA supports the use of criterion number 8 – Presence of permanent structures (development) on a parcel. This criterion gives a higher priority to developed land that is within the CMZ. Permanent structures in these parcels have the potential to enter the river system during flood events, which could significantly damage the integrity and health of the river. Acquiring these parcels in order to remove septic systems and other permanent structures should be included in the scoring system. Finally, NPS should consider a means by which to possibly lower the acquisition priority of a parcel if it provides important visitor services, even if it is within the CMZ. The community of Stehekin is important, in part, because of its offering of visitor services. The NPS should find a means of preserving these services while not threatening the restoration of the river, if possible.
- Protecting NPS Facilities – Alternative 2 would move NPS administrative facilities out of the CMZ, proactively protecting these structures from future flooding. This would include maintenance buildings, NPS housing, fire crew and concession staff housing, septic systems and power lines. The NPS would also restore riparian and upland areas at these vacated sites. NPCA supports proactive instead of reactive measures because proactive actions are often more cost effective. Also, moving the facilities out of the CMZ protects not only NPS infrastructure, but personnel as well.
- Efficient Use of Limited Funds – As the DEIS states, "The NPS has spent more than \$3 million to react to recent flood damage and new threats on an event-by-event basis A comprehensive and integrated set of strategies and tactics to meet the goals of the GMP and to mitigate the risk and impacts from flooding is urgently needed to enable the NPS to use limited funds for the maximum benefit of Lake Chelan NRA. Without this comprehensive approach, the NPS would continue to respond on a case-by-case basis, which costs more and could threaten natural resources and public safety." Alternative 2 would implement the comprehensive approach needed by NPS to mitigate the impacts of more frequent flooding. NPCA is concerned with the budget constraints faced by national parks and supports efforts to efficiently use limited funds for long term benefits.
- Use of Engineered Logjams and Natural Logjams – NPCA supports Alternative 2 because it would allow only the minimum manipulation of natural logjams needed to prevent shoreline erosion threatening public roads, protect water quality, keep the public safe, and allow access to private property. Otherwise, large woody debris, including natural logjams, would be preserved as an important component of a functional river system. Alternative 2 also calls for the use of bioengineered logjams instead of rip-rap to stabilize the bank and prevent erosion. Finally, Alternative 2 calls for enhanced interpretive and education programs related to natural river system processes, such as channel migration and the ecological role of large woody debris. NPCA supports the use of bioengineering as opposed to the use of rip-rap, which can be costly and damaging to the river ecosystem.
- Road Reroute and Improvement – Relocation of the Stehekin Valley Road around the floodplain at McGregor Meadows would have long-term beneficial impacts on the sustainability of the Stehekin Valley Road and provide for meadow and wetland restoration. Other alternatives that would retain the current location of the Stehekin Valley Road would instead result in a continuation of unsustainable land use and affect floodplain functions by leaving more of the road within it. Rerouting of this road is also a good proactive solution that improves the road by moving it out of the CMZ instead of replacing it repeatedly. Alternative 2 would also revegetate 0.7 miles of the McGregor Meadows Access Road after it is relocated and convert it into a trail, thereby preventing habitat and wetland damage that could result from future destruction of the road during flood events. NPCA supports this proactive action as cost

PEPC# 670 - National Parks Conservation Association

effective and providing long term benefits while maintaining vehicular access to these areas. Furthermore, NPCA supports the NPS effort to provide continued access to private property within the Stehekin Valley although not required.

- Complies with Lake Chelan NRA GMP/FEIS – The Lake Chelan NRA GMP/FEIS restricts the NPS from:

1. Manipulating the Stehekin River to protect federal property
2. Manipulating the Stehekin River to protect private property
3. Manipulating woody debris for reasons besides protecting public roads and bridges

The GMP instructs the NPS to:

1. Encourage private property owners to protect natural river processes
2. Encourage private property owners to minimize impacts on wetland, floodplain, and shoreline areas
3. Relocate NPS structures susceptible to flood damage
4. Restore the natural character of the river

Alternative 2 meets all of the requirements in the GMP better and to a fuller extent than any of the other alternatives presented in the Draft Stehekin River Corridor Implementation Plan/DEIS.

In conclusion, NPCA supports Alternative 2 as the best means for restoring the river and protecting public and private property. NPCA agrees with the proactive measures proposed by the park service and appreciates the park service's efforts to work with private landowners to protect their property interests through exchange or purchase. Finally, NPCA believes that Alternative 2 best complies with the Lake Chelan NRA GMP. NPCA believes that projects meant to restore natural river functions will be increasingly necessary and appropriate as the process of river aggradation and increasingly frequent fall flood events occur in the Northwest.

Sincerely,

David G. Graves
Northwest Program Manager

National Parks Conservation Association
Protecting Our National Parks for Future Generations
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PEPC# 783 - Stehekin Heritage

Stehekin Heritage

PO Box 1
Stehekin, WA 98852
February 11th, 2011

Superintendent Jenkins:

Thank you for the opportunity to respond to the draft Land Protection (LPP) and River Management (SRCIP) plans. Both plans fulfill certain requirements of an Environmental Impact Statement. Unfortunately, (EM79a) neither plan provides data or dialogue clearly examining the impacts of planning recommendations on the social, cultural and economic life of the Stehekin Community. Stehekin Heritage concurs with Terry Lavender, a thoughtful conservationist, who wrote you recently stating:

“An environmental impact statement is supposed to consider physical, biological, social and economic factors. Whether or not a community survives depends on a critical mass and has huge social, historic and economic consequences if it fails. None of these are discussed in this document.

*Rural communities face many obstacles to survival. This is a community that currently serves the overall goal of providing visitor services to public land within a National Recreation Area. Recreational access is the reason the public supported the creation of the National Recreation Area. **This is an incomplete and flawed document. It has studied an issue and proposed a solution that (EM79b) if implemented as stated will fail to meet two of three goals on which it is to be based** (Emphasis added). It does not address the social and economic consequences of implementation and should be revisited.”*

The National Park Service draft plans and EIS are currently inadequate. Neither draft plan addresses the impacts of continued land acquisition on Stehekin’s community from a socio-economic or socio-cultural perspective. Because neither plan provides sufficient analysis concerning the impacts of continued land acquisition, Stehekin Heritage petitions the Park Service to:

(EM79c) 1. Cooperate with Chelan County to conduct a socio-economic impact analysis and investigation of the effects of continued land acquisition on the future of the Stehekin Community.

(EM79d) 2. Until this socio-economic impact analysis is completed, we request the NPS support Chelan County and work to enact an immediate moratorium on Federal purchase of private property in Stehekin Valley.

Thank you,

Ron Scutt,
President Stehekin Heritage

PEPC# 783 - Stehekin Heritage

[NEW] Stehekin Socio-Economic Foundation No Further Net Loss of Private Land Base Value

Our goal is to preserve and protect what remaining private lands exist in Stehekin and call for “No further net loss of private land base value.” We champion the cause that all pertinent governing agencies recognize, adopt and support this principle, thereby displaying support for the future of the private community within Stehekin, by assuring permanence of our land base.

In order for Stehekin to sustain a unique and valuable private community into the future, the security and permanence of the valley’s current private land base is critical.

The value of Stehekin’s private community has been proven over time, and was noteworthy enough to be set aside in legislation, and preferred by the visiting public. Since 1968, the private land base within the valley has been reduced by seventy five percent, affecting the future character of Stehekin. With lands being removed from private ownership without limitation, we are at a critical point in time as to whether the value and a one-of-a-kind culture can continue.

There are:

417.74 remaining private acres

1700 original private acres totaling a 75% reduction in private lands

62,000 surrounding acres of Lake Chelan National Recreation Area

The recommendations included in this draft LPP/RCIP response are presented with the intention to support management policies that will sustain the heritage and perpetuation of the Stehekin Community.

PEPC# 783 - Stehekin Heritage

1. EIS Social/Economic Consequences Insufficiently Defined Concerning the Effects of Continued Land Acquisition on the Stehekin Community

“An environmental impact statement is supposed to consider physical, biological, social and economic factors. Whether or not a community survives depends on a critical mass and has huge social, historic and economic consequences if it fails. None of these are discussed in this document.

Rural communities face many obstacles to survival. This is a community that currently serves the overall goal of providing visitor services to public land within a National Recreation Area. Recreational access is the reason the public supported the creation of the National Recreation Area. This is an incomplete and flawed document. It has studied an issue and proposed a solution that if implemented as stated will fail to meet two of three goals on which it is to be based. It does not address the social and economic consequences of implementation and should be revisited.”

Terry Lavender

PEPC# 783 - Stehekin Heritage

2. Socio-Cultural and Socio-Economic Confusion EIS Impact of Land Acquisition

Statement by Kim Scutt Public meeting in Stehekin~01/10/11

As a long time resident, property and business owner, I was interested in the thrust of the two planning documents as they pertain to proposed Land Acquisition policies by the NPS.

I was especially interested to see how the NPS evaluated the effects of their continued land acquisition on the Stehekin Community from a socioeconomic viewpoint. Both planning documents contain information concerning the effects of land acquisition on the community.

The SCRIP document addressed the importance of performing a Socio-economic impact analysis relative to gateway communities.

The LPP refers to the socio-cultural impact of Land Acquisition practices on the private community.

The SRCIP addresses the effects of land acquisition in the following manner: pg. 367-The socio-economic impact analysis states, "Additional negligible effects would result from changes in population related to acquisition of private lands in Stehekin."

The LPP references socio-cultural effects of Land Acquisition. Here it states, "Acquisition has the greatest potential for significant change in the lives of individuals or in the composition of the community."

Negligible effect...significant effect..... I suggest a disconnect...?

My purpose in citing this language is to illustrate this disconnect. The fact is that the NPS has yet to develop a congruent and clear understanding with our community and the public as to how to go about identifying and addressing the effects of this acquisition policy on the private community.

Throughout our subcommittee meetings, we have discussed the effects of land acquisition. We are making a serious effort to respond to the current draft plans in a manner that will clearly articulate our perception of the effects of continued land acquisition in the Stehekin Valley.

PEPC# 783 - Stehekin Heritage

3. Private Land is Vital to Our Existence as a Community ~ For the Present and the Future

Statement by Liz Courtney ~ Public meeting in Stehekin~01/10/11

Hello Chip, Jon and staff,

I know there has been a tremendous amount of work done and we have much more to do. No one likes to be at odds but the LPP puts us there.

I understand the reasoning, as it was explained, that the LPP was used as an avenue or tool that made land trades more possible.

However, the LPP or Land Acquisition Plan, as it was first called years ago, is at odds with the future of our community.

Land acquisition, left unchecked is much like a flooding river that is undercutting the bank. Slowly, if left unchecked, it washes away the foundation of our community. Land acquisition is and will continue to eat away at our foundation if not put in perspective and stopped.

If the LPP is the only vehicle for Land Trade that has been explored, then it is time to go back to work.

Let us work with you and your staff, and Chelan County towards the security of our community rather than the undercutting by land acquisition. To us, every piece of private property left is essential.

Guaranteeing no further loss of land is essential.

Here are some areas that need addressed that we are willing to work on together:

1. Because all our properties are now on a priority list, and we all fall into the CMZ zone, every piece of land is eligible for trade. But the killer is, it is also eligible for purchase. Every piece is then left vulnerable to changes in staff, priorities and political climates.

We are adamantly opposed to any further land acquisition. Emphasis in your plans should use only land trades and creative solutions and only in the case of hardship caused by the river. "Let the river decide" which parcels are high priority. The river will change and so will those parcels in harm's way. This needs a more thorough discussion.

2. NPS has been willing to pay high prices, possibly above market value and possibly above what would be considered reasonable. This affects the level of our property taxes, as well as driving up the costs of successive land purchase as owners know they can ask a

PEPC# 783 - Stehekin Heritage

high price. This also drives up the market price of other parcels. This needs a more thorough discussion.

3. Land trade is a good solution if property rights and net value are transferred equally to the new piece. Net loss of private land value cannot be lost in the transaction.

4. We understand that there are those that would feel property should be sold or donated only to the park for preservation purposes. We are discussing avenues that this could still happen with no net loss of the amount of private land we have now.

5. Loss of this community in any form be it property, character or ability to serve the public from private land is in direct opposition to enabling legislation. Use this argument to support a new approach to supporting our land base and helping are future be secure.

We feel strongly enough about this issue as to begin discussion with the County asking for an immediate moratorium on NPS land purchase to be put into effect until the affect of land acquisition on our community has been fully realized and investigated.

Let's be creative with these types of scenarios to find workable solutions in place of acquisition and realize that any further land acquisition undercuts our community base to its detriment.

We look forward to working with the NPS cooperatively on resolving these important issues.

PEPC# 783 - Stehekin Heritage

4. The Many Facets of Private Property Value

Statement by Tom Courtney Public meeting in Stehekin~01/10/11

Thank you for the opportunity to make comment tonight about the Draft Land Protection Plan. Later you will be hearing suggestions for separating the LPP from River Management. I would like to comment on the effect the LPP has on Stehekin as written and make the following points:

1. We are far more threatened by the LPP than the river because all of our properties are on a priority list for acquisition.
2. We are threatened by the amount of property that has already been purchased by the NPS since 1968 that totals 75% of original private lands.
3. If implemented, this plan is all about the private land base disappearing and leaves our community vulnerable to unlimited acquisition.
4. Is it the NPS intention to eventually buy all the property in Stehekin?
5. At what point will NPS land acquisition stop?

Private Land = Community

What is the value of private land to our community?
We will leave with you the work we have compiled, but briefly we have covered:

1. Private land is vital for the future of our community.
2. Private property and the goods and services that result from residents living here are a major reason that the community was and is unique. Original legislation speaks to this value and was a major element for the creation of the LCNRA.
3. Private land provides the opportunity to enhance the visitor experience with quality accommodations and diverse recreational opportunities.
4. Private land can provide the opportunity for support services to the NPS and the visitor experience.

For example, I was fortunately able to purchase the last fifty feet of shoreline, not yet purchased by the NPS near the boat landing which made possible a Stehekin-based barge service and seasonal bike rentals. This piece is the only area that private business takes place in the entire Landing area. This piece of land was and is crucial to the Stehekin Community's existence and provides opportunity that would otherwise not be available.

PEPC# 783 - Stehekin Heritage

5. “No Net Loss of Private Land Base Value”

Language that Should be Embedded in both Draft Plans and the EIS

1. Private Property is Essential for Stehekin’s Future

Any further purchase of private land by the NPS is destructive to the future of the Stehekin Community. The private land base has all ready been reduced by seventy-six percent of original private acreage in the surrounding 62,000 acres of the designated LCNRA. The original community in 1967 had a total of 1620.58 acres. A community cannot survive or invest in the future with continual reduction of land base and value. NPS purchase poses an imminent threat to Stehekin’s viable future.

The current planning efforts do not objectively define the value of private property as it relates to the Stehekin Community.

2. There are **no limitations** cited in the LPP or any NPS policies regarding how much land in Stehekin will be purchased by the NPS over time. In fact, the Current Draft LPP lists all properties except 4.7 acres as desirable for their ownership.

3. Before the Land Protection Plan is finalized, it is **essential** that the NPS acknowledge and identify the effects of land acquisition upon the community of Stehekin in a far more comprehensive and in-depth manner than is currently available in the Draft Land Protection Plan.

We are currently discussing the concept with Chelan County to find the most applicable avenue for this investigation and how land acquisition affects:

- Stehekin’s community/culture (historical and current)
- Stehekin citizens’ opportunities to create future businesses, investment security, residential security and community life.
- The human interest currently available to the visiting public: Local, authentic interpretation of history, homes and defining characteristics of mountain life.
- Effects of NPS land acquisition on land prices, taxes and other economic considerations from 1968 to the present.

4. Any further reduction of the Private Land Base by NPS purchase in Stehekin **creates a deficit** which we believe violates **Congressional intention** when passing PL 90-544. This legislation spoke of the value, character and importance of the Stehekin Community. Legislators listened to public testimony and removed Stehekin and the LCNRA from the North Cascades National Park in 1967 and set aside this area for national recognition and the specific purpose to preserve the unique character of the Stehekin Community. Senate Report 700 is cited below:

PEPC# 783 - Stehekin Heritage

SENATE REPORT 700: Senate Report speaks specifically to the Lake Chelan National Recreation Area (LCNRA). On pages 30 and 31 under "Boundary Changes" (Here the reasons for placing Stehekin in the LCNRA rather than the National Park are listed.) "Designate the lower Stehekin Valley and upper Lake Chelan areas the Lake Chelan National Recreation area instead of a part of the park. **Many of the yearlong residents of the Stehekin Valley are descendants of the original homesteaders. Some 1700 acres, mostly on the valley floor are in private ownership, and in the past several decades a number of summer homes have been built....**The lake...will serve as the primary access for park and recreation visitors approaching from the southeast. **The village and the lower valley, therefore, will have considerable use, and development to accommodate these visitors will be necessary....All of these factors were important in the committee's decision to create a 62,000 acre recreation area here, instead of giving the area national park status.**" (Emphasis added).

5. Stehekin residents living on private land **provide the following services** for the visiting public, valley residents and the National Park Service, historically and currently, creating a **quality experience** hosted by an authentic mountain community:

- Overnight tourist facilities: quality experience with local rental cabins located throughout the valley and along the shore of Lake Chelan, Stehekin Valley Ranch providing beautiful up-valley location, and private homes where visiting families stay
- Quality world-class bakery, nationally recognized and a highly anticipated renewal spot for Pacific Crest Trail hikers
- Recreational opportunity providers: horseback riding, kayaking, fishing guide, rafting, horse-supported pack trips
- Service providers/private businesses: freight, construction, heavy equipment, boat transportation, bike rentals
- Historical enhancement: Stehekin Choice writings, private authors, private family documents and photos, homesteading history
- Interpretation of the Valley: including authors, art, tours
- Human interest for the visitor: people surviving in the mountains is interesting to all
- Artistry: many venues – photography, painting, graphic artists, woodworking, fabric artists.-local creations available to the visiting public through “The House That Jack Built”
- Pioneer skills that blend with the valley history: woodworking, leather work, blacksmith skills, horseshoeing, archery
- Gardening as representing survival and enhancing the area with beauty and practicality-nearly every home has one
- Emergency intelligence and help: knowledge of the area in search-and-rescue, in fire situations and floods
- Survival skills as examples of a lifestyle gone by: isolated from urban life, living close to nature, value to the rest of the country as a reminder of our ties to the past

PEPC# 783 - Stehekin Heritage

- Hunting –pack animals and packers provide access to high-country hunting
- Saving money through contracts with local residents-more cost effective

Overall, Stehekin is a **unique community** and dwelling place due to its location in the mountains, isolation, history of pioneer families, seasonal beauty, and the mountain-lifestyle's influence upon people's lives. The visiting public enjoys the difference of this culture that is recognized in enacting legislation. NPS management philosophy as expressed in the LPP should specifically include the value of these services to the NPS, the visiting public and the Stehekin Community.

Any further reduction of private lands directly affects the opportunities for similar, creative and diverse experiences for the visiting public. "No net loss of private land value" supports the unique, creative and positive value of the Stehekin Community and serves the public interest.

6. Elements that support and protect the private community now and into the future dependent on private land base:

On a Local Level

- Private Land Base (foremost and imperative)
- Commerce-the ability to make a living
- Location and ability to gather-bakery, post office, community hall, church
- School property and building
- Resources (water, sand, rock, gravel, timber)
- Roadway and Access, Airstrip, Trails
- Transportation up the lake (Boats and barges)
- Private Local Service providers: Carpenters, Heavy Equipment, Freight Barge, Fuel, Well Drillers,
- Power Supplier (Chelan County PUD)
- Communication with Emergency Help (Sheriff, medi-vac)

On a Cultural Level

- Families that wish to stay and reside here, committing time here now and into the future, wanting to raise children here
- The determination to live this lifestyle
- Love of Stehekin~ pride of place and people's strong relationships
- A unique one room school and excellent program
- Individuals tied to the past through pioneering generations
- Stehekin Heritage
- Stehekin Choice (online newspaper)
- Social Events~ Trillium Festival, Summer Music Weekend, Spinning Rendezvous, School Events (graduations), Christmas singing, Choir, Church Events, horse shows, scouting, archery shoots, Mother's Day picnics

PEPC# 783 - Stehekin Heritage

In Summary - “No net loss of private land base value” is essential for these reasons:

1. Stehekin is a valuable community for visitors, residents and the NPS.
2. Legislation set aside the LCNRA largely due to the existence of the Stehekin Community
3. Security, investment and family life into the future depend on a healthy, viable community which can only exist on private lands.

We ask the NPS to:

1. State overtly in your overall objectives and goals that your goal is to preserve and support an active vibrant community of people living and working in Stehekin as an enhancement to the visitor appreciation and use of the LCNRA.
2. End land acquisition in the Stehekin Valley due to detrimental effects on the Stehekin Community and consider creative and futuristic land exchange concepts that support “No net loss of private land base value.”
3. Use enabling Legislation as a tool to support these actions (1 and 2)
4. Halt land acquisition immediately until an investigation is complete concerning the affects of Land acquisition upon the Stehekin Community.

PEPC# 783 - Stehekin Heritage

6. Draft Plans and EIS – Incongruent with Enabling Legislation LPP and the CMZ Flawed Land Acquisition Priorities

Statement by Cliff Courtney Public meeting in Stehekin ~ 01/10/11

It was through a long process of failed bills, contention and compromise that we ended up with our enabling legislation which is public law 90-544. One of the main reasons this area was taken out of the park proper and put in to a NRA was because of the Stehekin Community and the desire for a wider range of recreational opportunities that are not allowed in a NP. After the passing of 90-544 and the subsequent occupation by the NPS two main topics have been at the forefront. These two areas of much debate have been:

1. What are the compatible uses and activities in an NRA?
2. How much property should the NPS acquire or otherwise consume before the community that congress sought to protect would no longer resemble the character and value that was recognized at that time of the act?

While I appreciate the spirit of cooperation and partnership that we may be enjoying today, we must not settle for language that will be detrimental to our community in the future. This document is essentially a contract and every word has meaning. The one clause in our enabling legislation (PL 90-544) that has been the salvation of our community over the years is the clause that reads in partthe Secretary may not acquire any such interests within the recreation areas without the consent of the owner, so long as the lands are devoted to uses compatible with the purposes of this Act. It is my opinion that the only reason we are here today representing a community at all is because congress, in its wisdom included this clause. A Land Protection plan delineates what is and is not considered compatible and if the wording is left as is in this LPP it will have devastating affects upon our community. An example of this is to first identify a vast majority of the valley as part of the CMZ and then to state that any building with in that zone would subject the owner of the property to a determination that the use the property is being put to is incompatible. This is what this plan currently does in section 3.4.4.

The matrix used on page 58 to determine which property to target for acquisition is both assailable in the light of congressional intent and detrimental to the community. By your own admission this matrix leaves a scant 4.75 acres that remain out of the high or medium priority for acquisition. This is particularly repugnant when you use the following statement in section 5.2, “The number of low priority tracts was reduced substantially, reflecting the more severe flood conditions”. The fact is that only three of the nine factors have anything to do with flooding.

In order to soften the blow of the above determinations we have been assured that just because the plan says that property is identified as high priority does not mean the NPS will seek to actually move to acquire or protect the property. There is absolutely no trust that future administrators will be so benevolent. One should also consider that at any time

PEPC# 783 - Stehekin Heritage

Congress could choose to fully fund the Land and Water Conservation Fund or allocate other funding for acquisition of private property within federal areas and plans like the LPP will be exactly what they will use for priority targets.

I am a supporter of the exchange program and much credit needs to be given for including this option for those folks who are in the bite of the line of the Stehekin River. There are several factors, however, that need to be addressed:

- The inventory that you have identified for possible exchange is woefully inadequate when compared to the number of acres you have identified as high priority for protection.
- The criteria for determining which property would be prioritized are skewed and fail to properly put those properties in the forefront that are currently in imminent danger.
- It is of utmost importance that once properties are exchanged that the property that remains in private hands be left with adequate development potential to fulfill the uses Congress identified as being essential or allowed.

The dramatic flood event of 2003, which may never be duplicated even in 1000 years, destroyed three summer homes and one cabin that was built for summer use but that was being used on a year-around basis. That damage was regrettable but when you compare the impact on our community of the recent floods compared to what this plan would do, the river seems like a much-preferred adversary. Having said that I believe there are a number of positive actions proposed by the actual river management portion of the proposal. Much of the contention and trepidation comes from the LPP portion of your planning. I propose we separate the two documents. It seems to be the position of the NPS that all of the actions proposed are currently within the scope of the current GMP.

Let us work together to identify quickly the actions that are proposed for actual river management and then let's agree to extend the timetable that involves reworking the LPP. During this latter process we can hopefully agree on a plan that leaves the community intact and alleviates the detrimental impacts of the river at the same time.

Cliff Courtney, VP Stehekin Heritage

PEPC# 783 - Stehekin Heritage

7. Notes Concerning Nine Priority Criteria

Difference between 1995 LPP and Draft LPP 2010

Growth of Priority List

We are told that much of the LPP is brought forward from the 1995 LPP, however, the 1995 plan does not have this extensive criteria list. If nothing else, the CMZ zone has been added to the floodplain zone included in the 95 plan. (See page 20, 3.4.4 section 2.) The result is a new zone that covers virtually all the valley floor.

Problems w/ Criteria List

- Instead of listing criteria, simply make land trades as river dictates. Property that is being eroded and most threatened provides high priority.
- NPS has proprietary jurisdiction to manage their own land, however, the criteria used in this LPP are beyond . . . their scope of their jurisdiction as it applies to private property.
- LPP is not a river management plan; it is an acquisition and zoning plan
- If the NPS is going to use the CMZ as an area where no development can take place, then they need to vastly expand the number of properties that can be traded.
- When considering all of the nine criteria for land acquisition the NPS will never have enough land to trade without expanding beyond the lands purchased using Land and Water Conservation Funds.
- Currently there are only 4.7 acres established as Low priority for potential acquisition. Viewed from the perspective of perpetuating a viable community, the language of the LPP is unacceptable.
- If land on the valley floor is truly going to be consumed by the river according to NPS projections, NPS criteria reduced the amount of land available for trade.
- NPS has stated that “things have changed considerably” enough to merit new plans. They raised the issues. They need to [should] provide the community with options for future land base.

Problems with Criteria Specifically CMZ Zone:

- Data quantified since 1925. Basing the CMZ boundaries on a 1000 year projection is as much conjecture as it is science.
- CMZ zone seems based on Global Warming Trends.
- If the NPS is going to use the CMZ as an area where no development can take place, then they need to vastly expand the number of properties that can be traded.
- Criteria number 8 shows absolute bias against the value of private development and community life in the Stehekin Valley. Shows no recognition of Stehekin’s unique legislative history and legislation.
- Rest of criteria list is outside of “River Management” using areas that do not apply to the river.

Criticism of Philosophies and Management in Proposed Plans:

General Remarks:

- The NPS communicates that changes in the LPP are necessary for land trades and that the NPS goal is not to endanger the community. The oral promises by the NPS are not supported by specific language in the LPP. In fact, specific language would enable the acquisition of all but 4.75 acres of private property.
- If NPS really means to trade, they should have as many acres open for trade as they do on their priority lists. This is a good reason to reduce high priority category to only parcels that are immediately threatened, and landowners have expressed interest in trading. All other criteria appear as an agenda
- If land on the valley floor is truly going to be consumed by the river according to NPS projections, NPS criteria reduced the amount of land available for trade.
- **Instead of listing criteria, simply make land trades as river dictates. Property that is being eroded and most threatened provides high priority.**
- Criteria Table represents an agenda if NPS is interested in ALL lands but 7.4 acres.
- Reduction of private property along river reduces number of neighbors to work together with for bank hardening or pro-active protection
- These plans and their acquisition priorities and goals are far more detrimental to community than any flood damage
- There is no guarantee that next administration will use these plans in the same manner, intent or good will philosophy. Can NPS add to their plans guarantee and support of our community, even no net loss of private land base value?
- NPS has stated that “things have changed considerably” enough to merit new plans. They raised the issues. They need to provide the community with options for future land base.
- Instead of listing criteria, simply make land trades as river dictates. Property that is being eroded and most threatened provides high priority.

QUESTIONS:

1. Is this valley possibly too narrow to be managed using a CMZ zone? (Especially if all private acreage but 4.7 acres comes under some kind of criteria)
2. Is LPP only avenue for River Management? Is the tying of the two together perhaps a futile or dubious avenue?

8. Potential Consequences of Rerouting the Stehekin Valley Road

Statement by Mark Courtney Public meeting in Stehekin~1/10/11

The NPS's preferred alternative includes rerouting segments of the road between mile 5.7 to mile 7.5.

The opposition to the preferred alternative is based on the following points:

- Moving the road would take away a significant (and presently the ONLY) defense of private property against erosion by the river on public land
- [Protected road banks as seen along the Entiat and Wenatchee rivers, and Mission, Nason, Icicle, and Peshastin creeks and many others are examples of stable roadways and best access corridors.]
- If the road is moved, massive amounts of woody debris, silt, sand and gravel would be washed into the river. This deposit would further elevate the river bed and increase the size and number of log jams - the outcome of which could likely be catastrophic damage downriver to roads, utilities, bridges, residences, campgrounds and historic sites, resulting in continued expense and disruption to the community of Stehekin
- If the road is moved, much of the historic wagon road would be obliterated, and an important link to Stehekin's history would be lost
- The proposed reroute is in an area that has been a major migration route for deer, elk, cougar and all migratory animals. The area is also a winter-feeding area during mild winters
- The preferred alternative does not adequately address the safety issue of the building of a road at the foot of a very steep, unstable, hillside. A road moved from the valley floor, closer to the hillside will increase the potential for damage from snow slides in winter, and dirt and rock debris washing down during summertime "gully washers". Aside from the potential hazard to travelers the maintenance of such a road will be costly.

Specification Issues:

The specifications for **all** the alternatives need to be examined. The NPS favors the following: "[pave and reduce] to a single-lane (12 - 14 feet wide) with pullouts that would be visible from both directions (18 feet wide; 30 - 35 feet long) [the road between Harlequin Bridge and 9-mile] (NPS 1995a:33)" (Page 29 of DEIS).

Which I believe the County would address thusly:

The following is a quote from a retired County road engineer referring to the development of an intervisible single lane road. "Chelan County has looked at this approach through the years and has not used it as an alternative, nor does it allow developers to use it. Some of the adverse aspects of single lane intervisible turnout roads

PEPC# 783 - Stehekin Heritage

are: Too many signs required (by the Manual of Uniform Traffic Control Devices), extra construction costs to develop turnout sections, potential liability, traffic does not stop or wait at turnouts. I would advise against the adoption of the single lane intervisible turnout roadway."

An example of how those road specifications work in practice are the recent reroutes along the Stehekin road. There are blind corners, steep hills, dangerous shoulders - and a roadway that is difficult to use and maintain in winter

The NPS plan is a shift to a one-way narrow road (from Harlequin Bridge to High Bridge) that creates significant challenges for all users

The NPS shuttle buses that run on a mandated schedule --four months of the year, four times a day from the landing to High Bridge-- would be unable to pass with the specifications that are preferred by the NPS

The **diminishing** private property acreage within the Stehekin Valley is a serious threat to the viability of the Stehekin Community at present, *and* for future generations. We believe that the private property base of the Stehekin Community is worth protecting, and leaving the road where it is offers some protection for private property. Therefore, we favor the present alignment of the Stehekin Road. The NPS is allowed to take measures to protect the road against erosion by the river.

In summary, I have observed from living my life in Stehekin that one of the big draws to this area is the unique Stehekin Community. Families from all parts of the country have made huge sacrifices to be a part of this community.

My grandchildren, Ray and McKenna, are the 6th generation of our family to live in the upper Lake Chelan Valley - my great-grandparents settled at Moore Point in 1890. A community in the Stehekin valley is part of my heritage, and the heritage of my children and grandchildren. Times change, and there are many challenges to families and communities now that didn't exist 120 years ago, but if these NPS plans are enacted they would be much more than a challenge to this community, I believe they will put an **end** to the private community of Stehekin. I believe this Community is worth preserving - as living and vibrant.

I, therefore, request that the NPS support the Stehekin Community and Chelan County in enacting an immediate moratorium on Federal purchase of private property in Stehekin Valley until an investigation can be done to evaluate how much property is necessary to maintain a viable, healthy community.

PEPC# 783 - Stehekin Heritage

9. Facilities

Maintenance/Housing and Community Culture Effects

Stehekin Heritage supports removing the facilities section from all SRCIP alternatives until a clearly articulated philosophy and alternatives are developed for this maintenance/housing complex.

Stehekin Heritage did not initially comment on the “Facilities” element of the planning documents in that we recognize that the NPS is entirely responsible for developing maintenance and housing facilities for federal employees. As word of our review of planning documents traveled through the community many individuals approached us relating their concerns about the development of the maintenance/housing complex suggested by the NPS in all the draft alternatives.

We understand this facility was originally proposed in the 1995 General Management Plan but hoped this ill conceived idea would never be considered in the current planning effort. Why do we consider the current Facilities section of the SRCIP to be ill conceived?

1. To the greatest extent possible, the proposed Maintenance/Housing complex should not be developed on property purchased with Land and Water Conservation funds. Because of the difficulty identifying property for exchange (currently, there are only 24 (check) acres available for exchange) the maintenance/housing facilities should *not* be placed upon property that could otherwise be exchanged.

2. Stehekin Heritage recommends that maintenance and housing facilities be separate, clearly differentiated projects.

Stehekin Heritage understands the rationale for building maintenance facilities outside the floodplain as an integrated unit that includes maintenance buildings, a solid waste facility and fire cache. These elements of valley maintenance and protection may well be placed together with obvious advantages, however, we believe the recommendation to house federal employees in a compound or multi-family housing facility is insensitive to NPS employees and the community culture that exists in the Stehekin Valley.

Currently, NPS employee housing is integrated throughout the valley, therefore NPS employees and families are assimilated interwoven throughout the valley as neighbors with valley residents residing on private property. This integrated living pattern creates the positive sense of community we experience in the valley.

Unfortunately, while the assimilation of NPS employees throughout the valley has positive community value, NPS administrators seem determined to support building a housing complex where federal employees will be placed in a multi-unit compound isolated from most valley residents. This is a perilous policy for an area where the relationship between the NPS and community is unique and requires amalgamation rather than isolation.

PEPC# 783 - Stehekin Heritage

We realize a combined maintenance, solid waste, fire fighting, residence complex may be administratively advantageous from several perspectives (listed on page 351, 89-90, 361-62) for many Park Service administered areas, however, if the management goal of the NPS is to cluster NPS employees and families into a housing complex separating them from the rest of the community, this represents a vast change in Stehekin's culture of integrated housing for federal employees and is entirely inappropriate management policy for the Lake Chelan National Recreation Area and should be terminated immediately.

Furthermore, there are compatibility issues embedded in the suggested Maintenance/Housing element of the draft plans. We challenge both the desirability and the legality of locating all of these uses on a single piece of property given Chelan County Zoning and the mandates of the Washington State Growth Management Act.

Page 90 of the draft SRCIP states, "Relocate/Construct Park Housing: Implement the GMP action to relocate housing threatened by flooding and **construct new seasonal and permanent housing at the north end of the airstrip, in conjunction with the maintenance area on about 5-8 acres. Up to 11 housing units could be constructed** (emphasis added). . . . Future site planning would identify building locations and footprints and would be subject to additional environmental analysis."

If a private property owner of 5-8 acres located out of the floodway suggested constructing a building complex that included a large maintenance shop and accompanying maintenance buildings, a fuel facility, dormitory, a solid waste management center and up to an eleven unit housing complex (could be considered "condominiums") on his or her 5-8 acres. We are curious as to how the NPS and the environmental community would respond.

We do know that if the current managers continue to embrace this idea and build the complex referenced in all four alternatives the NPS will be, by their actions, defining compatible development in the Lake Chelan National Recreation Area.

We are aware that the construction of a maintenance/housing facility was included in the 1995 GMP, however, the community has received no clearly articulated set of alternatives, no detailed economic analysis or pertinent data to review concerning these plans. The draft SRCIP states there is little data included concerning the maintenance/housing development plans. Furthermore, the draft plan states that planning documents will be written and distributed to the public at a future date. Stehekin Heritage supports removing the facilities section from all alternatives until a clearly articulated philosophy and alternatives are developed for this maintenance/housing complex.

We have questions concerning the facilities element of the planning documents:

- Has the NPS polled current local employees to ascertain their thoughts concerning the development of the maintenance/housing facilities before developing or issuing the SRCIP and LPP and the facilities plan? If so, we would like to review that data.
- This new facility could threaten the continued use of the airstrip, as those living within the complex could consider the noise of incoming and outgoing aircraft a

PEPC# 783 - Stehekin Heritage

nuisance or safety issue. We ask if the NPS has contacted the State concerning the planned maintenance and housing development so close to the Stehekin Airstrip? We would like to review any data from the NPS has received from the state as concerning to this issue any effects upon airstrip.

- If the housing complex were completed, most NPS employees would be centralized in one area. In the event of an emergency all NPS resources (including radios) will be concentrated in one area, reducing the ability of the NPS to respond (especially if the river is flooding over Company Creek Road). Has the NPS addressed the question of radio availability throughout the community at times of emergency?
- We have seen no official plans for the maintenance/housing complex. The SRCIP leads us to believe that the public will receive more detailed information concerning the configuration of the maintenance and housing units in upcoming planning documents. Has the NPS produced a development concept plan for the maintenance and housing facilities at this point in time? If so, Stehekin Heritage requests these plans to be sent to us so we can review them before any further planning documents are created for the maintenance/housing facilities.
- We are concerned about the cost of the maintenance/housing facility. We believe the estimated cost of the complex will be between \$12,000,000 and \$14,000,000. We are concerned about the amount of money budgeted to complete such a project. Hopefully, future plans will include a more itemized budgetary analysis of the project. If the figure of twelve to fourteen million dollars is one the NPS has estimated at the present time, we request you send the generalized proposed budget for our review.

What is your vision for the valley?

We also have the following concerns and comments that need addressed before adoption of any new plans. Since 1968 the NPS has operated on the assumption that the private businesses at the Stehekin Landing should be publicly owned, that numerous existing structures be purchased along with 75% of all private property, that standing NPS crews would largely replace contracting, that the transportation system would be nationalized, that a full gamut of rolling stock and heavy equipment would be purchased and maintained, the NPS would expand law enforcement personnel instead of using county law enforcement and would take over the road from the county and solid waste facilities would be operated by the NPS as well. The cumulative effect of all of these decisions was and is enormous. It was also an extreme departure from how the USFS managed the area even though hearings indicated that little would change and that the NPS would have little need of purchasing any additional property for administrative use.

Because of the above departures in management from those the USFS employed there is now a need for maintenance crews and housing, housing for resort employees, a facility for solid waste collection and recycling, a need for storage and maintenance facilities for heavy equipment and rolling stock, the need for a fuel facility, and housing needs for numerous law enforcement and interpretive staff.

PEPC# 783 - Stehekin Heritage

The socio-economic impacts of the totality of NPS administration must be investigated and alternative ways to accomplish the above stated tasks need to be considered. Examples of alternative solutions could include: Selling back property and business as was recommended by the GAO to private interests, returning the transportation system to private hands, encouraging privatization of solid waste collection and facilities in conjunction with Chelan County responsibility and contracting NPS disposal needs to this company, Contracting maintenance for the road, facilities, lakeshore erosion and dock maintenance, trails, and campgrounds to companies that already have tools and machinery that is duplicated by the NPS for no apparent reason other than to build an empire. If and when any or all of these ideas are pursued then it is obvious the NPS will have less need for this enormous (half of the square footage of the average Wal-Mart) and expensive expansion

Of great concern also is the concern that the NPS will “cut and run” in much the same way you are doing by abandoning stretches of road and moving to higher ground. Certainly there are isolated cases where this is necessary but to do it as a matter of policy is once again being a bad neighbor. Abandoning areas such as the strip of houses (that were formerly private) above Harlequin Bridge will not only allow new material in to the river but will also jeopardize the road, the bridge, and other private property owners. The right answer is to figure out a solution to protect this area and the existing housing and infrastructure. It is arguable that [re: Housing above Harlequin Bridge] the cost to obliterate these structures and to restore the sites would be more than enough funds to remodel these units and thereby eliminate the need for new housing at a much lesser cost.

Other concerns with this proposal are that this (facility will have negative impact on private property owners in the area and that housing in proximity to our one and only airstrip will only put more pressure on closing the strip for private or commercial traffic because of noise, dust and safety issues. It is also apparent that if the valley trail is built or if the road is relocated at the Lower Field area then the best siting for a firing range is behind the airport and housing in close proximity is not desirable.

10. Stehekin Heritage Alternative 5

Focus	Alternative 5	Reason
<p>Management concept / working title</p>	<p>Manage LCNRA under the original intent of congress with Preservation of Private land, the historic community of Stehekin, public access, and recreation being the priority.</p>	<p>Alternatives 2-4 talk about implementing a CMZ with the intent that all private lands in the CMZ would be moved or purchased. This amounts to about 70% of private land and most of the private businesses in the valley. Alternative 1 is no better as it does not follow the original intent of congress or the findings of the 1981 GAO Report, Lands in Lake Chelan National Recreation Area should be returned to Private ownership. The current policies of the NPS seem to be to acquire land and manage the LCNRA as if it were a National Park. It is clear that in both the founding legislation and the GAO report - LCNRA was to be preserved as a community with private land holdings, and that public lands were to be managed for the purpose of access, recreation, and preservation of the historic community of Stehekin.</p>
<p>Floodplain and Land use concept</p>	<p>Large floods would continue to be constricted by development in the floodplain. The Stehekin Valley Road would be retained in its current alignment, with the grade raised through McGregor Meadows. Because of the road grade raise, water from large floods would be restricted from some of the floodplain. There would continue to be a potential for new development on all private property.</p>	<p>We find that all through this plan, including alternative 1-4, that the preservation of the Stehekin community and public recreation are not the priority, and that the CMZ is being used as a tool to make a case for land acquisition in alternatives 2-4. In alternative 1 many of the good improvements are completely left out. These proposals also use the revision of the</p>

PEPC# 783 - Stehekin Heritage

	<p>Land trades would be a priority in flood prone areas, with highest priority being lands most at risk. Erosion protection measures would be implemented at seven sites, including those identified in Alternative 3, plus at Milepost 7.0 and 9.2. Other sites would be added as needed.</p>	<p>LLP to further restrict private property rights.</p>
<p>Land acquisition and exchange concept /LPP</p>	<p>Land trades would be made available on a basis of most at risk to least risk, under a policy of no net loss of existing land base or private property value. Exchange must allow reasonable use and development according to local standards and compatible with the intent of Congress in SR 700.</p>	<p>The GAO report clearly states that there should be no further purchase of private property -and, in fact lands should be returned to private ownership. We support land trade in some sensitive areas along the river with a no net loss of land base or land value. The NPS Alternatives do not follow the original intent of congress or the GAO report.</p>
<p>Response to flooding and erosion</p>	<p>As needed, the NPS would continue case-by-case response to flood-related damage affecting public facilities. Private landowners with development in the flood plane would continue to be responsible to self-implement flood protection measures. NPS should coordinate with Chelan County to protect private property <i>from flooding</i> (where an exchange is not viable). Road through McGregor Meadows would be elevated.</p>	<p>Alternatives 1-4 effectively abandon private property in the proposed CMZ to be flooded, with no long term flood prevention measure being taken.</p>
<p>Roads</p>	<p>MANAGEMENT ACTIONS</p>	

PEPC# 783 - Stehekin Heritage

<p>Stehekin Valley Road: Reroutes</p>	<p>Reroutes None. Road grade raise at Milepost 6.25 to 6.53. Road grade raise of 1 — 3 feet at Milepost 6.95 to 7.14. Slight realignment and slope work at Milepost 6.0 to 6.5. Lower Field Riparian Restoration Riparian restoration would occur along the bank to the edge of the existing roadway adjacent to the Lower Field. Bank hardening or Barbs would be placed as need to protect road.</p>	<p>The proposed Reroute in alternative 2 essentially abandons a large portion of private Property. The proposed reroute is too narrow, steep and curvy and generally unsafe, and would be very difficult to maintain and keep open during seasonal flooding and in the winter. This proposed reroute would be a detriment to the community, public access and recreation.</p>
<p>McGregor Meadows Access Road</p>	<p>N/A</p>	
<p>Stehekin Valley Road / Road: private access</p>	<p>Private access would be via existing spur roads off the Stehekin Valley Road. Access would be maintained where the road grade is raised in McGregor Meadows.</p>	<p>It is the responsibility of the agency that maintains the road to also maintain good access to all private property.</p>
<p>Company Creek road protection strategy / erosion protection measures</p>	<p>Maintain road in its existing alignment. Bank hardening and Barbs would be placed where needed. Maintain the existing levee and existing erosion protection measures (barbs and grade control structures).</p>	<p>All tools and Techniques available for erosion control should be retained and used to maintain Company Creek road.</p>
<p>Harlequin Bridge</p>	<p>Continue to maintain. If replacement is needed, install a longer span bridge that is raised to a height to allow for adequate water flow beneath the bridge.</p>	
<p>Administrative Facilities</p>		

PEPC# 783 - Stehekin Heritage

Maintenance Area	view Maintenance document here (from Stehekin Heritage website)	
NPS Housing	view Facilities document here (from Stehekin Heritage website)	
Recreational Facilities		
Weaver Point Cultural Resources	Same as Alternative 1 plus: Extend proposed logjam up-river, and install rock barbs and bioengineering to prevent river shoreline erosion and protect all of Weaver Point Campground, retaining all tools available to this purpose. Maintain existing Historical cribbing up river from NPS house.	All tools and techniques available for erosion control should be retained and used to preserve and maintain all of Weaver point.
Harlequin Campground	Maintain Harlequin Campground, including group sites, in its existing location. Take actions as needed in response to flooding. Continue to use Harlequin Campground except during flooding and unless catastrophic impacts occur.	Harlequin Camp is one of the nicest camps in the valley and should be maintain in its entirety.
Purple Point Horse Camp	Purple Point Horse Camp would continue to be used for horse parties plus as an overflow group campsite. Construct additional group/individual campsites at Purple Point Horse Camp. New campsites would include corresponding infrastructure.	Horse use should be preserved and camping sites expanded.
Rainbow Falls Campground (proposed) Company Creek Campground	Construct new individual and group campsites near Rainbow Falls. Campsites would include corresponding infrastructure. At historical camp location. No Action	Rainbow falls is a historic campsite and should be rebuilt in its original site.

PEPC# 783 - Stehekin Heritage

(proposed)	Remove hazard trees, retaining camp in existing location. Add Vault toilet if needed.	The original campsite is sheltered and the proposed new site is in the open and exposed. The original camp is safer for families (away from the river).
Lower Valley Trail	Lower Valley Trail should start at Weaver point and follow existing river trail to Harlequin Bridge making improvements as needed. The trail would then continue on the north side of the river to High Bridge following historical wagon road where possible. Sensitivity to private property should be a priority and the trail alignment moved as needed. Where the trail passes private property and it is not practical to go around the private property, existing road right of way should be used. Trail should be multi-use including both horses and Bicycles. Stehekin valley road from the landing to Harlequin bridge would continue to be the hiker/biker access. Widening the road along the head of the Lake and at Frog Island to improve safety.	Alternative 5 is more practical and affordable. Starting the Lower Valley trail at Weaver point is an ideal route largely following the river for much of the way, and gives the users a great route that is multi-use, and that is not on the road. Keeping the main route from the landing on the Stehekin Valley Road below Harlequin Bridge is in the best interest of the visitors including hikers because it continues to pass local businesses, Historic landmarks, and points of interest. Widening the road along the Lake and by Frog Island is much needed and can be done in conjunction with erosion control work making if cost effective.
Stehekin River Trail connector to Lower Valley Trail	No Action See lower valley trail option	Too expensive, money would be better spent elsewhere on trails.
Raft launches / takeout / boat access	Same as Alternative 1 plus: Construct new raft takeout / boat access near the Stehekin River Mouth and add new 300-foot long spur road off Stehekin Valley Road. Coordinate actions with private landowners.	

PEPC# 783 - Stehekin Heritage

Shooting Range	Retain shooting range in its existing Location or if required move to another suitable location.	It is critical that there be a shooting range in Stehekin
Management of Large Woody Debris		
Actions	Woody debris could be removed where needed to allow natural flow of water in existing river channel and to alleviate damage to property elsewhere. A safe channel for public recreation shall be maintained.	Critical that management of woody debris be allowed, as needed, without restrictions.
Private use	Wood from log jams could be made available to private users for historical uses within the Stehekin Valley. The practice of salvaging logs from Lake Chelan will continue subject to county and state jurisdiction.	Historical uses should be maintained.
Public facilities / private development	Same as alternative 1	
Erosion Protection Measures		Erosion protection should be used to keep the river in its current channel where possible and to protect the Stehekin Valley Road and private property. No unreasonable restrictions should be placed on it's application. The following proposals in alternative 5 have these requirements in mind.
Proposed Number of barbs	16 - 17 new rock barbs plus others as conditions dictate.	
Log jams	Construct and maintain as needed to protect private property and roads.	

PEPC# 783 - Stehekin Heritage

<p>Company Creek Road and Stehekin Valley Road</p>	<p>Maintain erosion protection measures (rock barbs and grade control structures) installed by the NPS since the 1980s on Company Creek Road and those installed since the 1980s by the NPS along the Stehekin Valley Road.</p>	
<p>Stehekin River Mouth</p>	<p>Keep approximately 100 feet of rip-rap on public land where beneficial with 3 rock barbs and bioengineering and construct a small logjam to minimize potential for a river channel shift.</p>	
<p>Stehekin Valley Road Erosion Protection Measures</p>		
<p>1. SVR Milepost 2.0 (Boulder Creek Area)</p>	<p>Build grade control structure with logjam on top starting at Boulder Creek alluvial fan and continuing down river to first main flood channel. Maintain and repair road as needed.</p>	
<p>2. Buckner Homestead Hayfield and Pasture</p>	<p>Use all tools and techniques available for erosion control may be used to protect historical homestead and hayfield including rock barbs and bank hardening as needed.</p>	
<p>3. SVR Milepost 3.8 (Frog Island)</p>	<p>Stabilize bank with 1 - 2 barbs and bioengineering to stabilize the bank within 30 feet of the road.</p>	
<p>4. SVR Milepost 5.3 (Wilson Creek)</p>	<p>Same as Alternative 1 except: Instead of rip-rap clusters, construct 2 - 3 rock barbs to stabilize the toe of the slope and augment natural bank armoring.</p>	

PEPC# 783 - Stehekin Heritage

<p>5. SVR Milepost 6.25 - 6.53 and Milepost 6.95 - 7.14</p>	<p>As called for by the Road Improvement Project, raise roadbed 2-5 feet (as suggested by Federal Highways standards of the early 1970's) starting at bottom of 6 mile hill and continuing to down-valley edge of lower field. Construct road so that trapped water on North side of road could flow over road in high water situations at Danielson's corner.</p>	
<p>6. SVR Milepost 6.0 - 6.5</p>	<p>As called for by the Road Improvement Project, lay back slope, remove eyebrow, construct drystack rock wall, and implement minor road realignment between Milepost 6.0 - 6.5 to improve sight distance.</p>	
<p>7. SVR Milepost 7.0</p>	<p>Same as Alternative 1 plus construct 2 rock barbs to maintain road at Milepost 7.0.</p>	
<p>8. SVR Milepost 7.3 - 7.4 Lower Field</p>	<p>Implement riparian restoration along edge of Lower Field. Add two rock barbs and bioengineering to protect Stehekin Valley Road alignment.</p>	
<p>9. SVR Milepost 7.8 Thimbleberry Creek</p>	<p>Retain 72-inch and two 48-inch culverts.</p>	
<p>10.SVR Milepost 8.0</p>	<p>Lay slope back to an angle that will self heal and use material in raising of road from Mile post 6 to 7. Maintain raised section of roadway, including rock barbs and bioengineering. If the road becomes undermined, rebuild it in place.</p>	
<p>11.SVR Milepost 8.5</p>	<p>As called for by the Road Improvement Project, realign culvert to meet creek at point of entry rather than forcing it parallel</p>	

PEPC# 783 - Stehekin Heritage

<p>12.SVR Milepost 9.2 (Above Stehekin Valley Ranch)</p>	<p>to the road and then under the road. Install Culvert and extend ditch to river. Build up road as required and maintain ditch along road with extra culverts as needed.</p>	
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11. Stehekin Heritage Summary Recommendations Draft LPP and SRCIP

1. We request that the National Park Service (NPS) cooperate with Chelan County to **conduct a socio-economic impact analysis and investigation of the effects of continued land acquisition on the future of the Stehekin Community.**
2. Until this socio-economic impact analysis is completed, we request **that the NPS support Chelan County and work to enact an immediate moratorium on Federal purchase of private property in Stehekin Valley.**
3. It is essential that the **LPP state overtly** in the overall objectives and goals that: **It is a management goal of the National Park Service to support an active, viable community of people living and working in Stehekin as an enhancement to visitor appreciation and use of the Lake Chelan National Recreation Area.**
4. The NPS should continue to **honor current land trade activity** (with no net loss of private property land base value) but agree to a moratorium on all land acquisition until the above investigation is conducted.
5. If the goal of the NPS is to “trade” properties endangered by the river, **“Let the River Decide”** which pieces are most threatened and need prioritized, and trade only those vulnerable lands. **Priority lists would be only for trading purposes.** Land trades should be carefully crafted so that the owner receives the same value for their original piece with all property rights intact. Value is defined not only by dollar amount but also by potential uses of the original property.
6. **Maintain the Stehekin Valley Road at its present location** and protect the road from the river both adjacent to the road and also at strategic locations away from the road where it can be predicted, with a high degree of certainty, to harm the road if allowed to erode.
7. **Change all “acquisition” priorities to read “exchange” priorities.** See section 5.2. LPP
8. **Separate the SRCIP** and the LPP to allow an extended timetable for study of the impacts of the LPP, while immediately implementing river control and road protections measures listed in the SRCIP. Also expand the list of river projects where needed and allow for flexibility for future required work as changes occur.
9. **Remove appendix C – the Overlay District - from the plan.**
10. **Facilities - Stehekin Heritage supports removing the facilities section from all SRCIP alternatives** until a clearly articulated set of alternatives are developed for this maintenance/housing complex.

PEPC# 783 - Stehekin Heritage

11. **Support Alternative 5** - This alternative represents a common sense and practical management philosophy consistent with the intent of enabling legislation (PL-90-544), supports a sustained vibrant community, public access and recreation. Additionally, Alternative 5 supports land trades (with a no net loss of existing land base or value) keeps the road in its original alignment, protects the road from river erosion, and improves visitor access.

This Summary Statement is presented with the intention of supporting management policies that sustain the heritage and perpetuation of the Stehekin Community. Stehekin Heritage asserts that continued land acquisition by the National Park Service (NPS) in the Stehekin Valley will, unquestionably, lead to the demise of the Stehekin Community.

APPENDIX

i. Elevated Property Prices – The NPS and Land Acquisition in the Stehekin Valley

In the Lake Chelan National Recreation Area (LCNRA), through the practice of purchasing property at a higher price than the local market can support, the National Park Service (NPS) has elevated property values within the seller's market. Some sellers are now choosing to put a selling price on their private property that is well above what the market can support. The higher asking price is reflective of what the NPS has offered for other properties in the Stehekin Valley. Sellers are willing to wait for the Park Service's offer of more money.

Elevated property prices are also a result of a very limited private property market. The NPS has purchased 75% of the property that was privately owned when the LCNRA was created, reducing the private property land base to less than 420 acres.

Special interest groups have made monies available to the NPS for purchasing private holdings in the LCNRA. This allows the federal government to offer more money than what their own appraisal criteria allow.

An example of this is the former Paula Stone property, which was on the market for a long time. After several offers from buyers were turned down, the NPS purchased the property at the elevated asking price. It is noteworthy that funds from special interest groups were used in the purchase of that property.

Presently there are a number of private properties that are being offered for sale at what would seem to be an elevated price. Some of these have been on the market for years, and the asking prices remain high. As no private parties have purchased any of these desirable properties, one can conclude **they are priced above what the market value can bear.**

As a comparison, recently there have been several sales of properties that have sold within the private sector, which would indicate a more reasonable market value. The private buyer market (via the free market and actual purchases) is much lower than the artificially propped up NPS buying prices.

PEPC# 783 - Stehekin Heritage

ii. LEGISLATIVE HISTORY — PL 90-544

Creating the Lake Chelan National Recreation Area and The North Cascades National Park

PART I

Ron Scutt

As in all communities, living in Stehekin carries the responsibility of citizenship. We are a very small community with a very large public responsibility. We live in an area treasured by Americans across the United States, as well as citizens of other countries. In 1968, Public Law 90-544 was passed by the US Congress. This official act of Congress reflected the desires of the American people, the national constituency, as expressed in hearings held in the State of Washington and Washington D.C. This public law set forth the principles by which the NPS was to administer this area for the general good of the public. The "general good of the public" included environmental, visitor service, and community life concerns.

The passage of PL 90-544 heralded the beginning of new management in the North Cascades. Previously, federal lands were administered by the U.S. Forest Service. The new law placed federal lands in the Stehekin Valley (Lake Chelan National Recreation Area), and the North Cascades National Park, within the management jurisdiction of the National Park Service.

Congress accepted the responsibility of creating a law. The NPS has been given the responsibility to administer the law. Since 1968, Stehekin residents, and the larger national constituency from beyond the geographical confines of the valley, have been asked to respond to a host of planning efforts initiated by the NPS. Each and every one of these planning efforts grapples with the question, "What was the intention of Congress when they passed our enacting legislation?" Knowing the intention of Congress when they passed PL 90-544 is the foundation upon which all planning efforts are legally based. The NPS acknowledges this. Environmental groups acknowledge this. Stehekin residents acknowledge this. Difficulties arise in trying to interpret the "intention" of Congress.

This continuing column will address the legislative history of PL 90--544. The tools for examining questions of intention are available to us today. We will: 1. examine significant statements made by Congressman, Senators, and the then Director of the National Park Service, at public hearings, 2. review Senate and House reports which accompanied the law itself, and 3. examine laws which have been passed since 1968 which are relevant to administration of the North Cascades Complex. We will also look at the entire history of creating legislation in this nationally significant area. All of this review is necessary for the thoughtful interpretation of our enacting legislation.

Eight years of research into discovering the intention of Congress when they passed PL 90-544 has left an over-riding indelible impression. The law itself was a masterpiece of legislative effort! It is a work of art!! PL 90-544 represents the will of the combined voices of all the people. PL 90-544 is an example of how Congress can work effectively

PEPC# 783 - Stehekin Heritage

for the PEOPLE. It is our hope that this column will help shed light on the importance of this law as it relates to the community of Stehekin, the visiting public, and the environment.

PART II

The first segment of our legislative history column was concluded with the following summary:

"PL 90-544 is a masterpiece of legislative effort. It is a work of art!!
PL 90-544 represents the will of the combined voices of all the people.
PL 90-544 is an example of how Congress can work effectively FOR
THE PEOPLE."

The reason we want to provide our readers with a thorough discussion of Legislative History is because it is the Law which provides the foundation upon which the land is protected, and the Stehekin Community is given the security to abide in this valley. Common sense might also dictate that a viable social, economic, and spiritual community continue to exist in context with the land. However; no matter what common sense might dictate, it is PL 90-544 upon which our rights and responsibilities are based. Therefore, it is the Law we must understand. (It feels uncomfortable to give this artistic piece of legislative effort the chilly, impersonal name of PL 90-544. It is a law which warms to the legitimate needs of the People. For the time being, I will call this legislative effort the North Cascades Bill.)

The fundamental question before those who study the North Cascades Bill is: **How did Congress intend that these lands be used for the overall benefit of the people?** When considering the North Cascades, two words are predominantly used to describe management direction to benefit the people for future generations - Preservation and Recreation. Each simple word carries certain administrative ideals and solutions. **Which concept was to prevail in the North Cascades? Preservation? Recreation?**

Reviewing literature concerning legislative efforts in the North Cascades, one strong impression is recognized. Enormous thought and effort have been focused upon the people and the land of the North Cascades. Different individuals and organizations may have contrasting views concerning management objectives, but all speak intelligently and passionately towards the land they love.

Legislative History from 1906 to 1968

In four separate years -1906,1916, 1926, and 1938- various proposals were made for setting aside acreage for national protection in the North Cascades. Each of these proposals called for National Park protection and preservation management of the North Cascades.

Starting in the 1960's political action was initiated to create a vast National Park and Wilderness in the North Cascades. This dream of exclusive wilderness-park complex was realized to a great extent but not completely. When public debate was complete, PL 90-544, the North Cascades Complex Bill was passed and signed into law by Lyndon Johnson in October of 1968 it included the Ross Lake and Lake Chelan National

PEPC# 783 - Stehekin Heritage

Recreation Areas. The public sentiment that swayed lawmakers to create two recreation areas, as well as, park and wilderness areas was significant.

1960 — 1968 In 1960, a study to evaluate the potential of establishing a Cascade National Park was undertaken. In 1963 the North Cascades Conservation Council (N3C) prepared a bill that would create a 1,303,168 acre national park. The village of Stehekin would have been included as part of the park. This proposal was followed by Secretary of Interior Udall forwarding a bill to Congress in March on 1967 which also placed the village of Stehekin within the boundaries of the North Cascades Park. Preservation is the dominant and guiding principal of national park status.

If we were to end our review of legislative history at this March 1967 date, there would certainly be a clear case made for the fact that the lower Stehekin valley and the village of Stehekin were to be part of a nation park with a preservation mandate. **Had Congress passed the North Cascades bill as presented by Secretary Udall, Stehekin would have been part of the classical National Park System just as Yellowstone, Glacier or Olympic National Parks.**

Fortunately for the Stehekin Community, the bill introduced by Secretary Udall was greatly modified as a result of public input before PL 90-544 was passed in October of 1968. In the following article, we will examine the public process from March of 1967 to October of 1968.

The reader should realize that legislative activity concerning the North Cascades has occurred since the early 1900's and that this work culminated in the passage of PL 90-544 in October of 1968.

PART III

Even though the law and its legislative history indicate otherwise, there are those who say the LCNRA is to be managed as a traditional park. How do you answer this assertion other than to systematically examine the path of PL 90-544 as it traveled through Congress? You can't.

Following the passage of PL 90-544 is essential for those who want to thoughtfully address issues in Stehekin today. The diagram below is a flow chart that follows the course of the North Cascades legislation through Congress. Hopefully, a picture is worth a thousand words. Why is this diagram an essential ingredient understanding present day Stehekin? Every management decision made in the LCNRA must eventually (if the public is watching) "square" with the law. Was the LCNRA to be managed as a park or was the LCNRA to be managed in an entirely different manner? My thinking is quite straightforward here. If the Stehekin Valley was to be managed as a traditional park, **Congress had ample opportunity to pass a law making the Stehekin Valley a part of the North Cascades National Park. For some reason(s) Congress choose an entirely different legislative designation.**

PEPC# 783 - Stehekin Heritage

On the Senate side:

March 17, 1967 Secretary of Interior Udall forwarded to Congress a proposed bill (S.1321). This bill did not include the LCNRA. Stehekin was included in the proposed park.

April & July 1967 Senate hearings held in Wash. D.C. and the state of WA. The public testified concerning the proposed bill. After listening to public input, the Senate suggested changes to S.1321.

OCTOBER 1967
SENATE REPORT 700 ISSUED -
STEHEKIN NOW TO BE
PART OF THE NEWLY PROPOSED
LAKE CHELAN NATIONAL
RECREATION AREA

On the House Side:

April & July 1968
House hearings on four separate House bills as well as the amended Senate Bill S1321. Three of these bills did not include Stehekin in a Recreation Area.

Considered
HR8970 - No LCNRA
HR 12139 - No LCNRA
HR 16252 - a bill to establish North Cascades Recreation Area -No LCNRA
***S.1321**-amended Senate Bill - includes LCNRA

September 9, 1968
HOUSE REPORT 1870 ISSUED
AFTER MORE PUBLIC TESTIMONY
THE HOUSE AGREES WITH THE SENATE
STEHEKIN IS INCLUDED IN
LAKE CHELAN
NATIONAL RECREATION AREA
After listening to testimony from citizens throughout the nation, both the Senate and the House concluded that the village of Stehekin should be included in a National *Recreation Area* rather than the National Park.

OCTOBER 2, 1968
Public Law 90-544 Creates
THE LAKE CHELAN NATIONAL RECREATION AREA
AND
THE NORTH CASCADES NATIONAL PARK

PEPC# 783 - Stehekin Heritage

It should now be obvious that Congress did not want traditional park status and management for the lower Stehekin Valley. They choose a completely different management designation. However, traditional management policy has not necessarily acknowledged Congressionally mandated differences.

The late Robert Byrd wrote his thoughts (1982) concerning administration of the LCNRA by the NPS since enacting legislation was passed in 1968.

"For everything from the very beginning has been built on the wrong assumption. The basic law has quite simply been misinterpreted: **a national recreation area is not a national park and should not be administered as one.** A Lake Chelan National Recreation area is not a North Cascades National Park. The lower Stehekin Valley is no more a part of the national park than is the Glacier Peak Wilderness or the Pasayten Wilderness are part of it, even though they were designated and brought into being at the same time by the same act of congress. It is a totally separate and entirely different legal entity than anything else, all by itself alone, and would stand of itself had it alone received such designation 13 years ago."

After reviewing the passage of PL 90-544, it would seem that Mr. Byrd is correct. If Congress had intended the Stehekin Valley to be managed as a park, they certainly had their chance to make it a park right from the beginning.

HOWEVER THEY DIDN'TTHEY DIDN'T FOR MANY REASONS!

Part IV will examine the reasons Congress stated for creating the LCNRA rather a traditional park in the Lower Stehekin Valley.

PART IV

After holding public hearings, both the House and the Senate submitted reports which accompanied PL 90-544 in its final form. Senate Report 700 and House Report 1870 are the names of these documents. Whenever there are questions concerning what Congress intended for management in the North Cascades, these two reports are the legally acknowledged defining documents which present the management intentions of Congress. It has been a struggle for members of the Stehekin community to get the NPS to acknowledge the existence and contents of the Senate and House Reports. Hopefully, this review will reach more people than ever before.

Both the Senate and House Report accompanying PL 90-544 are clear concerning whether these lands were to be managed with a recreation emphasis, or a preservation emphasis. With a recreation emphasis, a community of responsible people can continue to live a their lives and/or provide services for the visiting public. With preservation as the primary emphasis, the Stehekin community would be relegated to a human form of endangered species. Fortunately, the legislation and its history are clear. Congress declared that the values of recreation and community life are essential in the North Cascades.

PEPC# 783 - Stehekin Heritage

HOUSE REPORT 1870: From page 9

"Altogether the Federal land in this general vicinity total nearly 7 million acres — an amount equaling 16 percent of the State of Washington and over half of all federally owned lands in the State. Because Federal landownership is so extensive, **it is essential that the forest lands lying outside of the areas to be transferred to the Department of the Interior for administration continue to be administered in accordance with the principles of multiple use and sustained yield.** That is not to say, however, that their outdoor recreation potentials should be ignored. **On the contrary, one of the most persuasive arguments on behalf of this vast recreation complex is that it affords two of the principal Federal agencies with recreation responsibilities with an opportunity to develop a meaningful and coordinated outdoor recreation plan.**

In view of the substantial acreage which will be designated as wilderness, it seems highly appropriate that the National Park Service should embark on the bold and imaginative development program which it described to the committee. This program should seek to maximize public use and enjoyment of the areas being transferred to its jurisdiction."(Emphasis added)

On page 10 the following summary statement is made concerning Development Plans, **"Although it involves federally owned lands almost exclusively, the enactment of this legislation would assure their management and utilization for outdoor recreation; whereas their continued administration by the Forest Service might not always result in recreational values being given priority over all other uses."** (emphasis added)

Finally, on pages 12 and 13 — **"... Because of the variety of activities enjoyed by the public within this vast area, and because large areas are, or will be, preserved as wilderness, the park and recreation areas established pursuant to the enactment of this legislation should be utilized to assure public use and enjoyment to the fullest extent possible without destroying that for which they are established."** (Emphasis added)

These statements are placed in bold type because they are bold statements! They give character and purpose to PL 90-544. These are bold statements that give specific direction to the recreational intention of PL 90-544. Recreation values were to be given priority in the park and recreation areas! Congressional intention is clear!

SENATE REPORT 700: The Senate Report speaks more specifically to the Lake Chelan National Recreation Area (LCNRA) On pages 30 and 31 under "Boundary Changes" (Here the reasons for placing Stehekin in the LCNRA rather than the National Park are listed.) "Designate the lower Stehekin Valley and upper Lake Chelan areas the Lake Chelan National Recreation area instead of a part of the park. **Many of the yearlong residents of the Stehekin Valley are descendants of the original homesteaders. Some 1700 acres, mostly on the valley floor are in private ownership, and in the past several decades a number of summer homes have been built ...** The lake ... will serve as the primary access for park and recreation visitors approaching from

PEPC# 783 - Stehekin Heritage

the southeast. **The village and the lower valley, therefore, will have considerable use, and development to accommodate these visitors will be necessary. ... All of these factors were important in the committee's decision to create a 62,000 acre recreation area here, instead of giving the area national park status.**" (Emphasis added)

This type of language is absolutely unique and specific to this area and this law. The community was acknowledged as compatible with the purposes of the law. Development was compatible. Private property was compatible. Considerable use was compatible.

Furthermore, the State of Washington did not cede its rights over private property or jurisdiction over the surface of Lake Chelan. The NPS was given proprietary rather than exclusive or concurrent jurisdiction over federal lands. (This means they are an equal neighbor in the valley rather than having complete control over land management decisions.) Hunting was permitted in the LCNRA. The use of natural resources including firewood, sand, rock and gravel was permitted in the LCNRA. Circular #1 (more on this document later) was recognized as the primary management guideline for the LCNRA. Circular #1 "provides in part that outdoor recreation shall be recognized as the dominant or primary resource management purpose". (page 28, Senate Report 700.) The law provided the foundation for continued, viable community life.

WHY IS THIS IMPORTANT?

If the general public and the media believe the law creating this area did nothing other than make Stehekin a hunting area within a park, the potential for this community to continue to exist is greatly diminished. PL 90-544 established many significant differences between this area and traditional parks. The sum total of these differences enable a community to continue to survive in this extremely isolated setting. If these differences are ignored the community character here will cease to exist. The stakes are high. This is why the review of legislative history is important. **The law is important.** How did Congress view the management philosophies of preservation and recreation? Let's take a look at the numerical facts which make up the essential elements of PL90-544. Congress acknowledges both preservation and recreation priorities. Areas which are to be managed with preservation as the priority are designated as Wilderness Areas and Parks. Areas in which recreation values are to be given priority have been designated as Recreation Areas. The following list of acres designated for preservation or recreation priority in PL90-544 is presented below. It is evident that Congress was creative with their designations.

520,000 acres Pasayten Wilderness (high preservation priority)
452,000 acres existing Glacier Peak Wilderness (high preservation priority)
10,000 acres addition to Glacier Peak Wilderness (high preservation priority)
505,000 acres North Cascades National Park (preservation priority)
1,487,000 total acres designated for preservation priority (Yes, that's One Million, Four Hundred and Eighty-seven thousand Acres.)
107,000 acres Ross Lake National Recreation Area
62,000 acres Lake Chelan National Recreation Area
169,000 total acres designated for recreation priority (only 10% of all designated lands in the North Cascades has been given Recreational Priority.

iii. GAO Report

The Government Accountability Office: an independent nonpartisan federal agency that acts as the investigative arm of Congress making the executive branch accountable to Congress and the government accountable to citizens of the United States

CED-81-10 January 22, 1981

Summary:

GAO was requested to examine the land acquisition and management practices of the National Park Service (NPS) at Lake Chelan National Recreation Area. Through the law which established this area, it was congressional intent that land acquisition costs be minimal, that a private community in the recreation area continue to exist, that commercial development not be eliminated, and that additional compatible development be permitted to accommodate increased visitor use.

NPS has not acted in accordance with congressional intent. NPS has spent millions of dollars to acquire over half of the privately owned land in the recreation area. Moreover, it plans to acquire most of the area's remaining privately owned land. These additional land acquisitions are planned without a clear definition of the uses that are incompatible with the enabling legislation. The acquisitions are based on the premise that NPS must acquire the major areas subject to subdivision to prevent a prospective boom in recreational homesites. NPS has also prohibited new private commercial development to increase lodging accommodations and to provide needed restaurant and grocery services for both residents and visitors.

Recommendations:

Our recommendations from this work are listed below with a Contact for more information. Status will change from "In process" to "Open," "Closed - implemented," or "Closed - not implemented" based on our follow up work.

Director: Michael Gryzkowicz

Team: General Accounting Office: Resources, Community, and Economic
Development Division

Phone: (202) 275-7756

Matters for Congressional Consideration

Recommendation: Congress should exempt land acquired pursuant to P.L. 90-544 from the 2-year limitation in 16 U.S.C. 4601-22(a). This would give the last owner(s) the right to match the highest bid price and reacquire property sold to NPS.

PEPC# 783 - Stehekin Heritage

Status: Closed - not implemented

Comments: Sufficient time has passed for Congress to have taken action.

Recommendation: Congress should not increase the statutory land acquisition appropriation ceiling for the North Cascades National Park and the Ross Lake and Lake Chelan National Recreation Area above the \$4.5 million already approved until NPS has defined compatible and incompatible development, prepared a land acquisition plan justifying the need to acquire land from private owners, and spent the funds obtained from selling all compatible land back to private individuals.

Status: Closed - not implemented

Comments: Sufficient time has elapsed for Congress to have taken action. Congress has not increased the appropriations ceiling.

Recommendation: The Senate Committee on Energy and Natural Resources and the House Committee on Interior and Insular Affairs should hold oversight hearings to determine why NPS has not carried out the intent of Congress at the Lake Chelan National Recreation Area.

Status: Closed - not implemented

Comments: Sufficient time has elapsed for Congress to have taken action.

Recommendations for Executive Action

Recommendation: The Secretary of the Interior should require the Director, NPS, to develop a land acquisition plan for the Lake Chelan National Recreation Area consistent with the NPS April 26, 1979, land acquisition policy. The plan should: (1) define compatible and incompatible uses based on the legislative history; (2) clarify the criteria for condemnation; (3) identify the reasons for fee simple acquisition versus alternative land protection and management strategies, such as scenic easements and zoning; (4) address recreational development plans for the area; and (5) establish acquisition priorities. The plan should apply to both private and NPS actions.

Agency Affected: Department of the Interior

Status: In process

Comments: When we confirm what actions the agency has taken in response to this recommendation, we will provide updated information.

Recommendation: The Secretary of the Interior should require the Director, NPS, to sell back to the highest bidder, including previous owners or other private individuals, all

PEPC# 783 - Stehekin Heritage

lands compatible with the recreation area. This would include the modest homes, lodges, and restaurant. NPS could attach scenic or developmental restrictions to the deeds before the properties are resold to ensure that their use will be consistent with the enabling legislation. The proceeds would be credited to the Land and Water Conservation Fund in the U.S. Treasury. Funds obtained in this manner would then be available for future acquisitions if an incompatible use is identified, subject to the \$4.5 million appropriation ceiling on total acquisitions under P.L. 90-544.

Agency Affected: Department of the Interior

Status: Closed - not implemented

Comments: Interior did not agree with this recommendation and does not plan to take any action.

PEPC# 783 - Stehekin Heritage

iv. Stehekin Heritage 9/24/2008 SRCIP Response

STEHEKIN HERITAGE
P.O. BOX 1
STEHEKIN, WASHINGTON 98852
September 24, 2008

Dear Superintendent Jenkins,

Thank you for the opportunity to respond to the “Stehekin River Corridor Implementation Plan,” (SRCIP). Stehekin Heritage submits the following goal recommendations as essential for inclusion in the SRCIP.

Goal One – Stehekin Heritage wants to be unambiguous. **The SRCIP must include clear language affirming there will be no net loss of private property in the Stehekin Valley due to the publishing *and/or* implementation of this plan.**

Rationale – If the private property land base were further eroded, it would constitute damage to the historical/cultural heritage of the Stehekin Valley. The National Park Service (NPS) celebrates its forty-year history in the valley this year. During this forty-year period, the NPS has acquired approximately seventy-five percent of the private lands that existed in 1968. The remaining twenty-five percent (approx. 300 acres) must be protected from further erosion. The development of the SRCIP will have a profound affect on historical/cultural values in the Stehekin Valley.

Stehekin Heritage is appreciative that the SRCIP includes alternatives that demonstrate a willingness to consider property trades as a specific strategy supporting the no net loss of private property goal. We are also aware of the significance of clearly articulating this NPS management objective in the SRCIP.

A review of specific legislation and legislative history applicable to this area clearly reveals the fact that the Stehekin Community was to continue to exist in the valley. Any further erosion of this private property land base will severely damage the historical/cultural heritage of the Stehekin Valley. The SRCIP must articulate the goal of no net loss of private property.

Goal Two – **Maintain as much of the present road corridor as possible.**

Rationale

- To do anything less is tantamount to abandoning downstream private property.
- Additionally, operational utility systems such as PUD power lines will be jeopardized.
- In its response to the SRCIP scoping Stehekin Heritage stated, “Continuing to abandon the Stehekin Valley Road and relocate it to high ground may make sense if the road was the only issue, but to do so allows massive amounts of timber, sand, rock, gravel and other debris including homes to enter the river corridor.

PEPC# 783 - Stehekin Heritage

This policy needs to be balanced and total impacts to downstream neighbors should be considered before more "cut and run" decisions are made.”

Goal Three – The NPS General Management Plan calls for establishing a Stehekin Valley Trail. **The SCRIP must specifically address how the Stehekin Valley Trail can be established within the context of the SCRIP.**

Rationale

The following quote was included in the Stehekin Heritage response to the SRCIP.

“Other elements of the General management Plan and the impacts of river implementation measures must be considered. The proposal to build a valley trail is foremost when considering impacts. To relocate the road in areas that have been proposed, such as at 8 mile, would forever affect the ability to locate this trail on original sections of the Old Wagon Road.”

The SRCIP must specifically address how implementation of the plan will affect the proposed Stehekin Valley Trail that would be available to hikers and bikers.

Conclusion

Stehekin Heritage believes that aggressive remedies need to be encouraged and implemented to stabilize the riverbanks and to protect private and public property. The amount of private property is small and confined and it is not practical to allow for natural river patterns in the study area. The same holds true for public lands that have historical and archaeological values. River manipulation is essential in a dynamic river valley to fulfill the duties given the NPS in the LCNRA.

Thank you for the opportunity to respond.

Ron Scutt

Stehekin Heritage

PEPC# 863 - The Mountaineers

February 8, 2011

Dear Superintendent Jenkins:

The Mountaineers has a long history of association with NOCA. Our 10,000 members enjoy a variety of activities in the Stehekin River Valley including hiking, climbing, boating, and nature study. We appreciate the opportunity to comment on the DEIS for the SRCIP. Given the frequency and seriousness of the flood events on the Stehekin River, we support the effort to move the road out of the channel migration zone as proposed in the Park's preferred Alternative Two. The Mountaineers believes that this action will ultimately improve both the ecological health of the lower valley and the river, as well as create a more reliable means of accessing the upper valley for recreational uses.

Thank you for the opportunity to comment on the DEIS for the Lower Stehekin Valley. We ask that you consider our comments as you proceed, and that you keep us informed about your decisions in the future.

Respectfully Yours,

Martinique Grigg

Executive Director
The Mountaineers
7700 Sand Point Way NE
Seattle, WA 98115
(206) 521-6000
(206) 523-6763 fax
www.mountaineers.org

PEPC# 311 - Whidbey Environmental Action Network

Nov 18, 2010

Superintendent Chip Jenkins
North Cascades National Park Complex, 810 State Route 20
Sedro-Woolley, WA 98284-1239

Dear Superintendent Jenkins,

On behalf of Whidbey Environmental Action Network, an organization dedicated to the preservation and restoration of the native biological diversity of Whidbey Island and the Pacific Northwest, we strongly support all actions to protect and preserve wild rivers.

We support the restoration of Pacific Northwest rivers, including the Stehekin River in North Cascades National Park. For decades, the National Park Service (NPS) has managed the Stehekin to protect public and private property from floods. Unfortunately, Stehekin floods have become more frequent and powerful, causing millions of dollars in property damage. Alternative 2 of the Stehekin River Corridor Implementation Plan restores the river by allowing it to utilize the flood plain and will remove NPS buildings and private structures from the channel migration zone. We support Alternative 2, because this alternative will:

- Make Efficient Use Of Limited NPS Funds. Alternative 2 will implement the comprehensive approach needed by NPS to mitigate the impacts of more frequent flooding. We are concerned with the budget constraints faced by all parks and support efforts to make efficient use of limited funds for long term benefit.
- Reroute and Improve the Stehekin Valley Road. We support this proactive action because it is cost effective and provides long term benefits while maintaining vehicular access to these areas. Further, we
- support the NPS effort to provide continued access to private property within the Stehekin Valley.
- Comply with Lake Chelan NRA GMP/FEIS. Alternative 2 best complies with the requirements of the Lake Chelan NRA in terms of restoring the river and protecting public and private property.

Thank you for considering these comments and we look forward to seeing the restoration of the Stehekin River and Valley.

Sincerely,

Ms. Marianne Edain

PEPC# 709 - Backcountry Horsemen Form Letter

I support the Stehekin community and request that the North Cascades National Park make every effort to work with the Stehekin Heritage to keep their community economically and culturally sustainable.

I fully support the construction of an 11 mile horse and hiker trail in the valley, but ask that you do so at a location laid out by Stehekin Heritage. Please do not move the Stehekin Valley Road.

Stehekin provides vital services, supplies and amenities to equestrians who arrive by trails and visitors who arrive by foot, plane or boat.

I support continued and expanded stock camping at Purple Point Horse Camp and ask that any new group camping sites for non-stock users not reduce the availability of stock camping.

I support the points packaged as 5th Alternative that Stehekin Heritage supports, which appears to be the best option for the long term vitality of the community.

PEPC# 10 - Citizen Form Letter sent though National Parks Conservation Association website

Superintendent Chip Jenkins
North Cascades National Park Complex, 810 State Route 20
Sedro-Woolley, WA 98284-1239

Dear Superintendent Jenkins,

I support the restoration of Pacific Northwest rivers, including the Stehekin River in North Cascades National Park. For decades, the National Park Service (NPS) has managed the Stehekin River in order to protect the public and private property from floods. Unfortunately, Stehekin floods have become more frequent and powerful, causing millions in property damage. Alternative 2 of the Stehekin River

Corridor Implementation Plan restores the river by allowing it to utilize the flood plain and will remove NPS buildings and private structures from the channel migration zone. I support Alternative 2 for this reason, because this alternative will:

- Efficiently Use Limited NPS Funds Alternative 2 would implement the comprehensive approach needed by NPS to mitigate the impacts of more frequent flooding. I am concerned with the budget constraints faced by parks and support efforts to efficiently used limited funds for a long term benefit.
- Reroute and Improve the Stehekin Valley Road I support this proactive action as cost effective and providing long term benefits while maintaining vehicular access to these areas. Furthermore, I support the NPS effort to provide continued access to private property within the Stehekin Valley although not required.
- Comply with Lake Chelan NRA GMP/FEIS Alternative 2 best complies with the requirements of the Lake Chelan NRA in terms of restoring the river and protecting public and private property.

Thank you for considering my comments and I look forward to seeing the restoration of the Stehekin River and Valley.

Stehekin Heritage Form Letter (1)

We are asking you to support the ten planning objectives and management policies that will sustain the heritage and perpetuation of the Stehekin Community, as well as improve visitor services.

1. The National Park Service (NPS) join Chelan County and conduct a socio-economic impact analysis and investigation of the effects of continued land acquisition on the future of the Stehekin Community.
2. Until this socio-economic impact analysis is completed, that the NPS and Chelan County work to enact an immediate moratorium on Federal purchase of private property in Stehekin Valley.
3. The Land Protection Plan must state overtly in the overall objectives and goals that: It is a management goal of the National Park Service to support an active, viable community of people living and working in Stehekin as an enhancement to the visitor appreciation and use of the Lake Chelan National Recreation Area.
4. The NPS should continue to honor current land trade activity (with no net loss of private property land base value) but agree to a moratorium on all land acquisition until the above investigation is conducted.
5. Change all “acquisition” priorities to read “exchange” priorities. See section 5.2.LPP
6. Separate the SRCIP from the LPP to allow an extended timetable for study of the impacts of the LPP, while immediately implementing river control and road protections measures listed in the SRCIP. Also expand the list of river projects where needed and allow for flexibility for future required work as changes occur.
7. If the goal of the NPS is to “trade” properties endangered by the river, “Let the River Decide” which pieces are most threatened and need prioritized, and trade only those vulnerable lands. Priority lists would be only for trading purposes. Land trades should be carefully crafted so that the owner receives the same value for their original piece with all property rights intact. Value is defined not only by dollar amount but also by potential uses of the original property.
8. Maintain the Stehekin Valley Road at its present location and protect the road from the river both adjacent to the road and also at strategic locations away from the road where it can be predicted, with a high degree of certainty, to harm the road if allowed to erode
9. Remove appendix C - the Overlay District - from the plan.
10. Support Alternative 5 – This alternative represents a common sense, practical management philosophy that is consistent with enacting legislation, supports a sustained vibrant community, public access and recreation. Additionally, Alternative 5 supports land trades (with a no net loss of existing land base or value) keeping the road in its original alignment, protecting the road from river erosion, and improving visitor access.

Stehekin Heritage Form Letter (2)

1. We request that the National Park Service (NPS) cooperate with Chelan County to **conduct a socio-economic impact analysis and investigation of the effects of continued land acquisition on the future of the Stehekin Community.**

2. Until this socio-economic impact analysis is completed, we request that the NPS support Chelan County and **enact an immediate moratorium on Federal purchase of private property in Stehekin Valley .**

3. We hope the NPS will continue to **honor current land trade activity** (with no net loss of private property land base value) but agree to a moratorium on all land acquisition until the above investigation is conducted.

4. If the goal of the NPS is to "trade" properties endangered by the river (a goal we support) then **the amount of land identified for trade purposes must be increased considerably.**

5. **Change the acquisition priorities to exchange priorities.**

6. It is essential that the LPP state overtly in the overall objectives and goals that: It is a **management goal of the National Park Service to support an active and vibrant community people living and working in Stehekin** as an enhancement to the visitor appreciation and use of the Lake Chelan National Recreation Area.

7. **Remove appendix C - the Overlay District** - from this plan.

8. As quickly as possible, identify the actions that are proposed for actual river management and put those elements of the planning effort into effect as soon as possible. Then **let's agree to extend the timetable that involves reworking the LPP.**

9. **Maintain the Stehekin Valley Road at its present location.**

10. **Remove the facilities section from all alternatives** until a clearly articulated philosophy and alternatives are developed for this maintenance/housing complex.

11. **Support Alternative 5** - This alternative represents a common sense, practical management philosophy that is consistent with enacting legislation, supports a sustained vibrant community, public access and recreation.



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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