

# **North Cascades National Park Complex - Stehekin**

Integrated Solid Waste Alternatives Program



**Integrated Solid Waste Alternatives Plan  
Final  
January 16, 2012**

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## **EXECUTIVE SUMMARY**

This report provides an overview of the North Cascades National Park Complex - Stehekin (the Park) Integrated Solid Waste Alternatives Program (ISWAP) Plan and information for the Park's implementation of the selected options for improving the solid waste management programs at the Park.

The National Park Service (NPS) has developed policy, recommendations and goals for solid waste management including the NPS Integrated Solid Waste Alternatives Program, which was first published in the NPS Solid Waste Management Handbook, June 1996. The NPS goals have been updated to be consistent with Executive Order 13423, "Strengthening Federal Environmental, Energy, and Transportation Management," signed January 24, 2007 (EO 13423). Most recently, Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic Performance," signed October 5, 2009 (EO 13514), continues these requirements for solid waste diversion goals.

It is NPS policy that all parks strive to meet the target goals of EO 13423 and the most recent EO 13514. These goals include the following:

- Diverting at least 50 percent of non-hazardous solid waste, excluding construction and demolition debris, by the end of fiscal year 2015 (EO 13514);
- Diverting at least 50 percent of construction and demolition materials and debris by the end of fiscal year 2015 (EO 13514); and
- Recycling the following commodities unless significant barriers exist: white paper, mixed paper/newspaper, cardboard, aluminum, plastic (#1 PET, #2 HDPE), glass, pallets, scrap metal, toner cartridges, and consistent with applicable hazardous waste regulations, fluorescent lamps, lamp ballasts, batteries, used oil, antifreeze and tires (EO 13423).

A Stehekin district Integrated Solid Waste Alternatives Plan (ISWAP) was first prepared in 1997 to assess then current solid waste management practices, evaluate alternative strategies and technologies relative to NPS management goals, and document an economically and environmentally sound solid waste management plan for the upcoming 10 years. A 2006 ISWAP addendum summarizing actual data from that 10-year period was completed to evaluate the Park's success in attaining goals set forth by the 1997 document. The solid waste reduction goals in the 1997 ISWAP were generally not attained over the 10 year period and most of the recommendations from the 1997 ISWAP have not been implemented, some of which include: contracting a private waste hauler to operate the transfer station, implementing a fee structure to regain capital and encourage waste reduction, and permanently establishing a community solid waste advisory committee with representation from private, government, and commercial sectors to develop and/or review solid waste solutions. The 2006 ISWAP addendum also recommended improving the waste handling operations at the transfer station, and implementing a fee structure to reduce the financial burden on the Park and to encourage waste reduction.

The current ISWAP Plan has been expanded to address some of these recommendations, and to coordinate with the larger maintenance facility and employee housing design development project, by including additional aspects of solid waste handling facility improvements and design, a rate structure analysis, a new facility operations guide and an analysis of compliance with 36 CFR Part 6 – Solid Waste Disposal Sites in Units of the National Park System.

The Park has successfully completed the Department of Interior (DOI) Sustainable Practices Report (SPR), including green purchasing data and solid waste management data, for the fiscal year (FY) 2010 reporting cycle and has completed all previous DOI SPR reporting cycles.

Solid waste in the Stehekin area is generated in public areas, at concessioner operations, at Park facilities and at private businesses and residences. Public areas include the ferry landing and marina area, roadside picnic sites and campgrounds. Concessioner operations include lodging, general store and food service operations at the Stehekin Landing Resort. Park facilities include the Visitor Center, staff housing, maintenance facilities and administration facilities. A number of private residences, both seasonal and year-round, as well as several businesses in the Stehekin area also generate solid waste. The Park has established solid waste management services for Park, concessioner and private solid waste generators in the Stehekin area, including trash collection and recycling collection services from public areas and Park facilities, and trash receiving, processing and disposal for Park, private, business and concessioner trash. Concessioner trash is collected and processed by the concessioner, and transportation and disposal is paid for by the Park. The Park has operated the Stehekin compactor facility in Stehekin since 1977, and continues to provide solid waste management services to all generators, public and private, in the Stehekin area at no cost. Providing trash transfer and disposal services to private generators is unusual for an NPS facility and out of compliance with current requirements of 36 CFR Part 6 – Solid Waste Disposal Sites in Units of the National Park System.

An analysis of the solid waste quantities generated, disposed of, and diverted in the Park estimates that approximately 13.1 percent of the Park's waste stream (Park, concessioner and private solid waste generators in the Stehekin area) is currently being diverted through the Park recycling and reuse programs.

The results of the waste composition estimate suggest that a total of 12.7 percent of the Park's waste stream is recyclable food and beverage containers, including plastic bottles #1 and #2, glass bottles, tin cans, and aluminum cans. The largest single component of these containers is glass bottles, based on weight. An additional 36.3 percent of the Park's waste stream is recyclable paper, including cardboard, newspaper, office paper and mixed paper. Mixed paper is another relatively large category in the Park's waste stream at an estimated 18.6 percent, and is often recyclable if the mixed paper comes from an office environment. However, mixed paper generated by visitors is typically a mixture of lower grade paper types, and it is often contaminated with other materials such as food waste. Potentially compostable materials in the Park's waste stream comprise an estimated 32.7 percent, including yard waste, food waste, and wood waste. Food waste generated by visitors is typically mixed with a variety of packaging materials and is highly contaminated for composting purposes. The majority of the Park's current diversion rate (excluding diversion of construction and demolition materials) is from recycling of glass bottles, cardboard and various paper grades.

The goals of the Park for this project include reducing the quantity of solid waste generated and the cost of management of solid waste at the Park's existing facilities, improving the Park's existing recycling services, and improving solid waste management operations and the diversion, processing and storage capabilities for recycled and composted materials at the Park's new solid waste management facilities.

The Park has reviewed the NPS and DOI goals and has adopted these goals for the purpose of developing its own ISWAP Plan and programs. In 1989, the Waste Not Washington Act established a 50 percent recycling goal for the state. The highest level achieved, so far, was 40 percent in 1995. Because the state recycling goal remains at 50 percent, and matches the NPS and DOI diversion goals, the Park should use the 50 percent recycling and/or composting level as its goal for fiscal year 2015.

Based on the evaluation of options and input from Park staff, a number of options are recommended for implementation as part of the Park's Integrated Solid Waste Management program. These options are organized by element, including:

- administrative, procurement and education;
- trash management;
- source reduction and reuse;
- recycling; and
- composting.

These recommendations and the supporting tools and resources contained in this ISWAP Plan form the basis for implementing improvements to the Park's solid waste management programs. Specific recommendations are listed in the following table. Additional components of the ISWAP Plan, including solid waste handling facility improvements and design, and an analysis of compliance with 36 CFR Part 6, are included in appendices.

<b>Element</b>	<b>Easy-to-Implement Actions</b>	<b>Longer-Term Actions</b>
Administrative, Procurement and Education	<ol style="list-style-type: none"> <li>1. Develop a current inventory and placement plan for trash and recycling containers.</li> <li>2. Improve solid waste management tracking process and track quantities for DOI SPR reporting requirements.</li> <li>3. Develop Park staff training and activities for recycling and source reduction practices, including practices for construction and demolition waste reduction and recycling.</li> <li>4. Provide green procurement training for all Park staff credit card holders.</li> <li>5. Include NPS source reduction, recycling and solid waste plan requirements in all construction, demolition and renovation contracts.</li> </ol>	<ol style="list-style-type: none"> <li>6. Continue Park staff training and activities for recycling and waste reduction practices.</li> <li>7. Evaluate in ISWAP trash and recycling placement plan and policy options for partial or complete "Pack-in, Pack-out" designated areas.</li> <li>8. Evaluate in ISWAP preferred trash and recycling container style for placement plan and procure additional containers as necessary.</li> <li>9. Bring all Park solid waste management programs into compliance with applicable requirements of 36 CFR Part 6 – Solid Waste Disposal Sites in Units of the National Park System.</li> </ol>
Trash Management	<ol style="list-style-type: none"> <li>10. Improve signage on trash containers (larger, clearer lettering and labeled for trash).</li> <li>11. Test separating materials in the burn pile for alternative uses, including logs, brush and wood scrap.</li> <li>12. Maintain separate storage of Household Hazardous Waste materials received from the public.</li> </ol>	<ol style="list-style-type: none"> <li>13. Evaluate in ISWAP trash compaction equipment options, including replacing existing compactors, switching to compacting roll-off system, switching to trash baler system.</li> <li>14. Evaluate trash container locations and effectiveness, replace or relocate as necessary.</li> </ol>

Element	Easy-to-Implement Actions	Longer-Term Actions
Source Reduction and Reuse	<ul style="list-style-type: none"> <li>15. Include source reduction approaches in employee training, including green procurement training.</li> <li>16. Develop recycling and source reduction education and approaches for residents and visitors.</li> </ul>	<ul style="list-style-type: none"> <li>17. Sell reusable water bottles at Park and concessioner stores, discontinue disposable bottled water sales, and install water filling stations.</li> <li>18. Evaluate in ISWAP wood as fuel for building heating in forms of firewood, wood chips or sawdust pellets.</li> </ul>
Recycling	<ul style="list-style-type: none"> <li>19. Obtain a platform scale to provide more accurate weights of recycled materials.</li> <li>20. Obtain a sorting table to aid manual separation of mixed recycled materials at the existing compactor building.</li> <li>21. Test baling plastic bottles in down stroke baler.</li> <li>22. Test accepting additional recycled materials at the existing compactor building, which are currently accepted at the Chelan County Transfer Station, including all colors of #1 and #2 plastic bottles, plastic bags, and mixed paper.</li> </ul>	<ul style="list-style-type: none"> <li>23. Evaluate available recycling markets; consider adding to recycled materials processed at the compactor building.</li> <li>24. Evaluate in ISWAP recycling equipment options, including sorting, baling, compacting, bulk loading in larger containers.</li> <li>25. Evaluate in ISWAP equipment for glass pulverizing and reuse of pulverized glass product.</li> <li>26. Evaluate recycling container locations and effectiveness, replace or relocate as necessary.</li> </ul>
Composting	<ul style="list-style-type: none"> <li>27. Test sheet composting method for apple mash waste.</li> <li>28. Test brush chipping of materials from separate burn pile for use as mulch and composting additive.</li> </ul>	<ul style="list-style-type: none"> <li>29. Evaluate in ISWAP composting operation for separated food waste, waste paper and green waste from Park staff offices and housing facilities as part of new processing operation.</li> </ul>

# **1 INTRODUCTION**

## **1.1 North Cascades National Park Complex - Stehekin**

The North Cascades National Park Complex is located in north-central Washington State and encompasses rugged mountains, deep valleys, cascading waterfalls and over 300 glaciers. The Complex includes three park units, including North Cascades National Park, Ross Lake National Recreation Area and Lake Chelan National Recreation Area. The town site of Stehekin and the surrounding area is in the Lake Chelan National Recreation Area, at the north end of Lake Chelan. Accessible only by foot, boat or plane, the Stehekin area includes a marina, visitor center, and campgrounds, concessioner-operated lodging, food service, general store, shuttle/tour operations, and boat/bike rental services, and 100 year-round plus 300-400 seasonal residents on private land inholdings. Visitation to the Park averages approximately 40,000 to 50,000 visitors per year.

Solid waste in the Stehekin area is generated by private residents, resident Park staff and by a number of visitation-related facilities and activities. Visitation at the Park occurs throughout the year, but the majority of visitation and solid waste generation occurs during the summer season. Visitation activities include sight-seeing, hiking, backpacking and camping. Visitation includes both short-term day use and long-term use, but short-term day use constitutes the majority of visitation. Longer-term visitation takes place at Park campgrounds, at the Concessioner lodging facilities, at the Stehekin Valley Ranch, and at privately leased housing. All of these activities contribute to the quantity of solid waste generated and received at the Park-operated transfer station.

In 1977, the National Park Service closed the Stehekin dump to comply with the Resource Conservation and Recovery Act of 1976, which amended the Solid Waste Disposal Act (Public Law 98-506) and prohibited open dumps. Because private residents and businesses had no alternative for solid waste disposal, the NPS began operating a solid waste recycling, compaction, and transfer facility to deter proliferation of small dumps on private lands and illegal dumping on public lands.

In 1994, solid waste disposal regulations for the NPS were enacted (36 CFR Part 6 – Solid Waste Disposal Sites in Units of the National Park System) in response to a statutory requirement of Public Law 98-506. These regulations identify transfer stations as solid waste disposal sites and stipulate requirements for existing solid waste facilities as well as implement restrictions on all new solid waste facilities in parks. Furthermore, 36 CFR Part 6.8(a) prohibits the acceptance of solid wastes from sources other than NPS activities after January 23, 1996. Since that date, the Lake Chelan National Recreation Area/North Cascades National Park Complex has been out of compliance with this regulation.

In 1995, an NPS report on solid waste management in Stehekin recommended that a new facility be created, out of the floodplain and using modern technology to handle the solid waste. The 1995 Lake Chelan NRA General Management Plan (GMP) identified the location for this new facility and recommended a user fee system through private contracts for solid waste disposal in accordance with county, state, and federal regulations.

In 1997, an Integrated Solid Waste Alternatives Plan (ISWAP) assessing solid waste management practices in Stehekin proposed an economically and environmentally sound integrated solid waste management system. This system included relocating and upgrading the current facility as well as using a rate structure to cover expenses. The ISWAP suggested that a portion of the capital funding needed for implementation be requested from Chelan County due to the assumption that property tax revenue



collected from Stehekin residents was used to provide solid waste services for County residents. However, tax revenue is not directed toward Chelan County's solid waste activities or transfer stations, which are completely funded through tip fees.

North Cascades National Park Complex has operated the Stehekin compactor facility as the sole waste collection facility in Stehekin since 1977. The NPS continues to provide solid waste services to all businesses, residents and visitors in Stehekin at no cost. Currently, NPS and concessionaire staff use trash compactors purchased and installed in 1995 and 1997 at the Stehekin compactor station. Solid waste and sorted recyclables are hand-loaded and compacted into  $\frac{1}{3}$  CY cardboard boxes, which are then stacked on wooden pallets. The pallets of compacted waste and recyclables are loaded by a local contractor onto a truck, then a contracted barge to be transported down lake to Chelan and subsequently trucked to a Chelan County solid waste and transfer facility.

In parallel with the new ISWAP Plan development, the Park is pursuing several other initiatives:

- The Park has contracted to produce an Environmental Assessment as part of the NEPA process to study impacts associated with constructing new maintenance buildings, housing, a fire cache & dorm, and a solid waste handling facility outside of the Stehekin River Channel Migration Zone.
- The Park is working with the NPS Regulations Program Manager to draft a rule change revising 36 CFR Part 6 that would bring the Park into compliance with approval and waiver from the Regional Director. Final rule will be published in the Federal Register.
- Denver Service Center is managing the planning, design and construction for relocating maintenance facilities (PMIS 149635) and housing (PMIS 157067) outside of the Stehekin River Channel Migration Zone. Federal funding is not available for construction of facilities until NPS operations are in compliance with federal regulations.

## **1.2 Integrated Solid Waste Alternatives Program**

### **1.2.1 ISWAP Background**

As part of the DOI, the NPS is responsible for the administration, operation, and maintenance of our nation's national parks, national monuments, national recreation areas, historic sites, and other areas.

The NPS established the ISWAP program in 1991, to help parks achieve greater solid waste management efficiencies, and to comply with federal regulations. The ISWAP promotes the following hierarchy (listed in descending order of preference) of solid waste management options or strategies:

- i) source reduction (or waste prevention) and reuse;
- ii) recycling (and composting);
- iii) waste combustion;
- iv) landfilling; and
- v) outreach.

The NPS first formalized the ISWAP program goals with the publishing of its NPS Solid Waste Management (SWM) Handbook in June, 1996. Since then, the NPS SWM Handbook was updated in 2008, and is available online at:

[http://pfmd2.nps.gov/EMP/hazmat/EMP\\_LIB/swhandbook/SWHandbook\\_Sec1.htm](http://pfmd2.nps.gov/EMP/hazmat/EMP_LIB/swhandbook/SWHandbook_Sec1.htm) (intranet only).

### **1.2.2 ISWAP Goals**

NPS policy requires that all Parks strive to meet the target goals of EO 13423, and EO 13514.

EO 13423 and EO 13514 include specific goals for diversion rates and materials that must be diverted if possible. Specifically, these goals include the following:

- Divert at least 50 percent of non-hazardous solid waste, excluding construction and demolition debris, by the end of fiscal year 2015 (EO 13514);
- Divert at least 50% of construction and demolition materials and debris by the end of fiscal year 2015 (EO 13514); and
- Recycle the following commodities unless significant barriers exist: white paper, mixed paper/newspaper, cardboard, aluminum, plastic (#1 PET, #2 HDPE), glass, pallets, scrap metal, toner cartridges, and consistent with applicable hazardous waste regulations, fluorescent lamps, lamp ballasts, batteries, used oil, antifreeze and tires (EO 13423).

The Park has reviewed the NPS and DOI goals and has adopted these goals for the purpose of developing its own ISWAP Plan and programs. In 1989, the Waste Not Washington Act established a 50 percent recycling goal for the state. The highest level achieved, so far, was 40 percent in 1995. Because the state recycling goal remains at 50 percent, and matches the NPS and DOI diversion goals, the Park should use the 50 percent recycling and/or composting level as its goal for fiscal year 2015.

### 1.3 ISWAP Plan

This ISWAP Plan has been prepared in response to the NPS's policy requiring a comprehensive study of existing solid waste management programs, and follows the approach and scope outlined in the NPS SWM Handbook. This ISWAP Plan is also being prepared to support the design and development of a new solid waste transfer facility as part of a larger facilities relocation and construction project. The new ISWAP will provide planning-level recommendations for the design and function of the new solid waste handling facility, which could be constructed in 2015-2016.

This plan is organized into the following sections:

- **Section 1: Introduction**
- **Section 2: Current Solid Waste Management Practices.** A description of the Park's current solid waste management program, including tonnage or volume information of both trash and recyclables. A breakdown of the costs associated with each element of the Park's solid waste management program is also indexed.
- **Section 3: Issues and Goals of the Solid Waste Management Program.** A discussion of issues and potential influences on the program, such as changes in visitation and regulatory changes, along with a description of the Park's solid waste management goals, general strategy or approach for meeting the goals, targeted materials and locations for management activities.
- **Section 4: Evaluation of Options.** A description and evaluation of alternative program options, along with the Park's recommendations on what, if any, changes should be made to its program in the future.

- **Section 5: Solid Waste Handling Facility Options.** A description of alternative program options from the previous section, which affect the design and operation of the new solid waste handling facility.
- **Section 6: Schedule and Resources.** A description of the resources required to help the Park implement its recommendations and achieve its program goals.

Additional components of the ISWAP Plan, including solid waste handling facility improvements and design, and an analysis of compliance with 36 CFR Part 6, are included in appendices.

## **2 CURRENT SOLID WASTE MANAGEMENT PRACTICES**

### **2.1 Waste Generation and Diversion Estimates**

Waste generation quantities include all solid and non-hazardous wastes created within the Park boundaries, including waste generated by visitors, park staff housing, park operations, and concessioner operations. Universal Waste materials (batteries, ballasts, bulbs, printer cartridges, antifreeze, used oil and tires) which are recovered for recycling are also included in waste generation quantities. Construction and Demolition (C&D) waste is also included, because DOI includes recycled C&D waste categories (wood, concrete, asphalt) in the annual DOI SPR.

Waste generation includes all solid waste materials, which may be collected and landfilled (solid waste disposed), and all solid waste materials that are reused, recycled or composted (solid waste diverted). The sum of these two quantities (solid waste disposed and solid waste diverted) equals the total solid waste generated. The waste diversion rate is calculated by dividing the total quantity generated by the total quantity diverted and is expressed as a percentage.

Solid waste in the Stehekin area is generated by private residents, resident Park staff and by a number of visitation-related facilities and activities. Visitation at the Park occurs throughout the year, but the majority of visitation and solid waste generation occurs during the summer season. Visitation activities include sight-seeing, hiking, backpacking and camping. Visitation includes both short-term day use and long-term use, but short-term day use constitutes the majority of visitation. Longer-term visitation takes place at Park campgrounds, at the Concessioner lodging facilities, at the Stehekin Valley Ranch, and at privately leased housing. All of these activities contribute to the quantity of solid waste generated and received at the Park-operated transfer station.

Solid waste quantities are tracked by the Park at the solid waste handling facility. A solid waste tracking system to record the number of compacted boxes of trash prepared at the solid waste facility, by generator category, was implemented in 2010, starting in June, and only a few months of data were available for this document. A recycled material tracking system has also been implemented, and recycled quantities have been consistently tracked over the last year. Solid waste quantities and recycled quantities shipped on the barge are also tracked by the barge operator as a requirement of the transportation and disposal contract. This data is more complete, providing data for the complete fiscal year, and provides quantities of compacted waste, loose waste, recycled materials. This data was used as the basis for estimating total quantities of solid waste generated during FY 2010, but park recycling data was used for estimating total quantities of recycled materials by material type. Because these records do not include a weight-based record of the quantity of waste collected or disposed, these estimates are considered to be reasonable but not highly accurate.

Table 2-1 depicts the reported quantity of solid waste disposed from the Park in FY 2010, as well as the quantities of solid waste disposed as reported to the FY 2009 DOI SPR. The variation in quantities reported and estimated from year to year may be due to changes in visitation, Park operations or other factors affecting waste generation, or they may be due to changes in the available waste quantity data (volume and number of trash containers) and differing methods of estimating waste quantities and converting estimated waste volumes to estimated weights.

**Table 2-1 — North Cascades National Park Complex - Stehekin Solid Waste Disposed**

<b>Disposal Category</b>	<b>FY 2010 SPR (1) Stehekin Reported Tons Disposed</b>	<b>FY 2009 SPR Stehekin Reported Tons Disposed</b>	<b>FY 2009 SPR NOCA (4) Reported Tons Disposed</b>
Park-disposed Municipal Solid Waste (MSW) (2)	128.7	150	625.5
Park-disposed Construction and Demolition Waste	67.5	0	10
<b>Total MSW and C&amp;D (3) Waste Disposed</b>	<b>196.2</b>	<b>150</b>	<b>635.5</b>
<b>Notes:</b> (1) SPR: Sustainable Practices Report. (2) Includes visitor, park staff and park operations generated waste, based on park and contractor records of compacted and uncompacted waste disposed. (3) C&D: Construction and Demolition. (4) NOCA includes both Stehekin and Skagit Districts.			

Estimates of the total quantities of recycled or diverted materials were based on recycling data provided by Park staff and on data reported for the FY 2010 and FY 2009 DOI SPR. See Appendix A for details of the data sources and estimating methodology. Table 2-2 depicts the estimated quantity of materials recovered for recycling in FY 2010. In general the numbers reported by the Park appear reasonable, and are reported to be based on weight records recorded by Park staff for most of the materials recycled.

**Table 2-2 — North Cascades National Park Complex - Stehekin Solid Waste Diverted**

<b>Diversion Category</b>	<b>FY 2010 Pounds Diverted</b>	<b>FY 2009 Pounds Diverted</b>
<b>Recycled Materials</b>		
Aluminum	825	1,320
Antifreeze	0	279
Batteries (NiCad rechargeable)	0	75
Cardboard	11,050	17,000
Desktop PC	104	
Fluorescent Lamps	0	81
Glass	16,000	16,000
Mixed Paper	5,960	6,040
Monitors	186	
Newspaper	800	2,000
Plastic (#1 PET/#2HDPE)	1,000	800
Printer	29	
Steel Cans	1,500	2,000
Toner Cartridges	0	13
TV	49	
Used Oil	0	403.7
White Paper	480	2,600
<b>Total Recycled</b>	<b>38,767</b>	<b>48,611.7</b>
<b>Composted Materials</b>		
Green Waste	0	0
<b>Total Composted</b>	<b>0</b>	<b>0</b>
<b>Reused Materials</b>		
<b>Total Reused</b>	<b>0</b>	<b>0</b>
<b>Total Diverted</b>	<b>38,767</b>	<b>48,611.7</b>
<b>Notes:</b> FY 2010 recycling data based on park staff recycling log. All FY 2009 recycling data provided by park staff and data reported for the FY 2009 DOI SPR.		

Table 2-3 lists generation and diversion quantity estimates and calculates a diversion rate for the Park, and lists the reported values of solid waste generation and diversion as reported to the FY 2010 and FY 2009 DOI SPR.

**Table 2-3 — North Cascades National Park Complex - Stehekin Waste Generation and Diversion Estimates**

<b>Category</b>	<b>FY 2010 SPR Stehekin Reported Pounds</b>	<b>FY 2009 SPR Stehekin Reported Pounds</b>	<b>FY 2009 SPR NOCA (3) Reported Pounds</b>
MSW (1) Waste Disposed (pounds)	257,510	300,000	1,250,980
C&D (2) Waste Disposed (pounds)	135,000	0	20,000
<b>Total Waste Disposed (pounds)</b>	<b>392,510</b>	<b>300,000</b>	<b>1,270,980</b>
MSW Waste Diverted (pounds)	38,767	48,611.7	88,948
C&D Waste Diverted (pounds)	0	0	1,434
<b>Total Waste Diverted (pounds)</b>	<b>38,767</b>	<b>48,611.7</b>	<b>90,382</b>
MSW Waste Generated (pounds)	296,277	348,611.7	1,339,928
C&D Waste Generated (pounds)	135,000	0	21,434
<b>Total Waste Generated (pounds)</b>	<b>431,277</b>	<b>348,611.7</b>	<b>1,361,362</b>
<b>MSW Diversion Rate (percent)</b>	<b>13.1%</b>	<b>13.9%</b>	<b>6.6%</b>
<b>C&amp;D Diversion Rate (percent)</b>	<b>0%</b>	<b>100.00%</b>	<b>6.69%</b>
<b>Total Combined Diversion Rate (percent)</b>	<b>9.0%</b>	<b>13.9%</b>	<b>6.6%</b>
<b>MSW Waste Generation Rate (pounds per visitor)</b>	<b>6.35</b>	<b>8.07</b>	
<b>Notes:</b> (1) MSW: Municipal Solid Waste. (2) C&D: Construction and Demolition. (3) NOCA includes both Stehekin and Skagit Districts.			

The waste generation rate (6.35 pounds per visitor) is high for Park facilities. This high rate does include a 54% (of the total waste stream) contribution from private residents and businesses. Subtracting this contribution leaves a reduced waste generation rate of 3.55 pounds per visitor, which is still higher than average for parks with concessioner lodging and food service facilities. The high generation rate is

attributed to the high percentage of Park staff and other staff in residences and to a relatively high contribution from concessioner facilities and long-term visitation. It should be noted that typical generation rates for parks with primarily day use visitation are less than one pound per visitor. Typical generation rates for parks with concessioner lodging and food service facilities and longer-term visitation are typically one to two pounds per visitor.

## **2.2 Waste Generation Projections**

An estimate of future waste generation quantities was made, based on a projection of future visitation rates. Based on the recorded visitation to Lake Chelan National Recreation Area (Lake Chelan NRA) over the past several years, the average visitation rate has been somewhat variable, ranging from around 32,000 to over 46,000 visits per year. Over the last three years, visitation has remained at the high end of this range each year (43,000 to 46,000), suggesting a continued upward trend in visitation to the Stehekin area. The NPS Public Use Statistics Office forecasts a very slight decrease in visitation to Lake Chelan NRA in 2011 from 2010 ([www.nature.nps.gov/stats/forecast0405.pdf](http://www.nature.nps.gov/stats/forecast0405.pdf)).

Assuming that the amount of waste generated in the Park is tied to visitation (waste generated directly by visitors, and waste generated by park operations proportionate to visitation levels), the total waste generated in the Park could remain constant or increase slightly, and range between 222,000 and 317,000 pounds per year. This is not a large enough change in solid waste quantities to impact the methods of collection, storage, and disposal of solid waste generated in the Park. It should be noted that special projects such as construction or demolition projects have the potential to generate significant quantities of waste materials and alter the waste generation and diversion rates for the Park during the project activity. Future waste generation levels and ranges for the Park through the year 2014 are shown in Table 2-4.



**Table 2-4 —North Cascades National Park Complex - Stehekin Future Waste Generation Estimate**

<b>Year</b>	<b>Actual Visits (1)</b>	<b>Estimated MSW Generated (pounds)</b>	<b>Average Pounds/Visitor Generated</b>
2004	42,529		
2005	28,565		
2006	31,628		
2007	33,565		
2008	42,971		
2009	43,197	348,611.7	8.07 (2)
	<b>Estimated Visits</b>	<b>Estimated MSW Generated (pounds)</b>	
2010	46,672	296,277	6.35 (2)
2011	35,000 – 50,000	222,250 – 317,500	6.35 (2)
2012	35,000 – 50,000	222,250 – 317,500	6.35 (2)
2013	35,000 – 50,000	222,250 – 317,500	6.35 (2)
2014	35,000 – 50,000	222,250 – 317,500	6.35 (2)
<b>Notes:</b>			
(1) From NPS NOCA Visitation Statistics, Lake Chelan NRA Recreation Area visitation.			
(2) Average pounds per visitor calculated using calendar year estimated visitation and fiscal year solid waste generation estimated quantity.			

## 2.3 Solid Waste Composition

The composition of solid waste generated in the Park (not including construction and demolition and other special project waste) was estimated using a weighted average waste composition estimate for the Stehekin area. The Park tracked solid waste generation by generator type for the period of June to September, 2010 (and continues this tracking currently). The generator types include NPS, Stehekin Lodge and Resort (concessioner), Stehekin Valley Ranch (private lodging and restaurant), Stehekin Pastry Co. (private restaurant), other private businesses, and private residential generators. Because this data was recorded during the summer season, it does not reflect expected reductions in waste generation during the winter and off seasons from visitors, the concessioner and the private tourism-based businesses in the Stehekin area. Assuming waste generation rates for all tourism-related businesses are 1/3 of summer volumes during the winter, and 2/3 of summer volumes during the spring and fall, a revised annual projection of waste generation rates for the different generator types can be made. A revised estimate of waste generated in the Park by different generators is shown in Table 2-5.

**Table 2-5 — North Cascades National Park Complex - Stehekin Estimated Waste Generators**

<b>Generator</b>	<b>Percent of Total Trash Volume</b>
NPS	19.7%
Stehekin Lodge and Resort	22.1%
Stehekin Valley Ranch	11.6%
Stehekin Pastry Co.	11.9%
Other Businesses	0.1%
Private Residents	34.6%
Total	100%

An estimate of waste generated in the Park by different generator types is shown in Table 2-6.

**Table 2-6 — North Cascades National Park Complex - Stehekin Estimated Waste Generator Types**

<b>Generator Type</b>	<b>Percent of Total Trash Volume</b>
NPS Administration (Offices)	6.0%
NPS Maintenance	6.0%
Private - Residential	34.6%
Lodging – Food Service	45.7%
Visitor Public Areas	7.7%
Total	100%

The weighted average composition was calculated using typical trash compositions for each of the waste generator categories. The percentage share or split between these waste generators from the table above was then used to estimate the composition by computing a weighted average for each trash material. A copy of the detailed estimate is included in Appendix C of this plan. Table 2-7 shows the estimated annual waste composition for the entire Park.

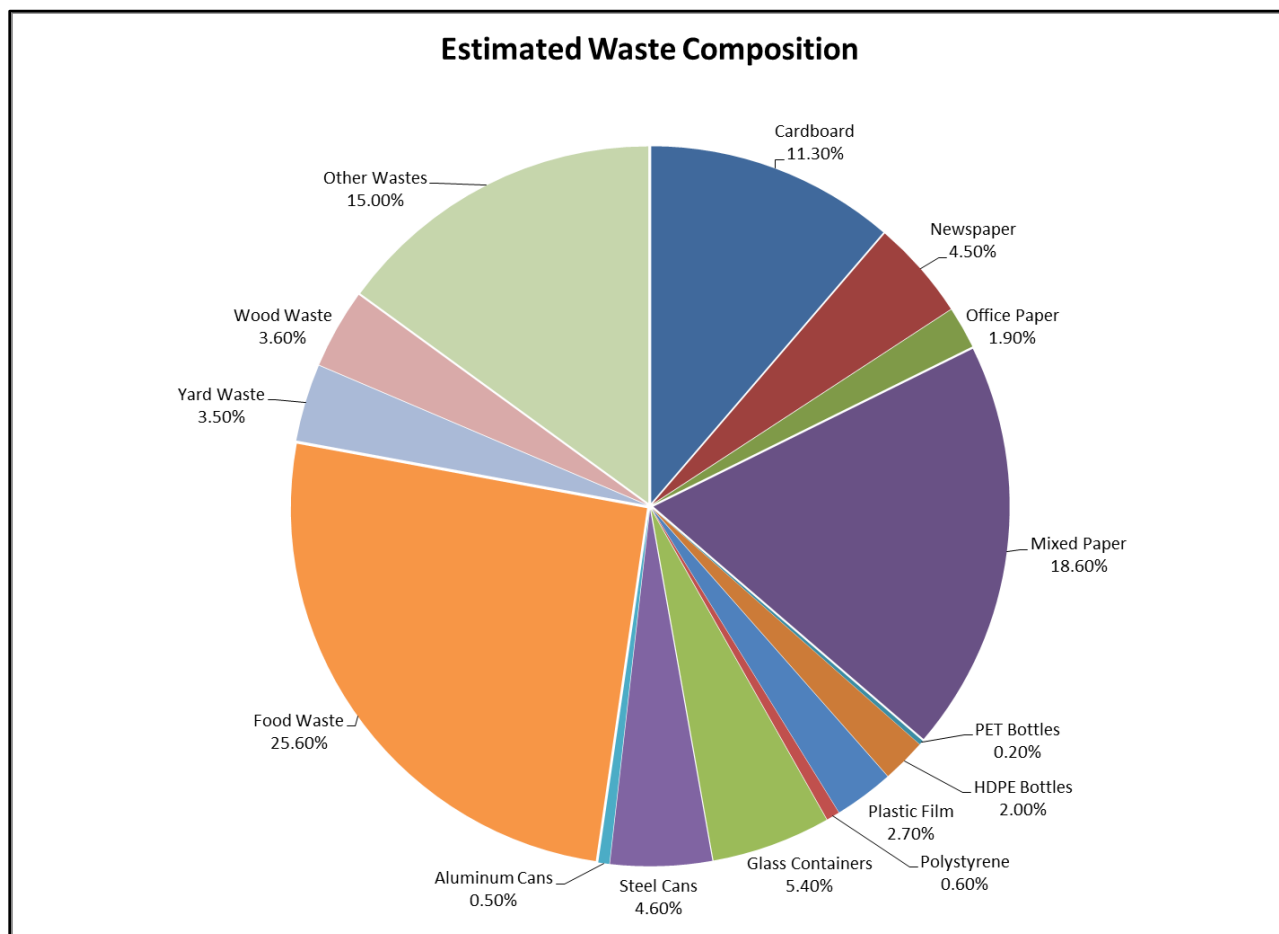
**Table 2-7 — North Cascades National Park Complex - Stehekin Estimated Waste Composition**

<b>Material</b>	<b>Composition (% by weight)</b>
<b>Paper</b>	
Corrugated Cardboard	11.3%
Newspaper	4.5%
Office Paper	1.9%
Mixed Paper	18.6%
<b>Plastic</b>	
PET bottles	0.2%
HDPE bottles	2.0%
Film (plastic bags)	2.7%
Polystyrene	0.6%
Other plastic	2.3%
<b>Glass</b>	
Containers	5.4%
Other Glass	0.2%
<b>Metals</b>	
Ferrous	4.6%
Aluminum beverage	0.5%
Aluminum other	0.5%
Other metals	0.3%
<b>Organics</b>	
Yard waste	3.5%
Food waste	25.6%
Wood waste (construction & demolition waste)	3.6%
Other organics	5.9%
<b>Other wastes</b>	5.7%
<b>Total</b>	100
Notes: Composition estimates based on a weighted average composition analysis. See Appendix C for a complete listing of the analysis assumptions and calculations.	

The results of the waste composition estimate suggest that a total of 12.7 percent of the Park's waste stream is recyclable food and beverage containers, including plastic bottles #1 and #2, glass bottles, tin cans, and aluminum cans. The largest single component of these containers is glass bottles, based on weight. An additional 36.3 percent of the Park's waste stream is recyclable paper, including cardboard, newspaper, office paper and mixed paper. Mixed paper is another relatively large category in the Park's waste stream at an estimated 18.6 percent, and is often recyclable if the mixed paper comes from an office environment. However, mixed paper generated by visitors is typically a mixture of lower grade paper types, and it is often contaminated with other materials such as food waste. Potentially compostable materials in the Park's waste stream comprise an estimated 32.7 percent, including yard waste, food waste, and wood waste. Food waste generated by visitors is typically mixed with a variety of packaging materials and is highly contaminated for composting purposes. The majority of the Park's current diversion rate (excluding diversion of construction and demolition materials) is from recycling of glass

bottles, cardboard and various paper grades. The pie chart below shows a summary of the distribution of materials in the solid waste composition estimate. (Please note that some categories show a different percentage than the table above due to summarized categories.)

**Graphic 2-8 — North Cascades National Park Complex - Stehekin Estimated Waste Composition**



The waste generator and waste composition estimates suggest that recycling could be increased by improving recovery efforts of cardboard and all paper grades from Park office and maintenance areas, private and business generators. Other increases in the total amount of materials diverted could be achieved through composting. Food waste, generated by private residences and food service businesses represents a significant portion of the overall waste stream. Other compostable materials are not generated in large quantities, particularly yard waste and green waste. These materials are typically cleaner, easy to separate, and compostable (i.e., grass clippings, green waste, and wood chips). Food waste generated at food service businesses could be more easily separated for composting, while food waste generated by visitors is often highly contaminated with other packaging materials, making it much more difficult to separate and compost effectively.

## **2.4 Current Trash Collection and Disposal Practices**

Solid waste in the Stehekin area is generated in public areas, at concessioner operations, at Park facilities and at private businesses and residences. The Park has established solid waste management services for Park, concessioner and private solid waste generators in the Stehekin area, including trash collection and recycling collection services from public areas and Park facilities, and trash receiving, processing and disposal for Park, private, business and concessioner trash. The Park has operated the Stehekin compactor facility in Stehekin since 1977, and continues to provide solid waste management services to all generators, public and private, in the Stehekin area at no cost. Providing trash transfer and disposal services to private generators is unusual for an NPS facility and out of compliance with current requirements of 36 CFR Part 6 – Solid Waste Disposal Sites in Units of the National Park System.

### ***2.4.1 Park Operations Collected Trash***

Bear-resistant trash containers are placed in public areas at the landing area, lodge, Visitor Center, campgrounds and roadside picnic areas in the Park, and all containers are serviced by Park staff. Recycling containers are placed with trash containers in some public areas, but recycling containers are not available at all locations where trash containers are placed. Park staff checks and collects trash and recycled materials during custodial rounds throughout the Park's public access areas. The container types include several BearSaver brand models. Collected trash is transported to the Park's compactor building for compaction in cardboard boxes and interim storage. All other trash generated in the area is delivered by the generators to the Park's compactor building. Park staff compacts trash delivered from Park sources, public and private generators. The concessioner is required to deliver, and compact all trash generated at concessioner operations. All compacted trash is combined and stacked on pallets for interim storage and transportation to disposal. A contractor transports all trash to a regional transfer station for disposal. Appendix B includes a complete listing of all exterior collection containers in the Park, including location, size, and number.

### ***2.4.2 Concessioner Collected Trash***

The concessioner is required to deliver, and compact all trash generated at concessioner operations. All compacted trash is combined and stacked on pallets for interim storage and transportation to disposal. A contractor transports all trash to a regional transfer station for disposal.

## **2.5 Current Waste Prevention Efforts**

Waste prevention or source reduction efforts are focused on two primary waste generators within the Park: visitors and park operations staff.

### ***2.5.1 Public and Visitor-Generated Waste***

The Park maintains a free reusable goods drop-off area at the solid waste handling facility (only available to the residents of Stehekin), which promotes reuse of products and materials otherwise destined for disposal. No other waste prevention efforts directed towards visitor-generated wastes were identified.

### ***2.5.2 Park Operations-Generated Waste***

Logs and some scrap lumber is separated and made available to the public for reuse as firewood. Some materials recovered from the Park construction and remodeling projects are separated and screened for

potential reuse. No other waste prevention efforts directed towards park operations-generated wastes were identified.

## **2.6 Current Recycling Efforts**

### **2.6.1 *Recycling at Visitor Facilities***

Recycling containers for aluminum cans, glass bottles and plastic bottles are placed with trash containers in most public areas, but recycling containers are not available at all locations where trash containers are placed. Recycled materials are collected by Park staff and delivered to the Park's compactor building, and are processed by Park staff for interim storage. A contractor transports all processed recycled materials to a regional recycling drop-off facility, or to regional recycling markets. The Park also provides for public and private drop off of oversize trash items, brush and wood debris, and household hazardous waste materials at the Park's compactor building. The Park stores and manages these materials and provides or contracts for proper transportation and disposal of all materials.

### **2.6.2 *Recycling at Park Operations***

Recycling containers are provided at staff offices in administration and operations facilities. Park administrative and operations facilities recycle cardboard, office paper, aluminum and plastic containers, scrap metal, as well as a number of special waste materials (such as batteries, printer cartridges, antifreeze, and used oil). Recycled materials are collected and delivered to the Park's compactor building, and are processed by Park staff for interim storage. A contractor transports all processed recycled materials to a regional recycling drop-off facility, or to regional recycling markets. The Park also provides for public and private drop off of oversize trash items, brush and wood debris, and household hazardous waste materials. The Park stores and manages these materials and provides or contracts for proper transportation and disposal of all materials.

The Park has been using barrel composters since 1997, and successful composting by Park staff has encouraged other residents throughout the valley to try similar systems. Current composting efforts are ongoing, with individual drum barrels for on-site composting at Park staff housing, and small-scale worm bins constructed from junkyard scraps (the construction style is designed to allow the unit to be sunk into the ground and prevent access from or damage by bears). New funding is available through the Environmental Management Program – Waste Reduction and Management for implementing additional small-scale composting efforts as well as larger, centrally-located worm bins that will handle larger amounts of organic material for kitchen scraps from seasonal generators.

### **2.6.3 *Special Wastes***

Special wastes include specific solid waste materials designated as hazardous or otherwise subject to special handling, storage, and disposal requirements. Some of the special waste materials include tires, wooden pallets, batteries, scrap metals, used oil, solvents, and antifreeze. Some of these materials are designated as Universal Wastes, and are subject to special handling, storage, and disposal requirements. The NPS encourages parks to apply source reduction, reuse, and recycling management strategies to these materials, and the diversion of special wastes does apply to the DOI Sustainable Practices reporting for recycling goals. In addition, the NPS does intend that parks report such diversion as part of the ISWAP reporting process.

The Park has programs in place to recover or eliminate the generation of most special waste material types including tires, small batteries, large automotive batteries, scrap metal, electronics, fluorescent lamps and ballasts, antifreeze, and used oil. The Park also accepts and stores special waste materials generated by the public. Most special waste materials are collected, stored and transported annually to a Chelan County household hazardous waste collection program. Community electronic waste is recycled through the E-Cycle Washington program, and fluorescent lamps and ballasts are packaged and sent by mail to licensed special waste processing companies.

## **2.7 Other Solid Waste Management Efforts**

The Park generates varying quantities of C&D debris from construction and remodeling projects. All materials recovered from the Park restoration construction and remodeling projects are separated and screened for potential reuse. Scrap metals and other construction and demolition materials have also been recovered for recycling. Brush and limbs have been chipped and stored for potential reuse as mulch or ground cover. The Park also uses a burn pile for logs, clean wood scrap and brush.

## **2.8 Current Education Efforts**

Education efforts supporting recycling in public areas include recycling signs and labels on recycling containers, and signs and recyclable material information at the solid waste handling facility. Educational information in the Park map and newsletter regarding food storage in bear country includes a recommendation for secure storage of food in bear-resistant containers. Education efforts supporting recycling for Park staff includes signs on containers and educational outreach to Park staff by designated staff.

Park staff also conducted a multi-month recycling and vermicomposting education program in the Stehekin School District by engaging students in weighing food scraps, calculating the conversion to worm castings, and experimenting with variable combinations of soil and castings to determine optimal mixtures for vegetable growth.

## **2.9 Current Procurement Efforts**

The Park purchases a number of products with recycled content, reduced packaging or reduced environmental impact. Most paper products including copy paper and toilet paper are purchased with recycled content. The Park has provided green purchasing training and guidance for purchasing staff and government credit card holders. The Park has developed and implemented a green purchasing policy for all park staff.

## 2.10 Cost of Current Solid Waste Management Program

Table 2-9 depicts the FY 2010 estimate for solid waste management costs for the Park. This information includes costs for trash and recycled materials collection and handling, operation of the compaction facility, barge transportation and disposal.

**Table 2-9 — North Cascades National Park Complex - Stehekin Solid Waste Management Cost Estimates**

<b>Cost Category</b>	<b>Cubic yards</b>	<b>Cost (\$/year, in FY 2010)</b>
Contracted Transport and Disposal Compacted Garbage	428	\$ 31,487.44
Contracted Transport and Disposal Loose Garbage	311	\$ 15,318.44
Contracted Transport and Disposal Recycled Materials	95	\$ 4,149.24
C&D Debris Hauling	150	\$ 5,977.75
Contracted Materials Hauling		\$ 556.88
<b>Subtotal Contract Costs</b>		<b>\$ 57,489.75</b>
C&D Debris Disposal	150	\$ 6,193.65
Labor Hours		\$ 33,733.24
Materials (Trash boxes, bags)		\$ 6,439.92
Disposal of Hazardous Materials		\$ 1,336.29
Utilities		\$ 1,172.34
<b>Total Costs</b>		<b>\$ 106,365.19</b>
Notes: All costs provided by Park staff, based on contractor invoices, Park purchasing invoices, utility meters and staff labor charges.		

Based on these costs and the estimated quantity of materials disposed and of materials recycled, the total cost for solid waste management for the Park is estimated to be \$108 per cubic yard, or \$493 dollars per ton.

Labor costs include collection of trash and recycled materials from public containers, as well as all labor for solid waste handling facility operations. Removing collection labor leaves a total labor cost for handling and processing operations at the compactor building. The total cost of handling and processing operations at the compactor building, including labor, materials and utilities is \$76.62 per cubic yard, and includes an average labor time of 1.75 hours per cubic yard of compacted waste or processed recycled material.

The total cost for managing trash at the compactor building, including handling and processing operations, transportation and disposal is \$144.74 per cubic yard for all processed materials (compacted trash and processed or compacted recycled materials) and \$150.22 per cubic yard for compacted trash only.

Contract transportation and disposal costs represent over half of the total costs for solid waste management. Based on the adjusted contract price for transportation and disposal these costs are



currently \$73.63 per cubic yard for compacted trash, and \$43.65 per cubic yard for compacted or boxed recycled materials.

All solid waste transported from the Stehekin area to Chelan, is disposed of at one of the Chelan County Transfer Stations, or at the Greater Wenatchee Regional Landfill. Disposal costs at the Greater Wenatchee Regional Landfill are currently \$51 per ton; disposal costs are \$88 per ton at the Chelan County Dryden transfer station, and approximately \$35 per compacted cubic yard at the Chelan transfer station. The Chelan Transfer station is anticipated to be equipped with weight scales, to be installed within two years, and the Chelan transfer station will then charge a comparable tipping fee in dollars per ton.

Total costs for handling, processing, transportation and disposal of municipal solid waste, or “regular trash”, can also be estimated for the individual generators in the Stehekin area. This excludes C&D waste quantities and their cost for transportation and disposal. This also excludes Park trash collection labor, but does include all handling, processing labor, materials costs associated with operating the compactor building and transportation and disposal costs for all loose and compacted trash and all recycled materials. Table 2-10 shows how these costs would be allocated to the waste generators in the Stehekin area, based on the estimated annual volume of trash generated by each generator.

**Table 2-10 — North Cascades National Park Complex - Stehekin MSW Cost Estimates Per Generator**

<b>Generator</b>	<b>Percent of Total Trash Volume</b>	<b>Cost (\$/year, in FY 2010)</b>
NPS	19.7%	\$18,198.53
Stehekin Lodge and Resort	22.1%	\$20,415.61
Stehekin Valley Ranch	11.6%	\$10,715.89
Stehekin Pastry Co.	11.9%	\$10,993.02
Other Businesses	0.1%	\$92.38
Private Residents	34.6%	\$31,962.90
Total	100%	\$92,378.32

### **3 ISSUES AND GOALS OF THE SOLID WASTE MANAGEMENT PROGRAM**

#### **3.1 Issues**

The Park has operated the Stehekin compactor facility in Stehekin since 1977, and continues to provide solid waste management services to all generators, public and private, in the Stehekin area at no cost. Providing trash transfer and disposal services to private generators is unusual for an NPS facility and out of compliance with current requirements of 36 CFR Part 6 – Solid Waste Disposal Sites in Units of the National Park System. The non-compliance is an issue for the Park, which is interested in constructing new maintenance buildings, housing, a fire cache & dorm, and a solid waste handling facility outside of the Stehekin River Channel Migration Zone, but federal funding is not available for construction of facilities until NPS operations are in compliance with federal regulations.

In parallel with the new ISWAP Plan development, the Park is pursuing several other initiatives:

- The Park has contracted to produce an Environmental Assessment as part of the NEPA process to study impacts associated with constructing new maintenance buildings, housing, a fire cache & dorm, and a solid waste handling facility outside of the Stehekin River Channel Migration Zone.
- The Park is working with the NPS Regulations Program Manager to draft a rule change revising 36 CFR Part 6 that would bring the Park into compliance with approval and waiver from the Regional Director. Final rule will be published in the Federal Register.
- Denver Service Center is managing the planning, design and construction for relocating maintenance facilities (PMIS 149635) and housing (PMIS 157067) outside of the Stehekin River Channel Migration Zone. Federal funding is not available for construction of facilities until NPS operations are in compliance with federal regulations.

Issues related to solid waste management which should be addressed in the Park's ISWAP Plan were observed by the contractor or described by Park staff as follows:

- High trash handling, processing and disposal costs at the existing processing facility;
- High recycled materials handling, processing and transportation costs at the existing processing facility;
- High cost of transportation of all materials out of Stehekin and long distances to recycling markets;
- Lack of composting options for a number of compostable materials;
- Inconsistent placement of trash and recycling collection containers.
- Noncompliance with current requirements of 36 CFR Part 6 – Solid Waste Disposal Sites in Units of the National Park System.

#### **3.2 Program Goals**

The goals of the Park for this project include reducing the quantity of solid waste generated and the cost of management of solid waste at the Park's existing facilities, improving the Park's existing recycling services, and improving solid waste management operations and the diversion, processing and storage capabilities for recycled and composted materials at the Park's new solid waste management facilities.

The Park has reviewed the EO 13514 requirements and has adopted these diversion goals for the purpose of updating its own ISWAP Plan and solid waste management programs:

- The Park will divert 50 percent of its municipal solid waste by fiscal year 2015; and
- The Park will divert 50 percent of its C&D waste by fiscal year 2015.

In 1989, the Waste Not Washington Act established a 50 percent recycling goal for the state. The highest level achieved, so far, was 40 percent in 1995. Because the state recycling goal remains at 50 percent, and matches the NPS and DOI diversion goals, the Park should use the 50 percent recycling and/or composting level as its goal for fiscal year 2015.

More specific initiatives of interest related to solid waste management issues in the Park were described by park staff as follows:

- Reduce the quantity of solid waste generated and the cost of management of solid waste;
- Improve trash and recycling collection container appearance, function, placement and labeling;
- Improve and increase recycling service locations, and expand recycling materials;
- Improve solid waste management data tracking;
- Improve trash handling, processing and disposal service at the new maintenance facility;
- Improve recycled materials handling, processing and transportation at the new maintenance facility.
- Bring all Park solid waste management programs into compliance with applicable requirements of 36 CFR Part 6 – Solid Waste Disposal Sites in Units of the National Park System.

The next section will describe and evaluate options to achieve both the diversion goals and the specific initiatives listed above.

## **4 EVALUATION OF OPTIONS**

### **4.1 Program Evaluation**

The evaluation of program options for the Park's ISWAP Plan is based on the site visit review of existing facilities and programs along with an evaluation of potential diversion and cost-reduction options. The evaluation is prioritized based on achieving maximum diversion of materials from landfill disposal at a minimum cost. Generation of solid waste in the Park appears to be fairly evenly divided among private residences and businesses, visitors, park administration, park maintenance and park staff housing, and there are opportunities for improving the solid waste management program in all of these areas. The following evaluations include descriptions of the Park's solid waste and recycled materials management programs in terms of cost, program effectiveness, and potential for improvement.

#### ***4.1.1 Solid Waste Management Program Evaluation***

The Park's solid waste collection service effectively provides frequent, safe, and sanitary collection and removal of waste from public areas of the Park. Collection occurs frequently enough to prevent overfilling or littering, and the trash containers appear to function adequately as a secure enclosure and an animal-proof container. In some areas of the Park, trash containers may not be placed at optimum locations for service and efficiency. In conjunction with an expansion of recycling containers and locations, all existing trash container locations in the Park should be evaluated in terms of trash generation potential and cost. New trash container locations should be prioritized with the goals of reducing the number of container locations wherever feasible, and reducing overall collection time and cost.

#### ***4.1.2 Recycling Program Evaluation***

The Park provides recycling containers at a number of public areas throughout the Park. Generally, the recycling container type and placement of these containers is appropriate; however, recycling containers are not consistently co-located with trash containers at some of the public facilities in the Park. Signage and container types could be improved to increase visibility of the recycling program and to differentiate recycling containers from trash containers. The Park should improve material labels on recycling containers and perform maintenance more frequently to ensure these labels are easy to read. The Park should increase the number of recycling containers and co-locate them with trash containers to provide a convenient recycling service wherever trash containers are located.

The Park's recycling program for Park administration and maintenance facilities provides recycling containers and recycling collection service at most facilities and for most recyclable materials.

### **4.2 Potential Diversion Rates**

As discussed earlier, the Park's current diversion rate is estimated to be approximately 13.1 percent of the solid waste generated in the Park. Based on the waste composition estimates developed for the Park, a total of 12.7 percent of the Park's waste stream is recyclable food and beverage containers, including plastic bottles #1 and #2, glass bottles, tin cans, and aluminum cans. The majority of these containers are glass bottles, based on weight. An additional 36.3 percent of the Park's waste stream is recyclable paper, including cardboard, newspaper, and office paper. Therefore, a total of 48.9 percent of the Park's waste stream is potentially recoverable through recycling programs targeting food and beverage containers (aluminum, plastic, glass, steel) and paper materials (office paper, newspaper, mixed paper, cardboard).

Using a capture rate goal of 75 percent of the available materials, the Park should be able to achieve a diversion rate of approximately 37 percent. Additional diversion would then have to be achieved by expanding the number and types of materials recycled. This could include new paper recycling efforts to encourage mixed paper grades to capture additional material; increasing plastic bottles recycling to include all colors of bottles; increasing plastic recycling to include plastic bags and plastic film; and expanding composting efforts.

Potentially compostable materials in the Park's waste stream (not including recyclable paper grades) comprise an estimated 32.7 percent of the solid waste stream, including yard waste, food waste, and wood waste. Food waste is the largest category of compostable waste material at 25.6 percent of the waste stream. It is anticipated that food waste is generated in larger percentages by food service businesses, and by private residences.

In order to reach a goal of diverting as much as 50 percent of the total solid waste generated in the Park, the Park would need to expand recycling efforts and materials to increase the capture of recyclable materials, and develop composting programs that would accept food waste as well as other compostable materials. The recycling of construction and demolition waste materials could also be a significant addition to the Park's overall diversion rate; however, these materials may not be consistently available from year to year.

### **4.3 Options Evaluation**

Based on the evaluation of options and input from park staff, the following options are recommended for implementation as part of the Park's Integrated Solid Waste Management program. Table 4-1 includes actions that are "easy-to-implement", actions that are considered to be relatively easy and less costly for the Park to implement, and "long-term" actions, which are considered to be more difficult or longer-term options for the Park to implement.

**Table 4-1 —North Cascades National Park Complex - Stehekin Options**

<b>Element</b>	<b>Easy-to-Implement Actions</b>	<b>Longer-Term Actions</b>
Administrative, Procurement and Education	<ol style="list-style-type: none"> <li>1. Develop a current inventory and placement plan for trash and recycling containers.</li> <li>2. Improve solid waste management tracking process and track quantities for DOI SPR reporting requirements.</li> <li>3. Develop Park staff training and activities for recycling and source reduction practices, including practices for construction and demolition waste reduction and recycling.</li> <li>4. Provide green procurement training for all Park staff credit card holders.</li> <li>5. Include NPS source reduction, recycling and solid waste plan requirements in all construction, demolition and renovation contracts.</li> </ol>	<ol style="list-style-type: none"> <li>6. Continue Park staff training and activities for recycling and waste reduction practices.</li> <li>7. Evaluate in ISWAP trash and recycling placement plan and policy options for partial or complete “Pack-in, Pack-out” designated areas.</li> <li>8. Evaluate in ISWAP preferred trash and recycling container style for placement plan and procure additional containers as necessary.</li> <li>9. Bring all Park solid waste management programs into compliance with applicable requirements of 36 CFR Part 6 – Solid Waste Disposal Sites in Units of the National Park System.</li> </ol>
Trash Management	<ol style="list-style-type: none"> <li>10. Improve signage on trash containers (larger, clearer lettering and labeled for trash).</li> <li>11. Test separating materials in the burn pile for alternative uses, including logs, brush and wood scrap.</li> <li>12. Maintain separate storage of Household Hazardous Waste materials received from the public.</li> </ol>	<ol style="list-style-type: none"> <li>13. Evaluate in ISWAP trash compaction equipment options, including replacing existing compactors, switching to compacting roll-off system, switching to trash baler system.</li> <li>14. Evaluate trash container locations and effectiveness, replace or relocate as necessary.</li> </ol>
Source Reduction and Reuse	<ol style="list-style-type: none"> <li>15. Include source reduction approaches in employee training, including green procurement training.</li> <li>16. Develop recycling and source reduction education and approaches for residents and visitors.</li> </ol>	<ol style="list-style-type: none"> <li>17. Sell reusable water bottles at Park and concessioner stores, discontinue disposable bottled water sales, and install water filling stations.</li> <li>18. Evaluate in ISWAP wood as fuel for building heating in forms of firewood, wood chips or sawdust pellets.</li> </ol>

Element	Easy-to-Implement Actions	Longer-Term Actions
Recycling	19. Obtain a platform scale to provide more accurate weights of recycled materials. 20. Obtain a sorting table to aid manual separation of mixed recycled materials at the existing compactor building. 21. Test baling plastic bottles in down stroke baler. 22. Test accepting additional recycled materials at the existing compactor building, which are currently accepted at the Chelan County Transfer Station, including all colors of #1 and #2 plastic bottles, plastic bags, and mixed paper.	23. Evaluate available recycling markets; consider adding to recycled materials processed at the compactor building. 24. Evaluate in ISWAP recycling equipment options, including sorting, baling, compacting, bulk loading in larger containers. 25. Evaluate in ISWAP equipment for glass pulverizing and reuse of pulverized glass product. 26. Evaluate recycling container locations and effectiveness, replace or relocate as necessary.
Composting	27. Test sheet composting method for apple mash waste. 28. Test brush chipping of materials from separate burn pile for use as mulch and composting additive.	29. Evaluate in ISWAP composting operation for separated food waste, waste paper and green waste from Park staff offices and housing facilities as part of new processing operation.

The following sections present the recommended actions in more detail. After the discussion of each action, a suggested recommendation for the Park is included and a suggested list of responses. Also after the discussion of selected actions, those which impact the function and design of the solid waste handling facility, is a suggested list of responses for Chelan County. Responses to these suggested recommendations are documented in this final ISWAP Plan.

#### **4.3.1 Administrative, Procurement, and Education**

##### **1. Easy-to-Implement Action: Develop a current inventory and placement plan for trash and recycling containers.**

It is recommended that the Park develop a placement inventory for trash and recycling containers in order to establish a consistent appearance, a more uniform level of service, and to improve the convenience and service of trash and recycling container locations. Recommended elements of the placement plan include the following:

- A consistent container type for both trash and recycling containers will be used throughout the Park to provide an easily recognizable trash and recycling service.
- Trash and recycling containers will be located adjacent to each other at all service locations to increase convenience and increase recycling participation.
- Recycling containers should have the following characteristics: a distinct appearance to distinguish them from trash cans; a distinct color to distinguish them from trash cans; a restricted access opening sized for the designated recycling material; a secured lid to reduce improper use as a trash can; and, large, easy-to-read signage.

- Trash and recycling containers will be consistently grouped near facility improvements such as parking areas, restroom facilities, and facility signage.
- Trash and recycling container placement may be modified to accommodate high usage, unique facility layout requirements and “pack it in, pack it out” area designations.

See Appendix B for a complete listing of current and recommended container placement.

The Park’s response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted.**

Some changes to the container listing in Appendix B may be made based on final plans for specific locations in the Park for rearrangement, removal or replacement of trash and recycling containers.

**2. Easy-to-Implement Action: Improve solid waste management tracking process and track quantities for DOI SPR reporting requirements.**

The Park has reasonably accurate records of total quantities of trash, based primarily on contractor collection schedules. Recycling records of quantities of recycled materials are based on staff maintained volume records. On an annual basis, all trash and recycling records should be compiled and converted to total weight so that an estimate can be developed of the total trash disposed by the Park, and the total quantity of recycled materials recovered by the Park. Other trash quantities, such as contracted roll-off collection, bulk materials disposal or other direct-haul quantities should be tracked and added to the total trash disposed by the Park. It is recommended that the Park use a standardized tracking method and record all tracking data in a designated location or computer file. A waste tracking spreadsheet was developed for the Park and is included in Appendix A. The spreadsheet is designed for data entry in the types and units of trash and recycled materials that the Park will have records for, and will compile totals and calculate total solid waste generation, the waste generation rate, and the diversion rate. This worksheet can be used by park staff to record data during the year and to prepare annual estimates of all of the required solid waste management information and rates. This spreadsheet also generates a listing of all recycled materials for use in reporting to the DOI SPR annual report.

The Park should continue to use the waste and recycling log forms, but improve recording procedures to ensure complete and accurate data. A revised tracking log was prepared to estimate recycling quantities for FY 2010, and is included in Appendix A. Revisions include some formula and formatting changes, the addition of weight conversion factors to calculate total weights, and the addition of tracking categories for all materials types reported as recycled by the Park. By including all data and all conversion assumptions in the log, all information can be updated and shared with other park staff, and more easily integrated with data from the other units of the North Cascades National Park Complex. This will facilitate reporting to the annual DOI SPR database, as well as allow the Park to compare progress towards the NPS diversion goals in each unit of the North Cascades National Park Complex. An electronic copy and functional version of all spreadsheets and log forms has been provided to the Park along with the final ISWAP Plan.

The Park’s response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted with modification.**



Additional review of the tracking log provided in Appendix A will be required, and specific forms or log sheets can be developed following the current tracking system, and integrated into the summary spreadsheet. Park staff has previously taken weights of compacted garbage using a hanging scale to determine an average weight per cubic yard; and has also used a government data source showing standard weight and volume conversion factors for glass, batteries, metal, paper, etc. These data have been compared with actual field weights to determine the current conversion factors used by Park staff.

**3. Easy-to-Implement Action: Develop Park staff training and activities for recycling and waste reduction practices, including practices for construction and demolition waste reduction and recycling.**

It is recommended that the Park designate a recycling coordinator for staff training and education and to serve as an activities leader. Training subjects or activities could include:

- Provide training or education materials on what materials are included in the current recycling service, for Park staff and for residents and businesses;
- Solicit staff input on improvements to the recycling services and programs;
- Coordinate more or better staff office recycling containers at park facilities and offices;
- Provide coordination and information on other waste reduction ideas, such as the reuse center, a waste exchange, green waste or food waste composting;
- Provide coordination and information on Universal waste handling and recycling procedures and opportunities.
- Provide improved documentation of training (attendance list, topics covered, duration, how online training might be tracked/documented, etc.).

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted with modification.**

The Park agrees with this concept in theory, but further discussion at the Park level will be required as to how and when this action will be implemented due to limited staff, resources, funding, travel ceilings, etc. This action should be changed to a "longer-term action". Please add a bullet point regarding improved documentation of training (attendance list, topics covered, duration, how online training might be tracked/documented, etc.).

**4. Easy-to-Implement Action: Provide green procurement training for all Park staff credit card holders.**

The Park should develop a training plan to provide periodic training and ongoing support for green purchasing practices. Purchasing "green" products, products with recycled content, products that are readily recyclable, and products with lower environmental impact, all have a number of benefits. By purchasing products with recycled content and low environmental impact (such as lower or no hazardous materials content), the environmental impacts associated with manufacturing, use, and disposal are reduced. Also, by buying products with recycled content, the markets for recycled materials are supported and encouraged, and fewer natural resources are consumed in the manufacture of new products. This can directly benefit the Parks by helping to develop stronger markets for recyclable materials.

Environmental Purchasing federal laws include the EPA's Comprehensive Procurement Guidelines (CPG), as well as biobased products (Farm Bill), and requirements under the Energy Act (Energy Star and guidance under Watersense). The CPG contains 61 products under eight categories, which contain recycled content and are designated for procurement by federal government agencies. The Park's purchasing agents should be aware of the CPG and stock products from there whenever possible. All Park personnel with purchasing responsibilities should be trained to be able to identify the products in this listing when purchasing applicable products.

All Park personnel with purchasing responsibility and authorization to use credit cards should be trained in green purchasing practices. Staff should also be provided with information on recycled products available in the CPG listings and through GSA. An on-line green purchasing training course is available on the Office of Personnel Management's "GoLearn" web site ([www.golearn.gov](http://www.golearn.gov)). The training course is for contracting personnel, purchase cardholders, facilities managers, and fleet managers. The training course duration ranges from 1.5 hours for purchase cardholders to 2.5 hours for contracting officers and contracting officer representatives. Green purchasing information and training materials are also available on the EPA website at [www.epa.gov/opptintr/epp](http://www.epa.gov/opptintr/epp).

Park facility management and resource management staff with purchasing responsibilities could also review and adopt the following NPS documents:

- Green Janitorial Products and Practices Guide (October, 2001, revised June, 2003);
- 100+ Best Management Practices Guide (June, 2002);
- Environmental Purchasing in the NPS – A How-To Guide (June, 2002);
- Green Offices Guide (July, 2003); and
- Model specifications and environmental goal specifications.

These documents are available electronically at the Pacific West Regional home page at: [www.inside.nps.gov/regions/pacificwestregion/facilitymanagement/greenmaintenance](http://www.inside.nps.gov/regions/pacificwestregion/facilitymanagement/greenmaintenance) (intranet only).

FedCenter is also an excellent source of training materials, which can be found at:

<http://www.fedcenter.gov/>

Additional documents from the Recycling and Green Building Reports Master List, including reports on recycling companies for unique materials, green building materials, green purchasing reports and the C&D waste management report are available on the WASO Environmental Management Program website at <http://pfmd1.nps.gov/EMP/hazmat/> - click "Green Purchase" (intranet only, link may not be active until fixed).

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted.**

The Park is considering making this a 2011 EMS goal to promote environmental training for employees. Also note that NOCA can post green purchasing guidelines and resources on the NOCA Intranet, EMS/Green Team tab for in-park communication with purchasing staff.

**5. Easy-to-Implement Action: Include NPS source reduction, recycling and solid waste plan requirements in all construction, demolition and renovation contracts.**

The Park should include in specifications a requirement for Waste Reduction Plans ([FAR Clause 52.223-10](#)) in demolition, construction, and service contracts to achieve waste diversion goals.

As an example, some parks have added the following in the Request for Quotes: Contractors will consider the life cycle costs of treatment and/or disposal of waste or pollutants for all contracts. All reasonable efforts will be taken to use recycled materials, conform to the environmental management practices established by the Park for habitat impacts, energy efficiency, water conservation and protection and the reduction of toxic chemicals.

The Park can also use the following referenced FAR clause(s):

**52.223-1 Biobased Product Certification.**

As prescribed in [23.406\(a\)](#), insert the following provision:

Biobased Product Certification (Dec 2007)

As required by the Farm Security and Rural Investment Act of 2002 and the Energy Policy Act of 2005 ([7 U.S.C. 8102\(c\)\(3\)](#)), the offeror certifies, by signing this offer, that biobased products (within categories of products listed by the United States Department of Agriculture in 7 CFR part 2902, subpart B) to be used or delivered in the performance of the contract, other than biobased products that are not purchased by the offeror as a direct result of this contract, will comply with the applicable specifications or other contractual requirements.

(End of provision)

**52.223-2 Affirmative Procurement of Biobased Products Under Service and Construction Contracts.**

As prescribed in [23.406\(b\)](#), insert the following clause:

Affirmative Procurement of Biobased Products Under Service and Construction Contracts  
(Dec 2007)

(a) In the performance of this contract, the contractor shall make maximum use of biobased products that are United States Department of Agriculture (USDA)-designated items unless—

(1) The product cannot be acquired—

(i) Competitively within a time frame providing for compliance with the contract performance schedule;

(ii) Meeting contract performance requirements; or

(iii) At a reasonable price.

(2) The product is to be used in an application covered by a USDA categorical exemption (see 7 CFR 2902.10 *et seq.*). For example, some USDA-designated items such as mobile equipment hydraulic fluids, diesel fuel additives, and penetrating lubricants are excluded from the preferred procurement requirement for the application of the USDA-designated item to one or both of the following:

(i) Spacecraft system and launch support equipment.

(ii) Military equipment, *i.e.*, a product or system designed or procured for combat or combat-related missions.

(b) Information about this requirement and these products is available at <http://www.usda.gov/biopreferred>.

(End of clause)

**52.223-4 Recovered Material Certification.**

As prescribed in [23.406\(c\)](#), insert the following provision:

Recovered Material Certification (May 2008)

As required by the Resource Conservation and Recovery Act of 1976 ([42 U.S.C. 6962\(c\)\(3\)\(A\)\(i\)](#)), the offeror certifies, by signing this offer, that the percentage of recovered materials content for EPA-designated items to be delivered or used in the performance of the contract will be at least the amount required by the applicable contract specifications or other contractual requirements.

(End of provision)

**52.223-9 Estimate of Percentage of Recovered Material Content for EPA-Designated Items.**

As prescribed in [23.406\(d\)](#), insert the following clause:

Estimate of Percentage of Recovered Material Content for EPA-Designated Items (May 2008)

(a) *Definitions.* As used in this clause—

“Postconsumer material” means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of “recovered material.”

“Recovered material” means waste materials and by-products recovered or diverted from solid waste, but the term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process.

(b) The Contractor, on completion of this contract, shall—

(1) Estimate the percentage of the total recovered material content for EPA-designated item(s) delivered and/or used in contract performance, including, if applicable, the percentage of post-consumer material content; and

(2) Submit this estimate to \_\_\_\_\_ [*Contracting Officer complete in accordance with agency procedures*].

(End of clause)

*Alternate I (May 2008).* As prescribed in [23.406\(d\)](#), redesignate paragraph (b) of the basic clause as paragraph (c) and add the following paragraph (b) to the basic clause:

(b) The Contractor shall execute the following certification required by the Resource Conservation and Recovery Act of 1976 ([42 U.S.C. 6962\(i\)\(2\)\(C\)](#)):

Certification

I, \_\_\_\_\_ (name of certifier), am an officer or employee responsible for the performance of this contract and hereby certify that the percentage of recovered material content for EPA-designated items met the applicable contract specifications or other contractual requirements.

\_\_\_\_\_  
[Signature of the Officer or Employee]

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[Typed Name of the Officer or Employee]

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[Title]

---

[Name of Company, Firm, or Organization]

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[Date]

(End of certification)

**52.223-10 Waste Reduction Program.**

As prescribed in [23.706](#)(a), insert the following clause:

Waste Reduction Program (Aug 2000)

(a) *Definitions.* As used in this clause—

“Recycling” means the series of activities, including collection, separation, and processing, by which products or other materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of products other than fuel for producing heat or power by combustion.

“Waste prevention” means any change in the design, manufacturing, purchase, or use of materials or products (including packaging) to reduce their amount or toxicity before they are discarded. Waste prevention also refers to the reuse of products or materials.

“Waste reduction” means preventing or decreasing the amount of waste being generated through waste prevention, recycling, or purchasing recycled and environmentally preferable products.

(b) Consistent with the requirements of Section 701 of Executive Order 13101, the Contractor shall establish a program to promote cost-effective waste reduction in all operations and facilities covered by this contract. The Contractor’s programs shall comply with applicable Federal, State, and local requirements, specifically including Section 6002 of the Resource Conservation and Recovery Act ([42 U.S.C. 6962](#), *et seq.*) and implementing regulations (40 CFR Part 247).

(End of clause)

Additional documents from the Recycling and Green Building Reports Master List, including reports on recycling companies for unique materials, green building materials, green purchasing reports and the C&D waste management report are available on the WASO Environmental Management Program website at <http://pfmd1.nps.gov/EMP/hazmat/> - click “Green Purchase” (intranet only).

The Park’s response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted with modification.** The applicability of FAR clauses and provisions is controlled by the FAR and it’s up to the CO to determine whether to include or exclude the clause or provision based on the specific circumstances in question. It is possible to adopt some of the specific language (recognizing that this may increase cost), at the discretion of the CO, recognizing that not all of the examples in this action will be used in every contract. The Park can also include some of the language from the FAR in a contract without invoking the FAR itself, which may be more appropriate in some cases.

**6. Longer-Term Action: Continue park staff training and activities for recycling and waste reduction practices.**

The recycling coordinator position should be maintained to provide on-going training and assistance with the recycling program operation. On-going, periodic staff training and education on solid waste management, recycling and waste reduction programs should be provided.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted.**

Specifically, the Park will continue the current Park staff training whereby every June Park and concession staff are taken to the compactor building for a seasonal orientation and given a 15-20 min training/demonstration on sorting recyclables, safe practices for compacting, etc.

**7. Longer-Term Action: Evaluate in ISWAP trash and recycling placement plan and policy options for partial or complete "Pack-in, Pack-out" designated areas.**

It is recommended that the Park consider reduced or no solid waste collection services in some areas of the Park. Options for developing a tested policy for the "pack- in, pack-out" approaches to facility maintenance include:

- conducting a pilot "pack- in, pack-out" project at one facility or area to start, evaluate the area through the summer, visiting it as often as if trash service was being provided and document any issues with litter, or visitor complaints. Example locations are Tumwater campsite, High Bridge campsite, High Bridge picnic site, Bullion campsite;
- designating several sites for "pack- in, pack- out" management style based on visitor usage and location – compatibility with a reduced service for visitors – such as all sites near the end of the road (Tumwater, High Bridge and Bullion), or all sites at Weaver Point campground.
- Designating a portion of an area for partial "pack-in, pack-out" designation, essentially dividing the area into two portions, one with improvements and services such as trash and recycling collection, and the other portion without services and with a back country or natural area designation. One example would be to make all camp sites at Weaver Point campground "pack- in, pack- out", but provide grouped trash and recycling containers at the boat dock. Another example would be to make the camp sites at Harlequin campground "pack- in, pack- out", but provide grouped trash and recycling containers at the restroom facility only.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted with modifications.**

Specifically, the Park will implement the following "pack-in, pack-out" improvements:

- The Park will install just a single consolidated trash and expanded recycling options at Weaver Point located near the dock (PMIS package awarded for FY11 provides funding for expanded recycling options). All campsites will be "pack-in, pack-out".
- Tumwater campsite, High Bridge campsite, and Bullion campsite will be converted to "pack-in, pack-out"

- Harlequin will have consolidated trash and recycling at the restroom facility only; all campsites will be “pack-in, pack-out”
- High Bridge picnic area will have full recycling added to garbage.
- Signage and visitor education efforts will be improved to emphasize the change in campground recycling and solid waste standards.

**8. Longer-Term Action: Evaluate in ISWAP preferred trash and recycling container style for placement plan and procure additional containers as necessary.**

The Park currently has a variety of trash and recycling container styles and colors in place in public areas, some new containers and some older. As part of a new container placement plan, some trash containers should be replaced, and new recycling containers added to some locations. Ideally, the Park could adopt a standard trash and recycling container style, color, signage and grouping to use at all public locations, which would provide a consistent appearance, informational signage and recycling service for visitors to the Park.

Ideally, recycling containers should have the following characteristics: a distinct appearance to distinguish them from trash cans; a distinct color to distinguish them from trash cans; a restricted access opening sized for the designated recycling material and a secured lid to reduce improper use as a trash can; clear, large signage, including the recycling symbol, name of the recycling material and a picture of the material. The signage should be on or as close as possible to the recycling container and its opening. There are a number of different container manufacturers, offering a variety of style and functional options. The new containers the Park has purchased are almost all BearSaver brand models, so it is assumed that additional new containers would be one of the BearSaver models. BearSaver contact information is as follows: BearSaver; 1390 South Milliken Avenue, Ontario, CA 91761, (909) 605-1697, [www.bearsaver.com](http://www.bearsaver.com); manufactures a number of animal-proof trash and recycling container models; listed on GSA; containers used at many parks.

The following are a selection of some of the container types currently in use in the Park, and recommendations for continued use, replacement or reconfiguring.



Bear-proof Dome-top trash cans are located at Weaver Point, Harlequin Campground, Tumwater, High Bridge and Bullion. These container types are considered difficult and dangerous to service and less attractive than other container options. Many of these containers are in candidate “pack in, pack out” areas, and could be removed. If not removed, these containers should either be upgraded with appropriate signage, and recycling containers added in a grouped placement, or replaced with new containers in the Park’s preferred standard trash and recycling container style, color, signage and grouping.





New BearSaver Hid-A-Bag double trash and recycling containers are located at the landing and in some spots near the concessioner store and restaurant. These containers are well signed, effective animal-proof containers, easy to service, and preferred by Park staff. Ideally, the recycling containers would be one color (green) and trash containers a different color (brown). Also recycling containers would all use a different top, such as the hooded opening seen on the glass recycling container, for ease of use and to better distinguishing between

recycling and trash containers. This container model may be selected as the Park's preferred standard trash and recycling container style, with a consistent selection of color, labeling and top opening or lid style.



Older BearSaver Hid-A-Bag double trash and recycling container models, some with wood covers and some without, are located at the Visitor Center, some picnic and public locations and in some spots near the concessioner store and restaurant. These containers are also effective animal-proof containers, and are easy to service (but have a rear-access door for servicing). The older containers are often very weathered, and signage is variable. As with the newer containers, these older containers are not consistently colored, signed or equipped with a consistent top or opening type.

These containers could be replaced with new containers in the Park's preferred standard trash and recycling container style, color, signage and grouping, or upgraded with appropriate signage, and selected additional recycling containers. If replaced, these containers could also be reused in other areas of the Park with less usage or lower visual requirements, or as a temporary replacement for the Dome-top containers.

The following are typical models of recycling containers available from BearSaver: BE model, CE model with top chute, CE model, HA model with wood sides.





Other typical models currently used in the Park include the Mini Depot model and the Hid-A-Bag model. All models are also available in a trash container in the same style.



The Park should select a preferred model of trash and recycling container, select colors, signage and lid style and plan to place these containers with trash and recycling containers together. Then the Park can select a placement plan for the

preferred model set, with possible options of replacing all containers in the Park with the preferred set, replacing just containers in the main public areas (landing, Visitor Center, picnic areas and concessioner facilities) and using existing containers in other areas, or adopting different container types and placement plans in different areas of the Park.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted.**

The Park wants to maintain focus of separating recycling items at the source or point of collection. The Park's preferred model will be what's shown in the top photo on the previous page at the landing (new BearSaver Hid-A-Bag double trash and recycling containers); however, future recycling containers will be green and trash containers will be brown. The Park prefers the container with modified openings for recyclable items. The three-bin recycling system is also good because Park staff carry empty Rubbermaid tubs in the pickup truck and can just swap out containers as they fill for transport back to the recycling/compaction facility. The Park also wants to be consistent with marking and signage.

**9. Longer-Term Action: Bring all Park solid waste management programs into compliance with applicable requirements of 36 CFR Part 6 – Solid Waste Disposal Sites in Units of the National Park System.**

Currently, Federal regulation included in 36 CFR Part 6 prohibits the handling of waste generated by private residents and businesses in any facility within the boundaries of a National Park unit.

The Park has been working closely with NPS staff from the Pacific West Region and the Washington Office to educate key individuals on the details of this issue and gain support for carrying out a federal regulation change necessary to resolve the conflict with 36 CFR Part 6. The Park is now working with the NPS Regulations Program Manager to initiate the process that would waive prohibitions against accepting non-NPS waste generated within the boundaries of Lake Chelan NRA.

The Park's intent in requesting the regulation change would be to bring the operation of the existing and/or new solid waste facility, located on National Park Service land, to be in compliance with the updated 36 CFR Part 6, and to allow the facility to accept and handle non-NPS waste generated within the boundaries of Lake Chelan NRA, either as a facility owned and operated by the Park, or as a facility owned by the Park but operated by Chelan County as a public

solid waste transfer station, through contract or intergovernmental agreement and with full management responsibility and assumption of liability associated with the operation of the facility.

This action has been recommended by the Park. The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted**.

#### 4.3.2 *Trash Management*

##### **10. Easy-to-Implement Action: Improve signage on trash containers (larger, clearer lettering and labeled for trash).**



As part of a maintenance program for existing recycling containers, improved signage should be added to the tops and fronts of all park recycling containers. The signs should be large and easy-to-read and identify the material accepted with words and a picture or symbol of the relevant material (cans, bottles). Signage on the front of the container should also include the word "RECYCLING" in a large font size, and signage should also include the chasing arrows recycling symbol in a large size.

The recycling containers shown can serve as an example of the desired placement, appearance and labeling. Larger signs, with larger words and pictures will improve visibility, increase participation and help reduce contamination.



As new trash containers are put in service, improved signage should be added to the front of all of the existing trash containers. All trash containers should be labeled "TRASH ONLY". The trash container shown here is an older container purchased by the Park, relocated and modified signage added by Park staff to meet recycling needs.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted**.

##### **11. Easy-to-Implement Action: Test separating materials in the burn pile for alternative uses, including logs, brush and wood scrap.**

While the burn pile provides a relatively inexpensive means of disposal of all materials, burning does not count towards diversion, and potentially reusable materials are lost to the potential to reuse, recycle or compost them. The primary obstacle to improving management of these materials is that a variety of different materials are mixed together in a single, very large pile. Once mixed together in the pile, these materials cannot be easily separated for potential reuse or recycling. Due to these high labor costs to separate mixed materials, the current pile should be burned as per normal procedures.



All new material should be piled in separate piles by material type in the same general area. Separate piles could be maintained for large logs (too large for chipping or cutting up for firewood), smaller logs and limbs appropriate for firewood or chipping, brush appropriate for chipping, and scrap lumber.

In separate piles, these materials can potentially be reclaimed for reuse applications, or processed for recycling or composting. Possible applications include using large logs for bulk storage bunker construction, cutting for

firewood, chipping smaller logs and limbs for wood chips (mulch, ground cover or composting), reuse of scrap lumber or burning in a wood-fired furnace for energy recovery. If not reclaimed or reused within a reasonable time period, the piles can easily be combined and burned in the annual burn pile procedure.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted.**

Once snow melts, the Park is going to take the burn pile ash and remove/spread it to get pile down to bare ground. This area is not policed, but the Park will try putting up logs, pallets, or other type of barriers and signage to encourage separation of painted and glue-based wood, large logs, small logs/brush, and scrap lumber.

## **12. Easy-to-Implement Action: Maintain separate storage of Household Hazardous Waste materials received from the public.**

A separate storage building or unit should be maintained for storage of public-generated household hazardous waste materials, to benefit the Park's record-keeping system and to maintain separate liability. This should be done to keep clear what materials and quantities are Park responsibility (for small quantity generator status, and for disposal payment) and what materials and quantities have come from private generators. An additional storage area could also be designated for reusable product storage, such as paint, stain, wood preservative, lubricants, etc.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted.**

**13. Longer-Term Action: Evaluate in ISWAP trash compaction equipment options for the new solid waste handling facility, including replacing existing compactors, switching to compacting roll-off system, switching to trash baler system.**

Currently, NPS and concessionaire staff use trash compactors purchased and installed in 1995 and 1997 at the Stehekin compactor station. Solid waste and sorted recyclables are hand-loaded and compacted into  $\frac{1}{3}$  cubic yard cardboard boxes, which are then stacked on wooden pallets. The pallets of compacted waste and recyclables are loaded by a local contractor onto a truck, then a contracted barge to be transported down lake to Chelan and subsequently trucked to the Chelan County solid waste and transfer facility.

The current method of compaction has been characterized as labor-intensive and expensive, and the existing compaction equipment is nearing the end of its useful life, requiring replacement. An evaluation of the costs and advantages/disadvantages of continuing the current compaction method versus alternative methods should be completed, to select the preferred method of handling trash at the new solid waste handling facility, and to determine the design and equipment requirements for the new solid waste handling facility.

A preliminary cost and advantages/disadvantages analysis was prepared in the draft ISWAP document for Park review. This analysis considered several alternative compaction methods. The goals of the alternatives are to reduce handling requirements, reduce overall labor cost requirements, minimize transportation and disposal costs. The description and comparison of alternatives focuses on the relative performance of the alternatives with respect to these goals. It should be noted that trash disposal costs are assumed to be weight-based for all alternatives, and therefore not affected by compaction. Transportation costs are volume, or area-based, and therefore are affected by compaction and loading variations.

The equipment and operation alternatives selected for evaluation include small-scale waste compaction (the current approach), large-scale bulk compaction (with three different equipment types), baling of trash, and uncompacted bulk loading. These equipment and operational alternatives are described in more detail and advantages listed below.

**Alternative 1: small-scale waste compaction (current approach)**

Alternative 1 is based on continuing the current compaction practice of using small-scale compactors, and compacting into  $\frac{1}{3}$  cubic yard boxes to stack boxes for storage and transportation. The current Fox brand of compactors is no longer manufactured, but similar equipment models are available from other manufacturers, at a typical cost of \$11,000 plus shipping. This alternative is based on the purchase of two replacement compactors; model Trashpacker 7000 available from Compactors, Inc. Materials, utilities, transportation and labor costs are assumed to be comparable to current costs. All trash compaction equipment and trash processing operations would be located inside of the new solid waste handling facility. Processed trash storage could be located inside or outside of the facility in a covered and secured storage area.



Alternative 1 advantages:

- Relatively good compaction and good transportation space utilization.
- Sanitary, secure containment of trash.
- Works with currently available transportation equipment (boom truck and barge) and approach.



**Alternative 2a: large-scale bulk compaction – self-contained compactors**

Alternative 2a is based on the use of commercial self-contained trash compactor units. These compaction units feature a single compactor and enclosed roll-off container unit; the entire unit is loaded on a roll-off truck for emptying. Self-contained compactors can be customized with a variety of loading arrangements (secured hopper, inside loading chute, etc.), can be loaded while in operation, provide reasonable compaction and are available with capacities of 20 to 39 cubic yards. Materials costs would be eliminated with the self-

contained compactor units, and utilities are assumed to be comparable to current utility costs. Labor costs would be significantly reduced, as no handling or movement of trash is required (assuming trash could be dropped off directly into the secured hopper or loading chute) and all compaction is performed by the unit automatically. A minimum of two units would be required to provide continuous trash storage and compaction while one unit is being transported to Chelan for trash disposal. The largest capacity of 39 cubic yards was assumed, to minimize transportation costs. The self-contained compactor units are too tall and long to be moved with the current contractor's boom truck, and a tandem axle roll-off truck is assumed to be required for moving and transporting these units. Only a portion of the vehicle equipment cost is assumed to be passed on to the Park if a contractor provides long-term transportation and disposal services. The containers would have to be transported both down lake and up lake, and cannot be stacked or nested or filled with other cargo to reduce transportations costs. Trash compaction equipment could be located outside of the new solid waste handling facility, with exterior or interior loading options.

More examples, equipment description and information are available at [www.norcalcompactors.com](http://www.norcalcompactors.com).

Alternative 2a advantages:

- Significant reduction of handling and labor costs.
- Relatively good compaction and good transportation space utilization.
- Sanitary, secure containment of trash.
- Outdoor, secured trash receiving, storage and pick up operation possible – reduced building space requirements.
- Compatible with typical commercial trash transportation and disposal approach.

**Alternative 2b: large-scale bulk compaction – large stationary compactors**



Alternative 2b is based on the use of commercial stationary trash compactor units. These compaction units feature a stationary mounted compactor hopper, motor and hydraulic unit with a detachable roll-off container unit. The detachable enclosed roll-off container is removed for transport and disposal. Stationary compactors can also be customized with a variety of loading arrangements (secured hopper, inside loading chute, etc.), can be loaded while in operation, provide reasonable compaction and are available with capacities of 20 to 39 cubic yards.

Materials costs would be eliminated with the self-

contained compactor units, and utilities are assumed to be comparable to current utility costs. Labor costs would be significantly reduced, as no handling or movement of trash is required (assuming trash could be dropped off directly into the secured hopper or loading chute) and all compaction is performed by the unit automatically. A single stationary compactor with multiple roll-off containers can be used to provide continuous trash storage and compaction while the filled containers are being transported to Chelan for trash disposal. A custom-built 20 cubic yard capacity roll-off container was assumed, which could be manufactured with a lower height and flat top to enable loading and transport with the contractor's boom truck, and stacking on the barge deck on the return trip to minimize transportation costs. Trash compaction equipment could be located outside of the new solid waste handling facility, with exterior or interior loading options.

More examples, equipment description and information are available at [www.norcalcompactors.com](http://www.norcalcompactors.com).

Alternative 2b advantages:

- Significant reduction of handling and labor costs.
- Relatively good compaction and good transportation space utilization.
- Sanitary, secure containment of trash.
- Outdoor, secured trash receiving, storage and pick up operation possible – reduced building space requirements.
- Compatible with typical commercial trash transportation and disposal approach.
- Works with currently available transportation equipment (boom truck and barge) and approach.

**Alternative 2c: large-scale bulk compaction – small stationary compactors**

Alternative 2c is based on the use of a smaller size commercial stationary trash compactor unit. These compaction units feature a stationary mounted compactor hopper, motor and hydraulic unit with a detachable front-load or rear-load dumpster container unit. The detachable dumpster container is removed for transport and disposal, and is designed to be emptied by a front-load or rear-load garbage truck. These compactors can also be customized with a variety of loading arrangements (secured hopper, inside loading chute, etc.), can be loaded while in operation, provide reasonable compaction and are available with capacities of two to six cubic yards. Materials costs would be eliminated with the self-contained compactor units, and utilities are assumed to be comparable to current utility costs. Labor costs would be significantly reduced, as no handling or movement of trash is required (assuming trash could be dropped off directly into

the secured hopper or loading chute) and all compaction is performed by the unit automatically. A single stationary compactor with multiple dumpster containers can be used to provide continuous trash storage and compaction while the filled containers are being transported to Chelan for trash disposal. The largest capacity of six cubic yards was assumed, to minimize transportation costs. These containers could be loaded and transported on the contractor's boom truck as well as transported on the deck of the barge. The containers would have to be transported both down lake and up lake, and cannot be stacked or nested or filled with other cargo to reduce transportation costs. Trash compaction equipment could be located outside of the new solid waste handling facility, with exterior or interior loading options.

More examples, equipment description and information are available at [www.norcalcompactors.com](http://www.norcalcompactors.com).

Alternative 2c advantages:

- Significant reduction of handling and labor costs.
- Relatively good compaction and good transportation space utilization.
- Sanitary, secure containment of trash.
- Outdoor, secured trash receiving, storage and pick up operation possible – reduced building space requirements.
- Compatible with typical commercial trash transportation and disposal approach.
- Works with currently available transportation equipment (boom truck and barge) and approach.

### **Alternative 3: baling**

Alternative 3 is based on the use of commercial baling equipment to highly compact trash into



large bales for transport and disposal. The baling equipment type typically used for trash baling and “balefill” landfill operations is a horizontal, closed end, or open end baler with a feed conveyor. This baling equipment is typically used in higher throughput operations (photo below is from the Chelan County Recycling Center), makes a highly compacted, full-size bale, and is easy to continuously feed material into the baler while producing a bale. This type of equipment is more expensive, with complete systems ranging well over \$100,000.



To keep equipment costs lower for this alternative, a less expensive but still heavy-duty vertical baler, manual tie with a rear feed chute and incline conveyor was assumed. This type of baler will still create a highly compacted trash bale, at approximately 1,000 pounds per cubic yard. Materials costs would be slightly lower (baling wire and hydraulic oil), and utilities are assumed to be higher than current utility costs due to the larger motor sizes and higher compaction of all trash. Labor costs would be reduced, as less handling or movement of trash is required (assuming trash could be dropped off directly into the secured hopper or loading chute) but baler operation and bale tying and removal would require some additional staff time. Bales could be stored in a standard open-top 20 cubic yard roll-off container, which would enable loading and transport with the contractor's boom truck, and stacking of empty

roll-off containers on the barge deck on the return trip to minimize transportation costs. Trash baling equipment and all trash processing operations would be located inside the new solid waste handling facility. Processed trash storage could be located inside or outside of the facility in a covered and secured storage area.

The baling equipment could also be used to bale most recyclable materials (eliminating the need to purchase a separate baler for recycled materials), including all cardboard and paper grades, aluminum cans, plastic bottles, and steel cans. Cleaning would be required after trash baling, assuming any liquids would be squeezed out and need to be periodically cleaned from the bale chamber and surrounding area. Building modifications for drains, cleanouts and oil/water separators may be required.

#### Alternative 3 advantages:

- Potential dual use of equipment for trash and recycling baling – reduced overall equipment costs.
- Very high compaction and best transportation space utilization.
- Sanitary, secure containment of trash.
- Compatible with currently available transportation equipment and approach.
- Compatible with typical commercial trash transportation and disposal approach.

#### **Alternative 4: uncompacted bulk loading**

Alternative 4 is based on the use of standard open-top roll-off boxes in an uncompacted transfer operation. All received trash would be loaded into roll-off containers, compacted roughly with a loader bucket if possible, tarped and set aside for barge transportation. This alternative has the disadvantage of not compacting trash significantly, increasing the transportation costs significantly. But this alternative has the lowest equipment requirements and lowest capital cost. Loose trash, bulky and oversize waste items are already managed in this manner, so this alternative also uses existing handling methods, which are compatible with all current transportation equipment. Materials costs would be significantly reduced and utilities would be significantly reduced. Labor costs would be significantly reduced, as no handling or movement of trash would be required (assuming trash could be dropped off directly into the roll-off containers). Multiple roll-off containers could be used to provide continuous trash storage while the filled containers are



transported to Chelan for trash disposal. Empty containers could be stacked on the barge deck on the return trip to minimize transportation costs. Roll-off containers may need to be located inside the new solid waste handling facility while filling, for odor control, pest control and sanitary handling requirements. Filled and tarped containers waiting for transportation could be stored under cover in an outside, secured storage area.

Alternative 4 advantages:

- Lower equipment and utilities costs.
- Significant reduction of handling and labor costs.
- Works with currently available transportation equipment (boom truck and barge) and approach.
- Compatible with typical commercial trash transportation and disposal approach.

A comparative cost estimate was performed for all alternatives, based on equipment purchase costs, estimated relative labor for operations, estimated materials and utilities costs and estimated transportation costs. Disposal costs are expected to be weight based and the same for all options, and so are not included in the comparative cost analysis. This type of cost estimate is more accurate or relevant at showing cost differences between alternatives, less accurate at estimating the actual final cost of any one alternative, and should be considered preliminary, planning-level costs estimating only. The results of the comparative cost estimate are shown below.

	Alternative 1	Alternative 2a	Alternative 2b	Alternative 2c	Alternative 3	Alternative 4
Cost Item	small-scale waste	self-contained container	large stationary compactor	small stationary compactor	baling	uncompacted bulk
Cubic Yards Compacted	428	428	428	428	428	428
Total Equipment Cost	\$ 22,000	\$ 120,000	\$ 57,000	\$ 65,000	\$ 20,000	\$ 40,000
Annualized Equipment	\$ 2,200	\$ 12,000	\$ 5,700	\$ 6,500	\$ 2,000	\$ 4,000
Materials (2)	\$ 8,988	\$ -	\$ -	\$ -	\$ 5,000	\$ -
Utilities (3)	\$ 959	\$ 959	\$ 959	\$ 959	\$ 1,438	\$ 479
Labor (4)	\$ 26,102	\$ 7,458	\$ 7,458	\$ 7,458	\$ 13,051	\$ 7,458
Transportation (5)	\$ 4,157	\$ 6,822	\$ 9,977	\$ 14,780	\$ 6,651	\$ 39,907
Total	\$ 42,406	\$ 27,238	\$ 24,093	\$ 29,697	\$ 28,140	\$ 51,844
Total per cubic yard	\$ 99	\$ 64	\$ 56	\$ 69	\$ 66	\$ 121

Alternative 2b: large-scale bulk compaction – large stationary compactors, is the recommended alternative for further consideration, based on the lowest comparative cost, and the greatest number of operational advantages.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Further review or analysis required.** Please provide more specific details on the preferred/recommended alternative. How are the compactor units filled, removed from the compacting ram, transported on existing or new equipment, and emptied at the transfer station in Chelan? There's concern that we don't want to customize our system to existing equipment so much that we limit our future options, and the question has even been raised, "Should we customize this system at all?" Are we going to end up causing more work for ourselves by modifying our compacting equipment to meet the needs of a modified container?

ISWAP Contractor Response: The compactor units are filled via an integrated hopper, chute or enclosed “doghouse” hopper, all of which are standard equipment options. The enclosed roll-off container can be detached from the compactor unit for emptying. The roll-off container features standard roll-off rails and hook attachments, allowing it to be loaded and transported by any standard roll-off truck. Suggested modifications to the roll-off container would elevate the loading doorway opening, increasing the container’s wet waste holding capacity. Other modifications to the roll-off containers would lower the height of the container and provide a flat, reinforced top to the container, to allow the container to be loaded and transported on the current contractor’s boom truck, and to allow stacking of containers on the current contractor’s barge, reducing return transportation costs. These modifications would not affect the container’s compatibility with standard roll-off trucks.

**14. Longer-Term Action: Evaluate trash container locations and effectiveness, replace or relocate as necessary.**

This task could be assigned to the Recycling Coordinator position, and made an annual task to check with maintenance staff on the effectiveness of the current trash and recycling collection services and container placement plan. As trash containers are grouped, relocated or replaced as part of the new placement plan, the Park should monitor the container fill rates, litter problems or service complaints, and determine if and when changes in the number of containers or in the scheduled collection dates would be necessary. The Park should also monitor any pilot or test “pack in, pack out” areas as if trash collection was still required, to stay on top of any littering or illegal dumping problems, to document any issues and to help to determine the best permanent status of the site.

The Park’s response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted.**

**4.3.3 Source Reduction and Reuse**

**15. Easy-to-Implement Action: Include source reduction approaches in employee training, including green procurement training.**

It is recommended the Park include source reduction approaches in employee training, including training for reducing office paper waste through double-sided printing, using electronic media, and removing the Park from mailing lists. The Park should include source reduction in green procurement training, providing an explanation and examples of how green purchasing can be used to reduce the quantity of products purchased (purchasing concentrates, purchasing reusable products rather than disposable products) and reduce the waste generated from purchased products (purchasing bulk products, purchasing products in reusable packaging).

The Park’s response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted**

## 16. Easy-to-Implement Action: Develop recycling and source reduction education and approaches for residents and visitors.



It is recommended that the Park add more specific trash handling requirements and recycling opportunities information to the Park newsletter and to other public education and training formats. The intention would be to make the public aware of safety concerns associated with food storage and trash storage in bear country (which is already addressed in some materials) as well as littering and illegal dumping issues and impacts, and the opportunity to “pack in, pack out” in front country and backcountry areas, as well as how to use the trash and recycling

containers located at all of the public facilities. There are several resources available to assist with developing a message or curriculum, including the Leave No Trace Principles of Outdoor Ethics ([www.LNT.org](http://www.LNT.org)), NPS “pack it in, pack it out” signage and educational materials. The Park has already used this message in some materials posted in public areas as shown here.

Training should be conducted for ranger interpreters to be able to provide information on recycling and waste reduction in the Park, and to be able to include the environmental message about recycling and waste reduction in presentations and programs for visitors.

Information, a display or signs at the visitor center should be used to inform visitors of the Park’s recycling program and how to participate.

The Park could also require tour buses to carry on-board trash and recycling containers and collect all materials from customers, and add these materials to concessioner trash and recycled materials or pack it out on the ferry.

The Park’s response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted with modification.**

The Park agrees that this is valuable, but at this point in time it’s not clear who will be responsible for implementation (need buy-in and support from other divisions) given limited resources and staff time – maybe should be a “longer-term action”.

## 17. Longer-Term Action: Sell reusable water bottles at Park and concessioner stores, discontinue disposable bottled water sales, and install water filling stations.

Reusable water bottles could be provided for sale at the Visitor Center and at the concessioner-operated store to encourage reuse and to reduce waste and litter associated with single-use water bottle containers. Reusable water bottles are available on GSA (HDPE plastic squeeze bottles) or

from a number of commercial sources (HDPE plastic squeeze bottles, Nalgene-brand bottles, aluminum and stainless steel bottles), and could be custom printed with the Park's name and NPS logo. HDPE bottles can also be purchased with recycled content. Some plastic water bottles could be priced below that of bottled water, but still high enough to cover Park costs.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted with modification.**

There's hesitation on the part of the Park's concession manager to enforce this or make it a requirement because the availability of water fountains is limited within our current concession facilities, and it's unclear who would be responsible for water from a water cooler. Also, there's guidance from the Pacific West Region that "there's a temporary ban on new programs in parks to prohibit the sale of water bottles" and parks are encouraged to "not specifically target a prohibition on bottled water in prospectus questions" with regard to concessions. The Park might want to modify the language to emphasize that this is recommended to concessioners rather than making it a requirement to discontinue disposable bottled water sales at this time.

**18. Longer-Term Action: Evaluate in ISWAP wood as fuel for building heating in forms of firewood, wood chips or sawdust pellets.**

Wood or recycled paper could be used as is or in processed form to heat buildings, offsetting oil or electric usage. This type of heating system would not be used at the new solid waste handling facility, presumably, as the current facility is not heated, and no changes in equipment or design requiring building heating have been suggested or required. Wood burning with energy recovery for building heating could be used at most of the other new buildings planned, assuming some form of building heating will be necessary for these buildings. Benefits would include offsetting electric or fuel oil costs, providing a local and beneficial end use for the wood and/or paper materials, reducing handling, transportation and disposal or recycling costs associated with current recycling or disposal practices for these materials.

Currently much the wood materials potentially usable are not recovered or recycled, but burned in the burn pile, or chipped and generally unused. Some wood is recovered and used as firewood, and some chipped wood could be reused as mulch, compost additive or revegetation ground cover. Currently most of the cardboard and paper available for burning is recycled (or potentially recyclable), baled or compacted and transported to the recycling facility in Chelan, at an estimated typical cost of \$76 per cubic yard for handling and processing, and \$43.65 per cubic yard for transportation and disposal, based on the adjusted contract for compacted or boxed recycled materials.

It should be noted that incineration of solid waste materials, even with energy recovery, is not considered recycling and would not count as diversion towards the NPS diversion goal. For recyclable cardboard and paper, the potential benefits of local pelletizing and burning for energy recovery are offset by the loss of recycling credit. The benefits are increased for materials which are not currently recycled or recyclable, such as low grade mixed paper, and various wood materials, including logs, wood chips, scrap lumber and pallets.



Technologies include pelletizing the fuel material and incineration in large or small-scale pellet stoves or furnaces, and wood-fired furnaces or stoves designed to incinerate wood in larger cut or split form. Wood pelletizing steps include chipping or shredding, drying and creating sawdust in some cases, then pelletizing. Equipment costs vary by size of system and for systems designed to handle sawdust or paper. Outdoor furnaces, whether burning pellets or bulk cord wood, can be equipped with heat exchangers and used to tie in to an existing conventional building heating system to provide supplemental heating capacity.

In general, the additional equipment cost and operational cost to produce pellets from wood does not appear to provide any additional benefits when compared to an outdoor wood-fired furnace designed to burn cord wood, other than a longer burn time. Pellet fuel stoves and furnaces often use a pellet storage hopper and an auger-driven feed system to provide an automated fuel feed system and extended burn times. Outdoor wood-fired furnace designed to burn cord wood also advertise extended burn times, and are able to be loaded with a relatively large quantity of cord wood, logs, lumber or pallets, depending on the model of furnace.

More examples, equipment description and information are available at [www.centralboiler.com](http://www.centralboiler.com).

The recommended approach is to consider adding an outdoor wood-fired furnace to a building design with heating requirements. The outdoor furnace could be used to provide supplemental heating, offsetting electric or fuel oil usage, and utilize non-recyclable scrap wood, firewood, logs and pallets as a fuel supply.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Rejected.**

This action is rejected based on concerns with air quality for exterior boilers by the Washington Department of Ecology, "wood fired boilers are not allowed in the state of Washington at this time", designating responsibility for operation and maintenance, and limited access to wood/fuel in Stehekin in the future.

#### **4.3.4 Recycling**

##### **19. Easy-to-Implement Action: Obtain a platform scale to provide more accurate weights of recycled materials.**

The Park's recycling and trash records are currently volume-based, tracking the number of compacted boxes of materials processed. The volumes are converted to weight using estimated conversion factors for each material type, and the source of the conversion factor is not documented. A platform scale would allow the Park to check weights of compacted boxes of each materials type as well as sample weights of compacted trash boxes, and document a fairly accurate typical weight for each material to use as a conversion factor. Larger platform scales would also

be capable of weighing full sized bales, giving the Park more accurate weights on all baled materials.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Rejected.**

Park staff has previously taken weights of compacted garbage using a hanging scale to determine an average weight per cubic yard; and has also used a government data source showing standard weight and volume conversion factors for glass, batteries, metal, paper, etc. These data have been compared with actual field weights to determine the current conversion factors used by Park staff.

**20. Easy-to-Implement Action: Obtain a sorting table to aid manual separation of mixed recycled materials at the existing compactor building.**

A sorting table will provide a waist-height working surface to spread out and sort recycled materials without bending over, with easier access to storage containers for separated materials. This will improve safety, eliminating the need to reach into bags, reduce the likelihood of injury by reducing the need to bend over while working, and improve efficiency, reducing the overall time and expense of staff labor for sorting recycled materials. Sorting tables have typically been something constructed by Park staff - Lassen Volcanic and Cabrillo both have examples of handmade or adapted sorting tables, the size is approximately: 32" to 36" high, 30" to 36" deep, 6 to 10 feet long, with a 4" to 6" backsplash wall on two or three sides and a durable, moisture-resistant surface on the top, such as metal or laminate. Cabrillo Park staff constructed and put into use a sorting table, and has reportedly reduced the time required for sorting to 25% of the time required previously.

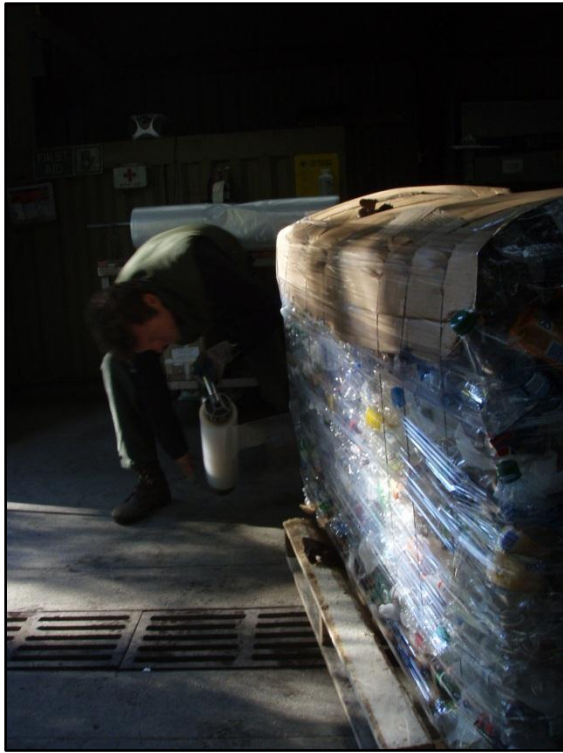
There are also commercially available various types of work tables, which could be used as is or adapted for use as a sorting table. Examples are from Dozier Equipment ([dozierequip.com](http://dozierequip.com)) model C-3387 stainless steel economical work table with backsplash, 96" x 30" and 36" high, for \$622.00.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Rejected with notation.**

The Park wants to focus on separation at the source (and not separation at the compactor building). The Park has concerns about shots (e.g. hepatitis, etc) required for handling waste directly (employee safety). The Park does not have the space for a sorting table in the existing compactor building.

**21. Easy-to-Implement Action: Test baling plastic bottles in down stroke baler.**

This test was suggested as an alternative to compacting plastic bottles in the Cram-A-Lot aluminum compactor. This test was conducted by Park staff in October, 2010. One partial bale of plastic bottles was made using the down stroke baler without any modifications to the baler. Staff accounts indicated that they didn't get nearly the volume of uncompressed plastic in the bale as they would have in an equal volume of small aluminum-sized bales - maybe only half, but it took a significantly less amount of time to dump and compress the material. The large bale contained somewhere between 15 and 20 1/3 cubic yard boxes of uncompressed plastic.



Compression could be increased in the existing baler by constructing a rigid platform to fit in the bottom of the bale chamber and raise the effective floor height to about four inches below the lowest position of the ram. This will limit the size of the bale that can be made, but will allow the ram to flatten and compress all of the material added to the bale chamber as the bale is being built, resulting in a higher-density bale. Additional bale ties and possibly stronger tie wire may be required to hold the bale together, and cardboard top and bottom sheets should be used, as well as stretch wrap to enclose the bale and prevent litter during handling and transport.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted with modification.**

The Park will ask for additional information on the test bale from the contractor and Chelan County, including: How did that bale transport

and how was it received on the other end? Did it make it intact? Park staff thinks that the ideal scenario would be a dedicated plastic baler, to avoid having to store boxes of plastic waiting for other materials to be baled.

**22. Easy-to-Implement Action: Test accepting additional recycled materials at the existing compactor building, which are currently accepted at the Chelan County Transfer Station, including all colors of #1 and #2 plastic bottles, plastic bags, and mixed paper.**

Some additional materials are currently accepted at the Chelan County recycling facility, which are not included in the Park's recycling program or educational materials. Currently, all colors of #1 and #2 plastic can be accepted for recycling. Also, a mixed paper grade is accepted that includes boxboard, milk cartons, file stock, junk mail and any of the other paper grades or materials (newspaper, magazines, and office paper) currently accepted. This grade would be very easy for residences and businesses to recycle, requiring no separation of paper materials and including virtually all paper types commonly generated. Plastic bags and plastic film is also accepted for recycling as a separate material grade.

The Park could update the recycling guidelines, and emphasize new collection efforts for new materials available for recycling, to boost the quantity and types of materials recycled.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Further review or analysis required.**

There are discrepancies between the ISWAP and other recycling resources provided by Chelan County to down lake residents – we need clarification and confirmation before making a decision



because we're seeing contradictions. It may be valuable to add a section for Chelan County to respond to this based on what's accepted down lake.

**23. Longer-Term Action: Evaluate available recycling markets; consider adding to recycled materials processed at the compactor building.**

The Park could potentially increase the number and type of materials recycled, or reduce handling and processing costs for some materials, by periodically researching alternative markets and different grades for recycled materials, and evaluate adding these materials or grade changes to the Park's recycling programs. Research could include materials and grades accepted at the Chelan County recycling center as well as other regional recycling markets. As the Park changes processing capabilities for recycled materials, such as increasing the use of a baler and baling materials, the Park could potentially sell some materials to a recycling end market or broker to offset some of the transportation and processing costs. The Park could also increase the amount of materials recycled by identifying and selling mixed grades, including broader mixed paper grades, broader mixed plastics grades, or mixed color glass markets.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted with further review or analysis required.**

The Park needs more information on how to track down recycling markets and stay updated on changing demands/requirements. Anything that Chelan County will accept, we want to recycle, and we'll need some clear guidance on that. We're also interested in knowing what end markets exist in Wenatchee.

**24. Longer-Term Action: Evaluate in ISWAP recycling equipment options, including sorting, baling, compacting, bulk loading in larger containers.**

Currently, the Park uses a variety of equipment to process recycled materials at the compactor station. Cardboard is baled in a down stroke baler. Aluminum cans are crushed in a Cram-A-Lot cube compactor. Plastic bottles are also compacted in the cube compactor. Sorted paper materials are hand-loaded into  $\frac{1}{3}$  cubic yard cardboard boxes. Glass bottles are crushed and loaded into  $\frac{1}{3}$  cubic yard cardboard boxes. All materials stored or processed into boxes are then stacked on wooden pallets. The pallets of recycled materials are loaded by a local contractor onto a truck, then a contracted barge to be transported down lake to Chelan and subsequently trucked to the Chelan County recycling facility or another local market.

The current methods have been characterized as labor-intensive and expensive, and some of the existing equipment is nearing the end of its useful life, requiring replacement. An evaluation of the costs and advantages/disadvantages of continuing the current methods versus alternative methods should be done before new equipment is purchased, to select the preferred method of recycled materials processing at the existing compactor facility in the future, and to determine the design and equipment requirements for the new solid waste handling facility.

Generally, the Park could increase efficiency and reduce handling by moving to larger storage containers and larger compaction equipment, specifically using a larger baler with bulk materials



loading for more of the materials compaction. In the short term, the Park can use its existing down stroke baler to process more materials, and transition storage and transportation containers away from disposable cardboard boxes to larger reusable bulk containers requiring less handling.

Aluminum cans should continue to be compacted in the Cram-A-Lot cube compactor, as this compacts to as high a density as a baler, and cubes can be tightly stacked to provide a high density, small footprint for transportation. Cardboard should continue to be baled in the down stroke baler. Plastic bottles should be baled rather than compacted. Some paper grades, such as magazines and newspapers could continue to be packed into boxes, but should be packed into one of the larger bulk container types described below. These materials pack at a relatively high density, and the larger containers can be stacked and transported relatively easily and folded or collapsed for inexpensive return shipping. Mixed paper grades, such as residential mix, office pack and mixed paper containing boxboard and carton materials do not pack as well, and should be baled in the down stroke baler.



For the new solid waste handling facility, the Park should consider replacing most of the compacting equipment with a baler and expanding the baling equipment and processing capability. A full-size, down-stroke baler would provide the capability of baling cardboard, aluminum cans, steel cans, plastic bottles, and all paper grades, and making “mill specification”, or end market size and weight bales. This would increase storage capabilities, reduce handling requirements, and potentially increase the market value of the baled recyclables. Conveyor and chute feed systems could be added to the baler to allow rapid, low labor cost loading of materials while baling.

Full-size vertical or down-stroke balers may be available new or used. Used balers may be available from existing inventory at NPS facilities.

Following is a partial listing of manufacturers of

new balers:

- Cram-A-Lot/J. V. Manufacturing; 3233 224th Pl SW, Brier, WA 98036, (425) 673-2592; [www.cram-a-lot.com](http://www.cram-a-lot.com).
- American Baler Co.; 800 E. Center St., Bellevue, OH 44811, (800) 843-7512; [www.americanbaler.com](http://www.americanbaler.com).
- Harris Waste Management Group; 200 Clover Reach Dr., Peachtree City, GA 30269, (800) 373-9131; [www.harriswaste.com](http://www.harriswaste.com).
- International Baler Corp.; 5400 Rio Grande Ave., Jacksonville, FL 32254, (800) 231-9286; [www.waste-tech.com](http://www.waste-tech.com).

- Marathon Equipment; P.O. Box 1798, Vernon, AL 35592-1798, (800) 633-8974; [www.marathon-equipment.com](http://www.marathon-equipment.com).
- SP Industries, Inc; 2982 Jefferson Road, Hopkins, MI 49328, (800) 592-5459.

A number of different storage bin and loading configurations could be used, described as follows:

- Bulk materials storage can be provided using bulk bags or rigid crates. One container type may be preferable to the other depending on the type of materials stored, handling and stacking requirements for the container. In general, bulk bags are much less expensive and easier to handle for storage of light materials, allowing manual movement, loading and unloading. Filled bags can be stacked, and empty bags collapse for return shipping. Typical cost for standard bags is \$10 each. Equipment description: Heavy-duty poly/cloth bulk bags designed for storage of heavy bulk materials. Bags are approximately 36 inches wide, 36 inches deep and 45 inches tall, equipped with four lifting loops to allow lifting with a forklift, equipped with a duffel tie top, a double bottom or a bottom discharge chute with a tie closure, and with a minimum cargo weight capacity of 1800 pounds.

Manufacturer contacts include:

- Manufacturer: Gary Roahrig, American Bag Company, Grand Junction, CO, phone: (970) 243-3332
- Dealer: Carl Heckman, The Bag Connection, 459 W. 9th Street, Dundee, OR 97115, phone: (503) 538-8180 phone: (800) 622-2448
- Manufacturer: The Grossman Group, Inc., Industrial Bags Division, 6364 Sunbury Road, Suite 107, Westerville, OH 43081, phone: (614) 898-9780, fax: (614) 898-9788, [www.industrialbags.com](http://www.industrialbags.com)



- Purchased storage bins could also be used, such as reusable cardboard “Gaylord boxes” (heavy-duty boxes approximately one cubic yard in size) on pallets. Boxes could be placed on the floor to fill from a sorting line, and then stacked when filled. Empty boxes can be flattened for return shipping. Gaylord cardboard boxes can be purchased for \$20 to \$25 each.

- Collapsible plastic crates could be purchased, which are also equipped with doors and forklift pockets. Such bins could be placed on the floor to

fill from a sorting line, and then stacked when filled. Empty crates can be collapsed to about ½ of their opened size, and securely stacked several units high. Equipment description: Heavy-duty plastic pallet with sidewalls designed for storage of heavy bulk materials. Approximate dimensions are 36 inches wide, 36 inches deep and 50 inches tall. NSN: HC323034-0058 Xytac collapsible bin, pallet container \$84.41 each.

- Fabricated cages could be constructed using steel tubing frames and stretch-steel mesh walls, built with legs with castor wheels (or forklift pockets) for portability, with a sloping bottom to facilitate gravity unloading, and a hinged front door. Cages could be fabricated

for approximately \$100 to \$150 in materials cost each, depending on size and options included.

- Fabricated boxes could also be constructed using plywood and 2x4 construction to hold lighter materials, such as aluminum cans and plastic bottles. This type of box, built to hold two cubic yards, can be an efficient method of storage and handling light materials.
- One-yard size plastic tilt carts could also be purchased. Tilt carts are easily portable, but not stackable when filled. Carts cost approximately \$450 to \$500 each (available from several manufacturers, including Ameri-Cart Corp., through Recy-CAL Supply, Temecula, CA, (800) 927-3873, [www.recy-cal.com](http://www.recy-cal.com)).

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Further review or analysis required.** Additional Park comments and ISWAP contractor responses are as follows:

- If we have only one baler in the new facility, how much storage space do we need to make a bale for each item that can't be "stored" in the baler? ISWAP Contractor Response: Typical quantity of uncompacted materials required to make one high-density bale are as follows:
  - Mixed Materials (containers): 24 cubic yards
  - Cardboard: 13 cubic yards
  - Steel Cans: 8 cubic yards
  - Aluminum Cans: 18 cubic yards
  - Mixed Paper: 6 cubic yards
  - Plastic Bottles (#1 & #2): 48 cubic yards each
  - Glass Bottles: 2 cubic yards
- Is the "mill specification" end market size the same for plastic, cardboard, etc? Can we really have just one dedicated baler that's going to meet all "mill spec" requirements for different materials? ISWAP Contractor Response: The bale specifications are all about the same size dimensionally (most markets only want full-sized bales) and are of differing minimum weights depending on the material (again, this is typically a minimum material weight of a full-sized, highly compacted bale).
- What's the typical number of re-uses for Gaylord boxes? Maybe we could buy them used and just send them out loaded once? More conversation with Chelan County is needed on how something like this would work. Are there any concerns with the boxes weathering during transportation (expose to elements, Lake Chelan, etc.)? ISWAP Contractor Response: Gaylord boxes are durable enough for multiple re-uses, at least 10 – 20 reuses should be possible, more if they are re-used at the same facility for storage, less if they are used for heavier materials, get wet, get damaged during unloading, etc.

**25. Longer-Term Action: Evaluate in ISWAP equipment for glass pulverizing and reuse of pulverized glass product.**

Container glass represents a significant portion of park and public-generated waste, but is heavy, expensive to transport, low in value for recycling, and must be color-sorted to meet the requirements of most markets. An alternative recycling use would be to crush mixed color container glass and store it in the Park for use as an aggregate substitute in paving and engineered fill projects. Mobile and stationary glass crushing equipment systems are available from several different manufacturers. This approach could allow recycling of glass without the cost of transporting it out of the Park to a market, without the requirement to sort glass by color, and would potentially reduce the cost of purchasing and transporting aggregate for future paving projects. Glass crushing production equipment is capable of crushing a minimum of 300 pounds of recycled glass bottles per hour, up to several thousand pounds per hour, and producing a safe-to-handle glass aggregate product of 3/8 inch size or smaller.

Currently glass is sorted by color, processed in a glass breaker or crusher, loaded into 1/3 cubic yard boxes and transported to the recycling facility in Chelan, at an estimated typical cost of \$76 per cubic yard for handling and processing, and \$43.65 per cubic yard for transportation and disposal, based on the adjusted contract for compacted or boxed recycled materials. In FY 2010 the Park reported recycling a total of 10.67 cubic yards of crushed glass, incurring a total transportation and disposal cost of approximately \$465.

Processing in a glass pulverizer would eliminate the need to separate glass by color, but otherwise would require a similar amount of labor to operate the glass pulverizer as the current glass breaker operation. Glass could be bulk loaded into the larger size pulverizer, rather than hand fed, reducing labor costs somewhat. The end product could be used locally, saving the transportation and disposal cost, and potentially offsetting some new aggregate costs. All colors of glass and even plate glass and small ceramic materials could be included in the mixed glass recycling program. It should be noted that glass recycling is limited (clear and colored glass is no longer accepted at the Chelan County Dryden Transfer Station), and may become more limited due to deteriorating market conditions.

Advantages of adopting the glass pulverizer operation for the Park's glass recycling program include:

- Color sorting of glass would not be required, potentially increasing participation, increasing the quantity of material recycled, and reducing labor costs;
- Public glass recycling containers could be reduced to a single container for all glass;
- Processing labor requirements could be reduced with larger processing equipment;
- A locally-recyclable end product could be produced, with a more reliable local recycling application;
- Transportation costs would be eliminated.



Smaller scale glass pulverizing units are available for an approximate cost of \$10,000. An example of this type of system is the Glass Aggregate Manufacturing & Engineering, Inc. Model H-100V Glass Aggregating Unit or equivalent. An example of larger-scale equipment is the Glass Aggregate Manufacturing & Engineering, Inc. Model H-100VT Glass Aggregating Unit



or equivalent. This glass pulverizing system has an approximate cost of \$45,000.

The potential transportation costs savings and labor cost savings could justify the smaller equipment purchase, but may not be enough to justify the larger pulverizing system equipment costs. However, the larger systems could further reduce processing labor requirements.



The following is a list of manufacturers of glass crusher equipment:

- Manufacturer: Glass Aggregate Manufacturing & Engineering, Inc., Anna Cook, Sales Manager, P.O. Box 464, Faribault, MN 55021, phone: (507) 334-6437, fax: (507) 334-6438, [www.glassagg.com](http://www.glassagg.com)

- Manufacturer: Andela Products Ltd., 493 State Route 28, Richfield Springs, NY 13439, (315) 858-0055, [www.andelaproducts.com](http://www.andelaproducts.com)

- Manufacturer: Hazemag and GAME, Dealer: Bruce Mooney Associates, Inc., P.O. Box 749 Marlton, NJ 08053, phone: (800) 454-2686, phone: (856) 797-9164, [www.brucemooney.com](http://www.brucemooney.com)

The Park would also need to develop an end-use market application for ground glass from the Park's recycling program for aggregate substitute, fill and sandblasting media. Applications and general specifications for ground glass are as follows:

- Pipe bedding: can use 100 percent recycled ground glass; ¾ inch minus size, less than five percent debris (non-glass contaminant such as paper labels, wire and metal or plastic caps); application is to place in six inch lifts and compact each lift.
- Crushed stone surfacing: can use 15 percent recycled ground glass; ¾ inch minus size, less than five percent debris (non-glass contaminant such as paper labels, wire and metal or plastic caps); application is to blend with other aggregate material and compact in place.
- Gravel base: can use 30 percent recycled ground glass; ¾ inch minus size, less than five percent debris (non-glass contaminant such as paper labels, wire and metal or plastic caps); application is to blend with other aggregate material and compact in place.
- Structural backfill: can use 10 percent recycled ground glass; ¾ inch minus size, less than five percent debris (non-glass contaminant such as paper labels, wire and metal or plastic caps); application is to blend with other aggregate material, place in six inch lifts and compact each lift.

- Non-structural backfill: can use 100 percent recycled ground glass; ¾ inch minus size, less than 10 percent debris (non-glass contaminant such as paper labels, wire and metal or plastic caps); application is to place in six inch lifts and compact each lift.
- Sandblasting media: can use 100 percent recycled ground glass; size range 2.5 to 3.0 mils, no debris (non-glass contaminant such as paper labels, wire and metal or plastic caps).
- Aggregate substitute in Portland cement concrete mixes: no specifications were identified, and a number of studies have found that the use of glass as aggregate in concrete generally caused a large decrease in concrete strength due in part to expansion due to an alkali-silica reaction. Some studies have concluded that the use of glass as aggregate in concrete was potentially feasible for lower-strength concrete applications such as pavement, parking lots, sidewalks and garage slabs. Test applications should be limited to non-structural and non-critical applications, and could test with 100 percent recycled ground glass (as a substitute for sand); ¾ inch minus size, less than 5 percent debris (non-glass contaminant such as paper labels, wire and metal or plastic caps).

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Further review or analysis required.** Additional Park comments and ISWAP contractor responses are as follows:

- Additional cost analysis is needed to estimate the materials processing costs.
- The Park needs to identify any potential resource concerns for re-use in the environment. ISWAP Contractor Response: It is assumed that reuse would be limited to disturbed or improved areas within the Park boundaries, and reuse applications would most likely be limited to aggregate substitute in concrete or asphalt paving, utility trenching backfill, or leach field drain material.
- How might this system work under County operation? ISWAP Contractor Response: The smaller equipment is less expensive and has a lower capacity, which makes it more practical to use exclusively at the new solid waste handling facility and process only glass generated in the Stehekin area. The larger equipment is much more expensive and has a processing capacity much higher than the quantity currently generated at the compactor building. This equipment would be more effectively used in a cooperative program to access more glass and provide an alternative market to a larger area. The equipment can be mounted on a trailer platform so that it can be moved to process glass at different location. One cooperative operating scenario used by other parks would include the Park's purchase of the equipment, and the County's operation of the equipment through an Intergovernmental Agreement. The County could use the equipment to process any glass generated in the County, including glass generated at Stehekin. The equipment could be located at various locations in the County throughout the year to process accumulated glass materials.
- Who would get to use the pulverized glass? ISWAP Contractor Response: Any options are available depending on the ownership and operating agreements. One of the benefits of pulverizing glass in Stehekin would be to eliminate outgoing transportation costs of recycled glass, and to reduce incoming transportation costs of virgin aggregate products.

- Do we need to designate an exterior storage area for pulverized glass? ISWAP Contractor Response: Yes, uncovered storage is acceptable, assuming the materials will not need to be used during the winter.
- Are there health concerns about pulverizing glass (silica) for the employees? ISWAP Contractor Response: Yes, these are addressed in the manufacturers operating instructions.
- We're currently crushing to approximately ¾" minus, we might need something finer for the recommended end uses. ISWAP Contractor Response: A variety of particle sizes can be produced with most equipment models.

**26. Longer-Term Action: Evaluate recycling container locations and effectiveness, replace or relocate as necessary.**

This task could be assigned to the Recycling Coordinator position, and made an annual task to check with maintenance staff on the effectiveness of the current trash and recycling collection services and container placement plan. As recycling containers are grouped, relocated or replaced as part of the new placement plan, the Park should monitor the container fill rates, litter problems or service complaints, and determine if and when changes in the number of containers or in the scheduled collection dates would be necessary. Also monitor any pilot or test "pack in, pack out" areas as if trash collection was still required to stay on top of any littering or illegal dumping problems, to document any issues and help to determine the best permanent status of the site.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted.**

#### **4.3.5 Composting**

**27. Easy-to-Implement Action: Test sheet composting method for apple mash waste.**

The Park currently has a disposal problem with leftover apple mash from the annual cider press event. The Park could test composting this material in a static pile, layered method. Commonly called sheet composting, this method is used to compost organic materials on top of the soil and allowed to incorporate into the soil as a soil amendment. Generally the approach spreads the composted materials over a large area, and does not require piling or moving materials during the composting process. A 30:1 carbon to nitrogen ratio for compost is ideal for both the rate of decomposition and the quality and nutrient content of the finished compost. Carbon sources are those organic materials that are dry or woody and tend to be brown or dead. The Park's stockpile of aged wood chips is an excellent carbon source. Nitrogen sources are any "green" or wet, fresh material, including non-animal food scraps, animal manure, and green grass clippings. The apple mash is also an excellent nitrogen source.

To test this the Park should select a remote location (since the test can't be sure this method won't attract bears), spread a layer of wood chips (from the wood chip stockpile, use as degraded chips as possible) about six inches thick, spread a layer of apple mash, as thin as possible about six inches thick, cover with another layer of wood chips, and continue in layers until all material is

used up. Once the layered pile is constructed, allow to compost, monitor for odor, and bear problems. If applied to a garden area or area where soil improvement is desired, the pile can be left as is to degrade and incorporate into the soil. If not in such an area, after a month or so, the Park can use a loader to scoop all material into a pile or into a bunker for mixing and static pile composting approach.

This would best be done in the fall, immediately after the apple mash is created, when a variety of green and brown waste materials may be available, and before the ground gets cold.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Rejected.**

Park staff feels like the apple mash waste is not really a problem and there are alternative ways of getting rid of it. It's generated once per year, the quantities are not large. Thoughts are to either incorporate it into individual small-scale composting units (e.g. barrel composters and/or worm bins) or add it to something larger like an Earth Tub at the future new facility.

**28. Easy-to-Implement Action: Test brush chipping of materials from separate burn pile for use as mulch and composting additive.**

Many of the materials currently added to the burn pile could be reused, recycled or put to better purpose if they were separated and kept in a separate storage area. This includes brush and smaller tree limbs and trunks – these materials could be stored separately and chipped, and the chips used as a composting additive, mulch or re-vegetative ground cover. If the Park begins more active static pile or windrow composting programs, much of these materials could be successfully composted and diverted.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Accepted.**

Does this help our diversion percentage as opposed to burning? ISWAP Contractor Response: Yes, mulching wood chips counts as recycling for diversion, composting counts as composting for diversion, burning does not count as diversion.

**29. Longer-Term Action: Evaluate in ISWAP composting operation for separated food waste, waste paper and green waste from Park staff offices and housing facilities as part of new processing operation.**

The composition and quantity analysis and information reported by the Park indicate that a significant portion of the Park's waste stream is compostable materials that are currently not being diverted. Potentially compostable materials in the Park's waste stream comprise an estimated 32.7 percent, including yard waste, food waste, and wood waste. Small scale composting options include household composting containers or small communal composting containers, backyard composting and vermiculture, or worm composting. Large scale composting options include static pile composting or windrow composting of green waste, wood chips, manure, and vegetable



waste; and in-vessel composting of food waste and any or all of the other compostable materials mentioned.

For small scale composting, the Park could provide a separate composting system for food waste, green waste and mixed paper waste from residences. The Park could provide smaller, individual household composting bins, or a larger, centralized composting system at the maintenance area. Household composting containers would allow individuals to participate in composting, are much less expensive than the large composting systems, but have the disadvantage of not being able to compost meat and dairy products (due to animal vector concerns). All composting containers should be located inside a bear-proof enclosure or building to avoid animal problems and to maintain composting conditions during colder winter months. Household-sized composting could also use the vermicomposting or vermiculture (worms) method and container types, depending on staff interest and their ability to maintain proper vermicomposting conditions. With staff interest in separating food waste, and a small amount of staff time to maintain the worm bin (adding materials, removing finished compost, checking moisture levels), this type of composting can be very effective and produce a valuable soil amendment. Although it would address a small portion of the overall Park waste stream, it would be a useful project and raise park staff awareness of composting and waste diversion benefits.

To further increase diversion rates, a larger scale composting program targeting larger quantities of compostable materials generated by residences, businesses, concessioner operations and Park operations would address a larger portion of the Park's waste stream not addressed by any other diversion program. If other diversion programs (recycling and composting) do not achieve the Park's overall diversion goal, additional composting programs may be considered.

The Park could establish a composting program targeting limited food waste (from select sources with reduced contamination), yard waste and other green waste, wood waste and low-grade paper types (non-recyclable paper). A larger composting system would be appropriate for this type of program, while an additional step and/or equipment for separation of contaminants after composting should be included, and a non-commercial, lower grade finished compost product should be assumed.



The Park could establish a static pile composting operation, similar to the one at North Cascades at Marblemount. The static pile bunkers could be inexpensively constructed from oversize logs, and the piles turned with existing equipment, such as a large loader or skid-steer equipment. Materials which could be appropriately composted at this type of facility include

brush and wood chips, green waste (grass or leafy materials), manure, and apple mash or waste apples.

The Park could also establish an in-vessel food waste composting program using Earth Tubs in a partially or fully enclosed facility. Materials which could be appropriately composted at this type of facility include residential and commercial food waste (including meat and dairy products), brush and wood chips, green waste (grass or leafy materials), manure, and apple mash or waste apples. One example of larger-scale enclosed composting technology is the Earth Tub. The Earth



Tub is a fully contained composting system, 3.3 cubic yard size, with a feed rate of up to 150 pounds per day. The per-unit cost is approximately \$9,000. Composting programs using this type of composting equipment are currently in operation at North Cascades National Park Complex, Santa Monica Mountains National Recreation Area, Kalaupapa National Historic Park, and Zion National Park (concessioner operated composting program). At North Cascades, Earth Tubs are in operation at Hozomeen and at the Environmental Learning Center.



Several manufacturers of this type of composting equipment are listed below:

- Green Mountain Technologies; P.O. Box 560, 86 Brook Street, Whitingham, Vermont 05361, (802) 368-7291, [www.gmt-organic.com](http://www.gmt-organic.com); manufactures Earth Tub mid-size enclosed and semi-automated composting systems; not listed on GSA; Earth Tub used at North Cascades, Zion, Santa Monica Mountains, Kalaupapa.
- Mantis; 1028 Street Road, Southampton, PA 18966, (800) 366-6268; manufactures large residential sized rotating composting drum; not listed on GSA.
- Norseman Plastics; 39 Westmore Drive, Toronto, Canada M9V3Y6, (800) 267-4391, [www.earthmachine.com](http://www.earthmachine.com); manufactures residential sized compost container; not listed on GSA.
- Recycled Plastics Marketing; 2829 152<sup>nd</sup> Ave NE, Redmond, WA 98052, (800) 867-3201, [www.rrpm.com](http://www.rrpm.com); manufactures residential sized compost container; not listed on GSA.

The Park's response to this action, based on a review of the draft ISWAP (December 21, 2010) is: **Further review or analysis required.** Additional Park comments and ISWAP contractor responses are as follows:

- We need to have more discussion on how to balance small-scale (residential) with large-scale (solid waste facility) composting. How do you do the additional step for separation of contaminants after composting but before final product is used? ISWAP Contractor

Response: In larger composting systems, typically all finished compost is screened before use, so large contaminant items would be removed.

- The Park would like to collect direct feedback from the North Cascades Institute staff on how the Earth Tubs at the Environmental Learning Center are functioning. ISWAP Contractor Response: North Cascades Institute staff was contacted, and feedback on the operation of Earth Tubs at the Environmental Learning Center was obtained.
- There needs to be an incentive for people to compost at a central location (e.g. a rate structure that incentivized diversion) before something like that is used. ISWAP Contractor Response: This comment can be incorporated into the rate study assumptions.
- We need to carefully consider additional factors (e.g. concession, business, time/labor/maintenance, the end product) before reaching a final conclusion. Park staff believes there needs to be more emphasis on the small-scale, low-tech worm bins (enclosed), or small-scale composting (need assurance that the Earth Tub is not too big for the purposes intended to serve). The Ranch is the only user that seems to come close to 25% organics; perhaps we need to check the assumptions that are being used to determine these percentages. ISWAP Contractor Response: The assumptions for composition were reviewed and compared with staff perceptions, and it may be that actual food waste quantities in the waste stream are lower than estimated quantities. The concessioner-operated and private food service operations in the area are still the best potential sources of separated food waste for a large-scale composting operation. In summary, the preferred composting strategy would feature two main approaches to composting. The initial and primary approach would continue existing household composting efforts and emphasize additional small-scale household composting, and small-scale worm bin composting for Park staff and private residential households willing to participate. The secondary approach would be based on a larger-scale Earth Tub composting program for concessioner and private commercially-generated food waste, and for any households not able to participate in the small-scale composting approaches. It is assumed that all household and small-scale composting efforts would be sponsored and funded by the Park. The larger scale Earth Tub composting program could also be sponsored and funded by the Park, or it could be included as part of the operation of the new solid waste handling facility, and be the responsibility of the facility operator, whether that be the Park, a contractor or Chelan County.

## 5 SOLID WASTE HANDLING FACILITY OPTIONS REVIEW

This section presents the results of the second phase of Park review and development of the final ISWAP plan and final options. In addition to Park review of the draft ISWAP and recommendations, the Park invited Chelan County to review and provide input on some of the design and functional options for the planned new solid waste handling facility, with the hope of partnering with the County in the operation of the new solid waste handling facility, or turning over operations of the facility completely to the County.

### 5.1 Functional Options and County Review

The Park has operated the Stehekin compactor facility in Stehekin since 1977, and continues to provide solid waste management services to all generators, public and private, in the Stehekin area at no cost to the generators. Providing trash transfer and disposal services to private generators is unusual for an NPS facility and out of compliance with current requirements of 36 CFR Part 6 – Solid Waste Disposal Sites in Units of the National Park System. Currently, Federal regulation included in 36 CFR Part 6 prohibits the handling of waste generated by private residents and businesses in any facility within the boundaries of a National Park unit.

The Park has been working closely with NPS staff from the Pacific West Region and the Washington Office to educate key individuals on the details of this issue and gain support for carrying out a federal regulation change necessary to resolve the conflict with 36 CFR Part 6. The Park is now working with the NPS Regulations Program Manager to initiate the process that would allow the Regional Director to waive prohibitions against accepting non-NPS waste generated within the boundaries of Lake Chelan NRA. Concurrent with these efforts, the Park is interested in exploring options to the current operation of the solid waste handling facility and the current cost subsidization of trash handling, transportation and disposal from private residences and businesses in the Stehekin area.

The new solid waste handling facility is planned to be located on NPS land and will be designed and constructed as part of the Park's effort to relocate maintenance and housing facilities out of the Stehekin River Channel Migration Zone. As part of the development of the Park's new ISWAP Plan, a number of equipment options and facility functional options for design of the new facility are being considered. The final selection of options is intended to be made in coordination with Chelan County and with direct input from the County.

For this reason, all ISWAP actions which could affect the design and operation of the new solid waste handling facility were submitted to Chelan County for review and input before being selected. The following options were included, as they would potentially involve Chelan County and the Park's preferred operating scenario:

- 12. Easy-to-Implement Action: Maintain separate storage of Household Hazardous Waste materials received from the public.**
- 13. Longer-Term Action: Evaluate in ISWAP trash compaction equipment options for the new solid waste handling facility, including replacing existing compactors, switching to compacting roll-off system, switching to trash baler system.**
- 22. Easy-to-Implement Action: Test accepting additional recycled materials at the existing compactor building, which are currently accepted at the Chelan County Transfer Station, including all colors of #1 and #2 plastic bottles, plastic bags, and mixed paper.**

- 23. Longer-Term Action: Evaluate available recycling markets; consider adding to recycled materials processed at the compactor building.**
- 24. Longer-Term Action: Evaluate in ISWAP recycling equipment options, including sorting, baling, compacting, bulk loading in larger containers.**
- 25. Longer-Term Action: Evaluate in ISWAP equipment for glass pulverizing and reuse of pulverized glass product.**
- 29. Longer-Term Action: Evaluate in ISWAP composting operation for separated food waste, waste paper and green waste from Park staff offices and housing facilities as part of new processing operation.**

Assuming the successful development of a 36 CFR Part 6 rule change, the operational options for the new solid waste handling facility could include continued Park operation of the facility with or without financial support for the cost of trash handling, transportation and disposal from private residences and businesses, or Chelan County operation of the new solid waste handling facility as a public transfer station serving Chelan County residents and businesses in the Stehekin area. With either of these options, the Park or the County could choose to contract for a portion or all of the facility operations and materials transportation services to be provided by a contractor. Also with either of these operations, the Park or the County could, and may be expected, to establish some type of fee structure to cover or offset the facility operations, materials transportation and waste disposal costs.

Advantages of the operational option of the Park continuing to be the operator of the solid waste handling facility are as follows:

- A single entity will own and operate the solid waste handling facility and have primary responsibility for all trash and recycling processing, transportation and disposal operations.
- The Park could determine all design and functions of the new solid waste handling facility.
- The Park could determine what services to provide and how to provide them. The Park could establish and charge fees for trash and recycling services at its sole discretion, including the amount and structure of all fees and how they are applied to residential, business, concessioner and NPS customers.

Advantages of the operational option of the County becoming the operator of the solid waste handling facility are as follows:

- The County can assume responsibility for environmentally sound solid waste transfer and disposal for residents and businesses in the Stehekin area.
- The County can participate in determining design and functions of the new solid waste handling facility.
- The County can establish and charge fees appropriate for the services provided and consistent with other County solid waste management services.
- The Park, Park concessioner and Park staff will become a business and residential customers of the County operated solid waste handling facility.
- The Park will reduce staff labor and operational costs associated with operating the solid waste handling facility and accepting private residential and business trash.

- The County can better coordinate trash and recycling operations with existing County solid waste management facilities and services.
- County authority for solid waste management services may be more palatable with the public than Park authority for solid waste management services.

The Park's preferred option would be Chelan County operation of the new solid waste handling facility as a public transfer station serving Chelan County residents and businesses in the Stehekin area.

## 5.2 County Review Results

The complete draft ISWAP document including the Park's comments and review of all recommended options was submitted to Chelan County for review and input on February 25, 2011. The Chelan County Solid Waste Coordinator and the Chelan-Douglas Health District reviewed the document and provided written comments and additional discussion during a meeting with Park staff on March 30, 2011. The following is the transcript of Chelan County's review of the draft ISWAP. The County's initial written comments are italicized and labeled "County Initial Comment". Comments received from the County during a meeting with Park staff on March 30, 2011 are also included here. The Park's written responses to these comments are listed after each comment, and are labeled "Park Response". Final comments from the County, after reviewing the Park written responses, are also included and are italicized and labeled "County secondary comment".

County Initial Comment: *Page 8: "They discuss composting food waste, paper waste, and green waste. Permit thresholds will be important to determine the need for permits." – Chelan-Douglas Health District*

Park Response: Comment acknowledged. Permit thresholds will be reviewed.

County Initial Comment: *Page 9: "Chelan County does not collect property tax revenue for solid waste services. Capital facilities cannot be paid for by the County on property owned by the NPS." – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. Correction has been incorporated into the draft ISWAP and now reads, "The ISWAP suggested that a portion of the capital funding needed for implementation be requested from Chelan County due to the assumption that property tax revenue collected from Stehekin residents was used to provide solid waste services for County residents. However, tax revenue is not directed toward Chelan County's solid waste activities or transfer stations, which are completely funded through tip fees."

County Secondary Comment: *A portion of Chelan County's tipping fees collected at the County's transfer stations are used to build a reserve fund towards the maintenance of facilities. The two transfer stations and two closed landfills require upkeep and monitoring that require substantial funds. At this time, increasing tipping fees at the existing transfer stations places those facilities in jeopardy. Those facilities are close to having operating costs exceed revenue due to the decreased volume of solid waste. . . Currently, the facilities are only bringing in enough revenue to operate, without building a reserve fund for future improvements, expansions or replacement of equipment and buildings. With an increase in solid waste fees, quantity of wastes disposed of will decrease. We have seen a direct correlation with the amount of garbage collected and recent increases/adjustments in fees.*

*Aside from affording a new facility, Chelan County cannot build or contribute funding for capital facilities on National Park Service property. Is there any suitable and affordable property available in the Stehekin valley? May NPS property be granted to the County? May the NPS receive grants or*

*funding to build such a facility, then turn it over for ownership and operations by Chelan County? What is the likelihood of federal funding and change of ownership in NPS land?*

County Initial Comment: Page 10: *“Funding the solid waste facility with funds from property taxes from the Stehekin Valley property owners would provide how much money?” – Chelan-Douglas Health District*

Park Response: See comment and correction above. NPS discussed with Chelan County the possibility of a solid waste disposal district with taxing authority set up to provide and fund solid waste disposal services in Stehekin. The county legislative authority (i.e., the Board of County Commissioners) would be the governing body of the solid waste disposal district. Ch. 36.58.130 RCW allows a disposal district to provide for all aspects of solid waste disposal. A disposal district may enter into contracts with private or public agencies for the operation of disposal facilities, and then levy taxes or issue bonds to cover the disposal costs. Thus, a disposal district established in Stehekin could assess each resident and business a pro rata share of the cost of disposal, which could help to discourage illegal dumping by covering at least part of the disposal cost through mandatory payments so that the additional expense for proper disposal would not be as high as it would be otherwise. In other words, the assessment by the disposal district would be paid regardless of where the resident or business dumped the waste or whether it was self-hauled to the transfer station, and the latter option would be less expensive than current fees by the amount of disposal costs paid by the disposal district’s assessment. The district would have a powerful taxing authority, since it may attach a lien to each parcel of property in the district for delinquent taxes and penalties, and these liens are superior to all other liens and encumbrances except property taxes. The funds obtained by a disposal district may be used “for all aspects of disposing of solid wastes...exclusively for district purposes” (Ch. 36.58.130 RCW). Potential uses include:

- defraying a portion of the present cost of disposal.
- subsidizing waste reduction/recycling activities.
- subsidizing the Household Hazardous Waste Collection Center and related programs.
- closure and post-closure costs for the old landfill and for other solid waste facilities.
- solid waste planning.
- cleanup of roadside litter and solid wastes illegally disposed of on unoccupied properties within the district.
- public information and education about waste reduction and recycling.

(Information above taken from Chelan County Solid Waste Management Plan, April 2007.)

County Secondary Comment: *Agree; a solid waste disposal district for county residents in the Stehekin area (excluding NPS lands) could be established to provide funding through taxation for the operations of garbage disposal, subsidizing a part of the tipping rate. That way the disposal cost at the new Transfer station will not be quite so high. Such a district would have to be approved by the public and the County Commissioners after public meeting(s) are held. A calculated assessed rate would be based on assessed value of their property per landowner.*

*It is assumed the NPS or concessionaires on NPS lands would not be involved in the district due to the inability to tax the federal government. There are several funding sources for the NPS to aid with solid waste services, whether an assessment is on the amount of garbage, or a flat fee paid, or possible a Visitor tax as referred to in the ISWAP of 1997. If the park service assessed a visitor solid waste fee of \$2.00 per visitor, the revenue could aid the NPS with solid waste services. Services could include recycling provisions, facility construction, or aiding in reducing the tipping fee.*

*In reality, to assess area residents and businesses a new tax, at a rate sufficient to operate a new solid waste and recycling facility, and lease a facility from the NPS, the tax may be exorbitant. If the current actual cost for handling the solid waste materials and recycling in the present facilities are passed on to the users, that fee would be five to six times greater (current estimated costs at \$493.00 per ton; see*

*Section 2.10 Cost of Current Solid Waste Management Program) than what other county residents pay (\$88. Per ton).*

*Private landowners have been subsidized in their disposal of solid waste by the federal government since the old landfill was closed in 1977. In hindsight, that may have been a major mistake. At this point in time, Chelan County cannot afford to subsidize the residents up lake in Stehekin and risk closing/losing its current facilities.*

County Initial Comment: *Page 10: "The District recommends waste glass be combined with inert waste or isolated and treated as inert waste until there is a market to recycle it." – Chelan-Douglas Health District*

Park Response: Comment acknowledged. NPS plans to investigate glass processing in Stehekin to eliminate transportation and disposal costs.

County Initial Comment: *Page 11: "Recycling tires is a significant barrier. It is more efficient to dispose with other Municipal Solid Waste." – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. This reference to a requirement for recycling tires is from the current and previous Executive Orders pertaining to recycling goals and requirements for government agencies. Note that solid waste disposal in units of the National Park System is governed by 36 CFR Part 6, which prohibits a solid waste transfer station within a National Park from storing, handling, or disposing of tires. Tires would not be accepted from the public at the new solid waste handling facility and should instead be returned to or exchanged at tire stores, which will reuse, recycle, or properly dispose of tires.

County Initial Comment: *Page 14: "There is a significant difference in the amounts of waste disposed in Stehekin to the NOCA report. We need better numbers reflecting the volume of waste produced in Stehekin. Possibly a Waste Audit should be conducted." – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. Table 2-1 should read FY 2010 SPR Stehekin Reported Tons Disposed. The current estimates of the quantities of solid waste handled at the compactor building are very accurate and well documented. NPS staff count the number of 1/3 cubic yard boxes of compacted solid waste and cross-reference with Tom Courtney's invoice for garbage removal. Tom Courtney's loose waste invoice is used to determine the un-compacted volume of solid waste. Construction and demolition waste may be a slight overestimate as it is calculated on the number and volume of dumpsters hauled out on Tom Courtney's barge and assumes each unit is full. In summary, the quantity of solid waste removed from Stehekin is very accurately known in terms of volume and has been converted to weight using conversion factors developed by weighing many individual boxes of compacted solid waste to develop a Stehekin-specific average weight per volume. Note that the column titled FY 2009 SPR NOCA Reported Tons Disposed is the sum of Stehekin District solid waste plus Skagit District solid waste.

County Secondary Comment: *Understood. The chart is difficult to understand with the NOCA information column.*

County Initial Comment: *Page 23: "No "New Funding" is available for composting, that is known of by the County. State grants are being withdrawn and reduced at this time." – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. The "New Funding" refers to funding sources available to the NPS to fund non-routine projects designed to prevent waste at the source or to divert the waste from ultimate disposal in landfills. Correction has been incorporated into the draft ISWAP and now reads, "New funding is available through the Environmental Management Program – Waste Reduction and



Management for implementing additional small-scale composting efforts as well as larger, centrally-located worm bins that will handle larger amounts of organic material for kitchen scraps from seasonal generators.”

County Initial Comment: *Page 23: “NPS has an expensive, complex SW system.” – Chelan-Douglas Health District*

Park Response: Comment acknowledged.

County Initial Comment: *Page 23: “Metals should be recycled as long as there is a market.” – Chelan-Douglas Health District*

Park Response: Comment acknowledged. In order to meet Federal and Washington State diversion goals of >50%, the NPS strives to recycle most commodities unless significant barriers exist.

County Initial Comment: *Page 25: “\$108/cy and \$493/ton disposal of solid waste costs. Can they be reduced.” – Chelan-Douglas Health District*

Park Response: Comment acknowledged. Total costs for disposal should be reduced with new compacting equipment by significantly reducing labor and material costs associated with solid waste processing.

County Secondary Comment: *These costs will not be significantly reduced with improved equipment. Improved equipment may reduce operation costs some, but hauling and disposal costs will remain the same and are 80% of the cost.*

County Initial Comment: *Page 26: “The cost of transportation will increase with the cost of fuel. \$76.63/cy compacted trash, \$43.65/cy compacted or boxed recycled materials. How will this impact the solid waste handling options?” – Chelan-Douglas Health District*

Park Response: Comment acknowledged. The cost of barge transportation is charged per square foot, and the rate per square foot is expected to increase as fuel costs and other costs increase. While increases in transportation costs will increase the overall costs of all options, increases in transportation costs will have a lower impact on the options that are most efficient in compacting and containing solid waste on an area, or square foot basis.

County Initial Comment: *Page 29: “Extensive recycling programs are expensive, and costs are difficult to re-capture in commodity sales and tipping fees.” – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. Again, in order to meet Federal and Washington State diversion goals of >50%, the NPS strives to recycle most commodities unless significant barriers exist.

County Initial Comment: *Page 31: “As they reduce the recyclable materials in the waste stream they will reduce the percentage of materials that can be recycled. They will be working against themselves for achieving the 50% SW diversion.” – Chelan-Douglas Health District*

Park Response: Waste generation includes all solid waste materials, which may be collected and landfilled (solid waste disposed), and all solid waste materials that are reused, recycled or composted (solid waste diverted). The sum of these two quantities (solid waste disposed and solid waste diverted) equals the total solid waste generated. The waste diversion rate is calculated by dividing the total quantity generated by the total quantity diverted and is expressed as a percentage. This explanation is provided in Section 2.1 Waste Generation and Diversion Estimates.

County Initial Comment: *Note: “How do they collect sharps?” – Chelan-Douglas Health District*

Park Response: Sharp waste is a waste stream regulated by state law and cannot be disposed of in the regular waste stream; therefore, sharp waste is outside of the scope of this planning document. Sharps generated by the NPS through emergency medical services (EMS) are stored in a clearly labeled container and taken to the Lake Chelan Community Hospital for disposal. Non-sterilized medical waste will not be collected or accepted at the new solid waste handling facility.

County Initial Comment: *Options 1-7: Accepted with Modifications “High Maintenance Costs for Recycling. Will NPS continue to track Recycle quantities? Will NPS continue to pick up materials for recycling at campgrounds? If campsites are changed to pack-out garbage and Recycle only sites; recommend improved signage.” – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. The County’s response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted with Modifications**. The NPS will continue to track recycle quantities generated by the NPS and park visitors, and the NPS will continue to provide solid waste and recycling collection service for all campgrounds and other NPS facilities (with the exception of the Stehekin Landing Resort concession, which is required per contract language to handle their own solid waste and recycling). An additional bullet was added to Option 7 that states, “Signage and visitor education efforts will be improved to emphasize the change in campground recycling and solid waste standards.”

County Initial Comment: *Option 8: “Parks Department will continue to be responsible for garbage and recycling receptacles.” – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. The County’s response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted**. The NPS will continue to maintain and service all garbage and recycling receptacles according to the ISWAP.

County Initial Comment: *Option 9: “Report states “The Parks intent in requesting the regulation change would be to bring the operation of the new solid waste facility, located on National Park Service land, to be in compliance with the updated 36 CFR Part 6, and to allow the facility to accept and handle non-NPS waste generated within the boundaries of Lake Chelan NRA, wither as a facility owned and operated by the Park, or as a facility owned by the Park but operated by Chelan County as a public solid waste transfer station, through contract or intergovernmental agreement and with full management responsibility and assumption of liability associated with the operation of the facility.” Chelan County will only take over such an operation if feasible, and once the operations are self-sufficient.” – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. The County’s response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted with modifications**. The referenced statement relates to the Park’s efforts to obtain a rule change to be in compliance with federal regulations for all possible ownership and operation scenarios for the new solid waste handling facility – particularly because the Park does not know which ownership and operation scenario will be agreed upon. The purpose of including the County in the review of this document is to identify the County’s willingness to operate a solid waste handling facility at Stehekin, and to proceed with the development of that facility meeting the County’s requirements for operation or coordination with the NPS. It is assumed that the Park will continue to operate the existing compactor facility. If Chelan County was willing, the County would take over operation once the new solid waste handling facility was completed. As the operator, Chelan County would have control over setting tip fees at the solid waste handling facility, and as the governing body in a solid waste disposal district, the County would also have control over setting tax rates within the district. The combination of fees and tax revenue could be set to ensure that the solid waste handling facility operation was financially feasible and self-sufficient. The NPS requests that Chelan County

clarify the requirements or criteria for the County to take over the operation – “if feasible, and once the operations are self-sufficient”.

County Secondary Comment: *The NPS scenario includes the NPS owning and operating the solid waste handling facility as an option. It is understood that the NPS will continue to operate the existing facility. Transitioning from a 0 fee to \$144. Per c.y. fee is incredulous. If once the new facility is constructed and operating, efforts on both parts, NPS and County may strive to set recoverable fees for the disposal. This effort may take some time to establish, as well as educate residents. Subsidized rates may need to be in place, and phased out over time in order to prevent illegal dumping. It is during this phase period that a joint effort will be needed to achieve a feasible system. Further analysis is needed to calculate, plan and implement a phased financial system. The plan will be subject to the public response. Once the system is operating and self-sufficient, it may be appropriate for the County to enter in a lease agreement, and manage the facility and operations.*

County Initial Comment: *Page 42: “Where are the boundaries of the Lake Chelan NRA?” – Chelan-Douglas Health District*

Park Response: In general, Lake Chelan NRA encompasses the upper 4.5 miles of Lake Chelan and the Stehekin Valley. All solid waste handled in Stehekin is generated within the boundaries of Lake Chelan NRA.

County Initial Comment: *Option 10: “Improve signage on trash containers.” – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. The County’s response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted**.

County Initial Comment: *Option 11: “Fire wood for wood stoves or fireplaces should be removed from the brush pile. Remaining wood should be chipped or burned in accordance with the State Air Quality regulations.” – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. Because of the time and labor that would be required to sort the existing burn pile, Park staff has opted to initiate the recommended sorting procedures in the spring of 2011, resulting in the availability of more firewood, more material for chipping, potential reuse of scrap lumber, and a reduction in the annual burn pile. According to the Stehekin Fire Management Officer (FMO), annual burn quantities have always been below the threshold for requiring a burn permit, and the FMO verifies local air quality and burn ban requirements prior to initiating a burn.

County Initial Comment: *Option 12: “Household Hazardous waste needs separate storage units with double floor containment. Caustic materials need a separate storage unit from flammable materials.” – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. The County’s response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted**. 36 CFR Part 6, which governs solid waste disposal sites in units of the National Park System, does not allow a new solid waste disposal facility to be used for storing, handling, or disposing of hazardous waste. Park-generated hazardous waste is currently and will continue to be stored separately in hazardous waste storage units with double floor containment. Caustic and flammable materials are not combined in storage.

County Secondary Comment: *Hazardous wastes from private property owners are not addressed in the NPS response. It seems that the risk to the environment for not dealing with all hazardous wastes in the Stehekin Valley by illegal dumping should override the regulation limiting storing or handling hazardous wastes by the NPS. For example, a small amount of hazardous wastes could contaminate ground water*

*and have a significant impact on NPS activities and land. At this time, is the NPS collecting hazardous wastes from any residents or businesses in the valley? Are hazardous wastes left at the current solid waste facility? Chelan County, depending on Department of Ecology funding, plans to continue to dispose of this material brought to its once yearly events down lake, but there needs to be some provisions for the collection of the material and shipping of hazardous wastes in the Stehekin Valley.*

County Initial Comment: Page 46: *“Alternative 1 advantages state that if 50% of the solid waste is recycled, as planned, there will be less solid waste to handle, making a smaller machine and operation possibly more cost effective than a larger piece of equipment. I don’t see that considered in the tables.” – Chelan-Douglas Health District*

Park Response: The quoted statement is not made in the document on page 46 or anywhere in the Alternative 1 discussion; therefore the comment is not understood. All alternatives must be compared using the same sizing assumptions, and prudent facility equipment sizing selection cannot be made based on uncertain future changes. The 50% diversion goal is an NPS goal, applicable to Park-generated solid waste only, and should not be assumed for future solid waste in the Stehekin community.

County Initial Comment: Page 46-48: *“Alternative 2a/2b/2c “advantages” may need some additional research. What is the history for large scale compactors and cold weather affecting their operation? What are the odor issues with a large scale compactor and leachate collection and disposal from the compactor? Will a large compactor be cost effective if the area reaches 50% recycling as planned?” – Chelan-Douglas Health District*

Park Response: Comment acknowledged. The compactor models considered in the alternatives are commercially available, in common usage, and have an extensive operating history in all climatic regions of the country, including Chelan County. The odor and leachate concerns may be applicable to a solid waste handling facility permit application, and can be addressed during the permit process. The Park does not plan on the area reaching a 50% diversion goal. The majority of the waste generated in the area is generated by private businesses and households, which are outside of the planning scope of the Park. The 50% diversion goal is an NPS goal, applicable to Park-generated solid waste only. Compactor cost effectiveness will not be affected by a more minor change in the quantity of solid waste generated in the area.

County Initial Comment: Page 50: *“The cost analysis table; If the 50% waste recycling goal were achieved, how would this affect the cost analysis?” – Chelan-Douglas Health District*

Park Response: The 50% diversion goal is an NPS goal, applicable to Park-generated solid waste only. The majority of the waste generated in the area is generated by private businesses and households, which are outside of the planning scope of the Park. Compactor cost effectiveness will not be affected by a more minor change in the quantity of solid waste generated in the area.

County Initial Comment: Option 13: *“The large stationary compactor with multiple and modified roll off containers is the most practical. Further review is needed to evaluate equipment for maintenance costs. Also a better figure for the volumes of garbage generated is imperative.” – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. The County’s response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted**. An allowance for maintenance materials costs is included in the cost comparison. Overall maintenance costs are assumed to be similar for all compactor units, not significantly different from one option to the next, and not a major cost factor or selection criteria for the planning-level analysis. Detailed cost estimates for the preferred option, including more specific maintenance, materials and utilities costs, will be developed during the design phase of the project. The

current estimates of the quantities of solid waste handled at the compactor building are very accurate and well documented.

County Secondary Comment: *It is understood that the garbage volumes are accurate. Table 2-9 creates some confusion.*

County Initial Comment: *Option 14: "NPS monitor locations for trash and recycling collection."*

Park Response: Comment acknowledged. The County's response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted.**

County Initial Comment: *Option 15: "NPS trains employees on reducing waste and reusing materials." – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. The County's response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted.**

County Initial Comment: *Option 16: "NPS provides education to visitors for trash and recycling options." – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. The County's response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted.**

County Initial Comment: *Option 17: "Recommending concessioners and visitors utilize filling water bottles rather than purchasing will reduce the amount of empty bottles. However this may be a costly endeavor and impractical." – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. The County's response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted with modification.**

County Initial Comment: *Option 18: Further analysis is needed. "Wood fired boilers are expensive. However wood furnaces are accepted by the State Air Quality Department. An indoor wood furnace would be helpful to heat the facility. Why is firewood not available in Stehekin?" – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. The NPS removes wood materials such as hazard trees from designated areas and disposes of excess wood at fair market value by charging \$15 per cord permit fee to Stehekin residents. Residents are allowed to cut firewood from the material left in a designated area near the burn pile. There is some concern that firewood quality materials will become more limited in the future as active NPS forest management practices shift and demand may become greater than supply. The NPS also has a concern about the labor and responsibility required by having a wood furnace as the primary source of heat for the solid waste facility.

County Secondary Comment: *Wood furnaces are commonly used as alternative heat sources throughout the northwest. In an area like Stehekin, where the electrical power has outages, and hydraulic equipment needs to be maintained at certain temperatures, it would be efficient to have an alternative heat source. It was understood that there is only a limited supply of used oil, so a used oil furnace would not be efficient.*

County Initial Comment: *Option 19: "Scales are needed depends on NPS need to track recycled amounts of material, particularly if a different baler is utilized." – Chelan County Solid Waste Coordinator*

Park Response: Comment acknowledged. This option is for short-term Park operations only, and is not considered to be part of the new solid waste handling facility options. Scales referenced in Option 19 are

small platform scales, appropriate for small quantity boxed or bagged material weighing, and single bale weighing, and would be used by Park staff for tracking Park-generated quantities of materials.

County Initial Comment: *Option 20: Accepted with modification. "If an efficient recycling program is desired, sorting table(s) will be needed."* – Chelan County Solid Waste Coordinator

Park Response: Comment acknowledged. This option is for short-term Park operations only, and is not considered to be part of the new solid waste handling facility options. Sorting tables will likely be necessary at a new facility, but there is no room for sorting tables at the current facility.

County Initial Comment: *Option 21: Accepted with modification. "Baling plastics as well as all other materials is more practical than processing the recyclables with assorted machinery. One large horizontal baler would compress all materials and bale to the same size used at the Chelan Recycle center."* – Chelan County Solid Waste Coordinator

Park Response: Comment acknowledged. This option was a recommendation for short-term use with the existing smaller down stroke baler in the existing compactor building only.

County Initial Comment: *Option 23: Accepted with modification. "All recycled materials should be tailored to the Chelan County supported Chelan Recycle Center use and markets. This facility supports all materials, including the commodities with poor markets. Utilizing the local recycling center promotes good partnerships where they will take the low marketable items along with the high marketable items."* – Chelan County Solid Waste Coordinator

Park Response: Comment acknowledged. The County's response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted with modification.**

County Initial Comment: *Option 24: Accepted with modification. "A new baler, possibly a new horizontal baler should be place in a new facility, where all recycled items can be baled by one piece of machinery and in accord with the sizes at Chelan Recycle Center."* – Chelan County Solid Waste Coordinator

Park Response: Comment acknowledged. The County's response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted with modification.** Horizontal baling systems are significantly more expensive than vertical baling systems, require a larger building and more expensive installation structures (such as concrete pad requirements, a pit conveyor and higher roof heights), and have much higher throughput capacity than what would be required at Stehekin. The Park does have limitations on the allowable building size and cost, which may not be able to accommodate the additional building size and equipment cost of a horizontal baling system. A large vertical baler will also compress all materials and bale to a comparable size and density as the horizontal baler used at the Chelan Recycle center. The vertical baling system was recommended as the more economical and appropriately sized equipment, but a horizontal baling system can be considered as an alternative if the County will be operating the new solid waste handling facility and recycling operation, and will be responsible for the purchase and installation of its preferred processing equipment.

County Secondary Comment: *The ISWAP states that an evaluation of the costs of continuing current methods should be done to select preferred method of recycled materials processing, and to determine the design and equipment requirements for the new solid waste handling facility. An inefficiency described in the ISWAP like utilizing a second compactor for aluminum, bulking paper grades in boxes take more space, and may be better utilized with a horizontal baler for all the materials, both recycling and garbage. A vertical baler will require more labor for operations. Ramps and chute feed systems are recommended in the ISWAP, and will require more space. If both recycling and solid waste equipment is housed in the same facility, than the consideration of the NPS operating the recycle program will be sharing the facility, if the County is operating the solid waste system. Possibly a second or adjacent*

*building for the recyclables is necessary, in order to contain an efficient recycling facility, as well as a solid waste system. Further review or analysis required.*

County Initial Comment: *Option 25: Accepted with modification. "A commercial size glass pulverizer would be best suited provided the cullet can and will be used locally. If it can be used locally by contractors, the crushed glass does not need to be hauled downlake. Sharing and hauling a glass pulverizer around the County is not economical or efficient."* – Chelan County Solid Waste Coordinator

Park Response: Comment acknowledged. The County's response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted with modification.** The Park will continue to consider this option with the understanding that the glass pulverizer would be located at Stehekin, and operated to process recycled glass from the Stehekin area only. The Park will also assist in the development of a market for processed glass in the Stehekin area by including specifications for processed glass in concrete, paving and other appropriate NPS contract applications.

County Initial Comment: *Option 26: "NPS management of recycle container locations is satisfactory."* – Chelan County Solid Waste Coordinator

Park Response: Comment acknowledged. The County's response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted.**

County Initial Comment: *Option 27: Further review or analysis required. "Worm bin composting, backyard composting or Earth tub composting does not seem practical. Experience in the County is the residents will not conduct much backyard composting. Hauling food waste to be handled by the facility staff in a large Earth bin is labor intensive. Other passive composting methods may be more effective and less labor intensive."* – Chelan County Solid Waste Coordinator

Park Response: Comment acknowledged. Small scale composting approaches are assumed to be the responsibility of park staff or private households. Based on this comment, it is assumed that the County would not want to operate a food waste composting system and the Park should pursue consideration of this option for Park-generated food waste only. Larger scale composting approaches for food waste can be operated by Park staff separately from the new solid waste handling facility operation, and can be operated accepting compostable materials from park staff and operations only. Further discussion between the Park and Chelan County on the issue of composting in Stehekin is recommended.

County Initial Comment: *Option 28: Accepted. "Chipping of brush material is a good way to develop materials to mix or compost or to use as mulch. This is also discussed under Option 11."* – Chelan County Solid Waste Coordinator

Park Response: Comment acknowledged. The County's response to this action, based on a review of the draft ISWAP (March 30, 2011) is: **Accepted.**

County Initial Comment: *Option 29: Further review or analysis required. "Food composting on a small scale with worm bins or personal backyard composting may be adequate for residential and Park staff. A large composting process, such as the earth tub will be labor intensive. If a composting operation is conducted with other large organics in a simple windrow system may be more efficient than an earth tub managed by a facility staff. Meat products would not be accepted. Another possibility is to have the Commercial businesses set up with an Earth tub to manage on their own property."* – Chelan County Solid Waste Coordinator

Park Response: Comment acknowledged. Small scale composting approaches are assumed to be the responsibility of Park staff or private households. Based on this comment, assuming the County would not want to operate a food waste composting system, larger scale composting approaches for food waste

can be operated by Park staff separately from the new solid waste handling facility operation, and can be operated accepting compostable materials from park staff and operations only. Further discussion between the Park and Chelan County on the issue of composting in Stehekin is recommended.

County Initial Comment: *Page 69: “Composting solid waste is regulated by Washington State Solid Waste Handling Standards, WAC 173-350-220. Compost operations can be permit exempt or require a permit depending upon the feedstocks and compost volume. Most of the composting discussed in this document would be permit exempt but not regulation exempt.” – Chelan-Douglas Health District*

Park Response: Comment acknowledged. Clarification is needed to identify which compost operations discussed in the document would not be permit exempt. It is assumed that all small scale composting approaches would be on an individual household scale, and would be permit and regulation exempt. The larger scale composting approaches discussed include static pile composting of Type 1 materials: wood chips, brush and green waste only, and enclosed vessel (Earth Tub as an example) composting of Type 1 and Type 3 materials: food waste, wood chips, brush and green waste only. Additional discussion is needed to determine which composting approaches would be “beneficial use waiver applicable”, due to compost feedstock materials, size of composting operation, or other factors, or if these proposed composting approaches would fall under a composting permit requirement.

County Initial Comment: *Page 86: “The described options would be a WAC 173-350-310 “intermediate solid waste handling facility”. This includes baling and compaction stations and transfer stations. WAC 173-350-310 describes the design standards, operating standards, and permitting requirements for an intermediate solid waste handling facility. This is a deliberate process that takes considerable time and effort to permit. Material recovery operations, handling of recyclable materials, could be included in this facility permit or handled separately as permit exempt.” – Chelan-Douglas Health District*

Park Response: Comment acknowledged. Standards and requirements identified in WAC 173-350-310 will be incorporated into the planning process as the new facility plan moves beyond the conceptual phase.

County Initial Comment: *Additional comments from Brenda Harn during 3/30/2011 meeting:*

- *If Chelan County is going to take over operation of a solid waste facility in Stehekin, the County would want all equipment to be new or in top condition.*

Park Response: Comment acknowledged. Based on this comment, the preferred approach is assumed to be for the Park to develop and construct the facility with County approval of equipment and operational features, and for the County to take over initial operations when the facility is constructed and permitted. The facility would be owned by the Park, and could be leased to the County for full control over all operations, including solid waste transfer station and recycling facility drop off operations consistent with other County transfer station and recycling facilities. Funding for the operation could be provided through a combination of tip fees for solid waste disposal, and tax revenues from a solid waste disposal district. Issues such as the facility lease provisions, utilities payments, ownership and maintenance responsibilities for processing equipment could be resolved in more detailed negotiations.

County Secondary Comment: *The restricted size and use of a facility will hinder the acceptance of management and operations and certainly a lease. Additional costs to lease a Park facility will only further impact the tipping fee for customers and increase the likelihood for illegal dumping. It may also impact the success of the solid waste system and the recycling program. It is understood that some of these issues can be resolved with further negotiations.*

- *Used oil collected in Stehekin could be used in an oil heater to heat the solid waste facility.*



Park Response: Comment acknowledged. Cragg Courtney currently collects and burns used oil from throughout the Stehekin Valley in his shop and maintenance facilities. Based on conversations with Mr. Courtney, there does not appear to be enough volume in Stehekin to warrant a second collection point.

- *Not having to transport glass out of Stehekin may offset the cost of labor required to crush or pulverize glass. The NPS should consider requiring utility or construction contracts in Stehekin to use the pulverized glass to ensure a large unused stockpile does not build up.*

Park Response: Comment acknowledged. This would be done for Park contracting projects as well as Park maintenance applications.

- *Maintenance costs associated with the different solid waste handling/compacting options should be included in relative cost estimates and cost comparison to aid in selecting the preferred alternative.*

Park Response: Comment acknowledged. Based on previous comments, it is assumed that the County has accepted Alternative 2b as the most practical compaction method. An allowance for maintenance materials costs is included in the cost comparison. Overall maintenance costs are assumed to be similar for all compactor units, not significantly different from one option to the next, and not a major cost factor or selection criteria for the planning-level analysis. Detailed cost estimates for the preferred option, including more specific maintenance, materials and utilities costs, will be developed during the design phase of the project.

- *Address the volume, quality, and final destination of leachate coming off the compacting roll-off paved surface (and surface should be paved as opposed to graveled for ease of cleaning).*

Park Response: Comment acknowledged. The compacting roll-off area will be paved and curbed to prevent run-off, and appropriate drainage will be provided. No liquids are anticipated to escape the fully enclosed roll-off containers during compaction or during transport. The paving recommendation will be added to the schematic design layout requirements.

- *Ensure facility design meets solid waste facility requirements outlined in the WAC.*

Park Response: Comment acknowledged. This will be done during the design phase of the project, and should include input from the agreed-upon operator to ensure that equipment and operational recommendations that impact the design meet solid waste facility requirements outlined in the WAC.

- *Consider enlarging the staging area for dropping off solid waste (i.e. make sure it's large enough for trucks to back up to).*

Park Response: Comment acknowledged. This recommendation will be added to the schematic design layout requirements.

- *Identify the storage area/location where additional/back-up roll-off containers would be stored.*

Park Response: Comment acknowledged. This recommendation will be added to the schematic design layout requirements.

- *Consider the possibility of Chelan County handling solid waste and the NPS handling recycling.*

Park Response: Comment acknowledged. The Park has concerns regarding the cost, efficiency, building configuration, staffing, and funding of separate solid waste and recycling operations, and would prefer to

try to resolve any financial or operational issues with Chelan County through some variation on the concept of a single, combined operation entity to operate the solid waste transfer station and recycling facility functions in a single facility.

- *Re-initiate the Stehekin Solid Waste Advisory Committee (SWAC) by following up after the EA public meetings in winter/spring 2012 with a SWAC public meeting. Contact the individuals previously involved and ensure representation from all stakeholders:*
  - *Chelan County*
  - *National Park Service*
  - *NPS Concessionaire*
  - *NPS Garbage Contractor*
  - *Stehekin Business*
  - *Stehekin Residents*

Park Response: Comment acknowledged. The Park will work with Chelan County to make this happen.

### **5.3 Summary of Status of ISWAP Options**

The Park will proceed with all options not involving the new solid waste handling facility as per Park review and approval, and will include all of these options as “accepted” or “accepted with modification” in this final ISWAP plan. This includes Options 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 21, 26 and 28. Options 18, 19, 20 and 27 were rejected and will not be further considered.

The Park will proceed with design and implementation of the solid waste handling facility, as part of the development of the Park’s new maintenance and housing facilities. The solid waste handling facility design is intended to complement the existing County solid waste transfer station configurations and existing County recycling facilities in a smaller-scale and combined operation within a single building, to be as compatible as possible with existing County facilities and operations, and to handle the same trash and recycled material streams as existing County operations.

The Park will also proceed with design and implementation of the solid waste handling facility with all features included from the options accepted by the Park and by Chelan County. These mutually-agreed upon options include Options 12, 13, 22, and 23. The discussion of Option 12 provided clarification that Household Hazardous Waste received from the public for transportation to annual Chelan County HHW collection events would be stored in separate storage units with double floor containment, and that separate storage of incompatible materials, such as caustic and flammable materials, would also be provided. This program or operation could be part of the new solid waste handling facility operation. The discussion of Option 13 identified the alternative 2b as the most preferable trash compaction alternative, featuring a large stationary compactor with multiple and modified roll-off containers for trash compaction and storage. Options 22 and 23 were mutually agreed upon without significant modifications or discussion.

The Options 24, 25 and 29 were agreed upon in general principle, but further analysis or equipment selection decisions will be required for final resolution of these Options. The Park will continue to analyze and further define these Options during the design and implementation of the solid waste handling facility, and communicate with Chelan County and the public when appropriate. The discussion of Option 24 identified that both the Park and the County prefer a new, larger baling system for

processing of most recycled materials. The final determination of the type of baling system, whether a vertical or horizontal baling system would be most cost-effective or most preferred, will require additional analysis. Issues affecting this decision include potential limitations of the building size and configuration, the quantity of recycled materials projected to be processed, who the facility operator will be and what the operator's baling equipment preferences are, and who will be purchasing the baling system for the facility, the operator or the facility owner/builder. The discussion of Option 25 identified that both the Park and the County agree that glass processing in Stehekin for local reuse could be a beneficial program. The Park will continue to consider this option with the understanding that the glass pulverizer would be located at Stehekin, and operated to process recycled glass from the Stehekin area only. The Park will also assist in the development of a market for processed glass in the Stehekin area by including specifications for processed glass in concrete, paving and other appropriate NPS contract applications. The discussion of Option 29 identified that small or large scale composting should not be included in the new solid waste handling facility operation. If considered further, small scale composting approaches will be assumed to be the responsibility of Park staff or private households. Larger scale composting approaches for food waste will be analyzed further by the Park, and if considered further, will be operated by Park staff separately from the new solid waste handling facility operation, and can be operated accepting compostable materials from Park staff and operations only.

Discussions with Chelan County also identified two modifications to the solid waste handling facility conceptual design, which included paving and curbing the storage area for the stationary compacting roll-off containers, and enlarging the staging area for public unloading of trash to accommodate truckload quantities of trash as well as smaller, household trash unloading.

The Park will continue to involve Chelan County in design and implementation steps, in the hope that a mutually agreeable facility, equipment and operation scenario with County operation of the new solid waste handling facility can be developed. The Park has also committed to presenting facility and operational options in public meetings, as a part of or in addition to the Environmental Assessment public meetings, and concurrently re-establishing the Stehekin Solid Waste Advisory Committee (SWAC) to provide public input on preferred approaches and options. The Park's preferred option would be Chelan County operation of the new solid waste handling facility as a public transfer station serving Chelan County residents and businesses in the Stehekin area, and including a recycling drop-off and processing operation and a Household Hazardous Waste drop-off and transportation operation. The Park will continue to plan to retain the capability to operate the new solid waste handling facility, as a backup option.

## 6 SCHEDULE AND RESOURCES

This section presents estimated minimum resources and planning level costs necessary for the implementation of the options discussed in Section 4.3. Resources and/or costs are listed by general category — personnel, equipment, and/or planning-level cost — by the following ISWAP program components:

- i) Administration, Procurement, and Education;
- ii) Trash Management;
- iii) Source Reduction and Reuse;
- iv) Recycling; and
- v) Composting.

The following table displays the suggested actions and the Park’s recommendations for implementation and inclusion in the final ISWAP Plan.

**Table 6-1 —North Cascades National Park Complex - Stehekin Recommendations**

<b>Element</b>	<b>Actions</b>	<b>Recommendation</b>
Administrative, Procurement and Education	<b>Easy-to-Implement Actions</b> <ol style="list-style-type: none"> <li>1. Develop a current inventory and placement plan for trash and recycling containers.</li> <li>2. Improve solid waste management tracking process and track quantities for DOI SPR reporting requirements.</li> <li>3. Develop Park staff training and activities for recycling and source reduction practices, including practices for construction and demolition waste reduction and recycling.</li> <li>4. Provide green procurement training for all Park staff credit card holders.</li> <li>5. Include NPS source reduction, recycling and solid waste plan requirements in all construction, demolition and renovation contracts.</li> </ol>	<p>Accepted</p> <p>Accepted with Modification</p> <p>Accepted with Modification, moved to Longer-Term Action</p> <p>Accepted</p> <p>Accepted with Modification</p>
Administrative, Procurement and Education	<b>Longer-Term Actions</b> <ol style="list-style-type: none"> <li>6. Continue Park staff training and activities for recycling and waste reduction practices.</li> <li>7. Evaluate in ISWAP trash and recycling placement plan and policy options for partial or complete “Pack-in, Pack-out” designated areas.</li> <li>8. Evaluate in ISWAP preferred trash and recycling container style for placement plan and procure additional containers as necessary.</li> <li>9. Bring all Park solid waste management programs into compliance with applicable requirements of 36 CFR Part 6 – Solid Waste Disposal Sites in Units of the National Park System.</li> </ol>	<p>Accepted</p> <p>Accepted with Modification</p> <p>Accepted</p> <p>Accepted</p>

Element	Actions	Recommendation
Solid Waste Management	<b>Easy-to-Implement Actions</b> 10. Improve signage on trash containers (larger, clearer lettering and labeled for trash). 11. Test separating materials in the burn pile for alternative uses, including logs, brush and wood scrap. 12. Maintain separate storage of Household Hazardous Waste materials received from the public.	Accepted  Accepted  Accepted
Solid Waste Management	<b>Longer-Term Actions</b> 13. Evaluate in ISWAP trash compaction equipment options, including replacing existing compactors, switching to compacting roll-off system, switching to trash baler system. 14. Evaluate in ISWAP trash container locations and effectiveness, replace or relocate as necessary.	Accepted Alternative 2b, large stationary compactor  Accepted
Source Reduction and Reuse	<b>Easy-to-Implement Actions</b> 15. Include source reduction approaches in employee training, including green procurement training. 16. Develop recycling and source reduction education and approaches for residents and visitors.	Accepted  Accepted with Modification
Source Reduction and Reuse	<b>Longer-Term Actions</b> 17. Sell reusable water bottles at Park and concessioner stores, discontinue disposable bottled water sales, and install water filling stations. 18. Evaluate in ISWAP wood as fuel for building heating in forms of firewood, wood chips or sawdust pellets.	Accepted with Modification  Rejected
Recycling	<b>Easy-to-Implement Actions</b> 19. Obtain a platform scale to provide more accurate weights of recycled materials. 20. Obtain a sorting table to aid manual separation of mixed recycled materials at the existing compactor building. 21. Test baling plastic bottles in down stroke baler. 22. Test accepting additional recycled materials at the existing compactor building, which are currently accepted at the Chelan County Transfer Station, including all colors of #1 and #2 plastic bottles, plastic bags, and mixed paper.	Rejected  Rejected with Notation Accepted, Completed Additional Analysis Required
Recycling	<b>Longer-Term Actions</b> 23. Evaluate in ISWAP available recycling markets, consider adding to recycled materials processed at the compactor building. 24. Evaluate in ISWAP recycling equipment options, including sorting, baling, compacting, bulk loading in larger containers, and glass crushing equipment options. 25. Evaluate in ISWAP equipment for glass pulverizing and reuse of pulverized glass product. 26. Evaluate in ISWAP recycling container locations and effectiveness, replace or relocate as necessary.	Accepted, Additional Analysis Required  Accepted, Additional Analysis Required  Accepted, Additional Analysis Required Accepted

Element	Actions	Recommendation
Composting	<b>Easy-to-Implement Actions</b> 27. Test sheet composting method for apple mash waste. 28. Test brush chipping of materials from separate burn pile for use as mulch and composting additive.	Rejected Accepted
Composting	<b>Longer-Term Actions</b> 29. Evaluate in ISWAP composting operation for separated food waste, waste paper and green waste from Park staff offices and housing facilities as part of new processing operation.	Additional Analysis Required

## 6.1 Implementation Schedule

Tables 5-2 through Table 6- summarize the required resources for all recommended actions, by program component and by implementation schedule phase. Although each element has a slightly different schedule for completing its tasks, the Planning Phase tasks could all begin at once. The Implementation Phase tasks should be planned to be completed by the years 2012 to 2015. The Program Maturity Phase is generally planned for 2015 and beyond.

**Table 6-2— North Cascades National Park Complex - Stehekin Schedule and Resources for Administration, Procurement, and Education**

<b>Phase</b>	<b>Action</b>	<b>Cost</b>	<b>Responsibility</b>
<b>Planning 2010-2012</b>	<ol style="list-style-type: none"> <li>1. Develop a current inventory and placement plan for trash and recycling containers.</li> <li>2. Improve solid waste management tracking process and track quantities for DOI SPR reporting requirements.</li> <li>3. Develop Park staff training and activities for recycling and source reduction practices, including practices for construction and demolition waste reduction and recycling.</li> <li>4. Provide green procurement training for all Park staff credit card holders.</li> <li>5. Include NPS source reduction, recycling and solid waste plan requirements in all construction, demolition and renovation contracts.</li> </ol>	<ul style="list-style-type: none"> <li>• Completed in ISWAP</li> <li>• Tool completed in ISWAP, Staff time: 2 days/year</li> <li>• Staff time: deferred to long-term action</li> <li>• Staff time: ½ day/staff</li> <li>• Staff time: variable</li> </ul>	<ul style="list-style-type: none"> <li>• Facility Manager</li> <li>• Facility Manager/SPR report designee</li> <li>• Facility Manager/EMS team</li> <li>• Procurement/EMS team</li> <li>• Facility Manager/COTRs/ Contracting</li> </ul>
<b>Implementation 2012-2015</b>	<ol style="list-style-type: none"> <li>3. Develop Park staff training and activities for recycling and source reduction practices, including practices for construction and demolition waste reduction and recycling.</li> <li>6. Continue Park staff training and activities for recycling and waste reduction practices.</li> <li>7. Evaluate in ISWAP trash and recycling placement plan and policy options for partial or complete “Pack-in, Pack-out” designated areas.</li> <li>8. Evaluate in ISWAP preferred trash and recycling container style for placement plan and procure additional containers as necessary.</li> <li>9. Bring all Park solid waste management programs into compliance with applicable requirements of 36 CFR Part 6</li> </ol>	<ul style="list-style-type: none"> <li>• Staff time: 5 days</li> <li>• Staff time: ½ day/staff</li> <li>• Completed in ISWAP</li> <li>• Selection completed in ISWAP, container costs</li> <li>• Staff time: variable</li> </ul>	<ul style="list-style-type: none"> <li>• Facility Manager/EMS team</li> <li>• Facility Manager/EMS team</li> <li>• Facility Manager/</li> <li>• Facility Manager/</li> <li>• Facility Manager/</li> </ul>
<b>Program</b>	6. Continue Park staff training and	• Staff time: ½	• Facility

<b>Phase</b>	<b>Action</b>	<b>Cost</b>	<b>Responsibility</b>
<b>Maturity 2015-beyond</b>	activities for recycling and waste reduction practices.	day/staff	Manager/EMS team



**Table 6-3 — North Cascades National Park Complex - Stehekin Schedule and Resources for Solid Waste Management**

<b>Phase</b>	<b>Action</b>	<b>Cost</b>	<b>Responsibility</b>
<b>Planning 2012</b>			
<b>Implementation 2012-2015</b>	<ul style="list-style-type: none"> <li>10. Improve signage on trash containers (larger, clearer lettering and labeled for trash).</li> <li>11. Test separating materials in the burn pile for alternative uses, including logs, brush and wood scrap.</li> <li>12. Maintain separate storage of Household Hazardous Waste materials received from the public.</li> <li>13. Evaluate in ISWAP trash compaction equipment options, including replacing existing compactors, switching to compacting roll-off system, switching to trash baler system.</li> <li>14. Evaluate in ISWAP trash container locations and effectiveness, replace or relocate as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>• Staff time: 5 days, materials costs: variable</li> <li>• Staff time: incremental increase</li> <li>• No additional cost</li> <li>• Staff time for additional analysis (Accepted Alternative 2b, large stationary compactor)</li> <li>• Completed in ISWAP</li> </ul>	<ul style="list-style-type: none"> <li>• Facility Manager/</li> <li>• Facility Manager/</li> <li>• Facility Manager/</li> <li>• Facility Manager/</li> <li>• Facility Manager/</li> </ul>
<b>Program Maturity 2015-beyond</b>	<ul style="list-style-type: none"> <li>14. Evaluate trash container locations and effectiveness, replace or relocate as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>• Staff time: 1 day/year</li> </ul>	<ul style="list-style-type: none"> <li>• Facility Manager/</li> </ul>

**Table 6-4 — North Cascades National Park Complex - Stehekin Schedule and Resources for Source Reduction/Reuse**

<b>Phase</b>	<b>Action</b>	<b>Cost</b>	<b>Responsibility</b>
<b>Planning 2012</b>			
<b>Implementation 2012-2015</b>	15. Include source reduction approaches in employee training, including green procurement training. 16. Develop recycling and source reduction education and approaches for residents and visitors. 17. Sell reusable water bottles at Park and concessioner stores, discontinue disposable bottled water sales, and install water filling stations.	<ul style="list-style-type: none"> <li>• Staff time: ½ day/staff</li> <li>• Staff time: deferred to longer-term action</li> <li>• Staff time: further review required</li> </ul>	<ul style="list-style-type: none"> <li>• Facility Manager/EMS team</li> <li>• Need to identify implementation responsible party</li> <li>• Concessions Manager</li> </ul>
<b>Program Maturity 2015-beyond</b>			

**Table 6-5 — North Cascades National Park Complex - Stehekin Schedule and Resources for Recycling**

<b>Phase</b>	<b>Action</b>	<b>Cost</b>	<b>Responsibility</b>
<b>Planning 2012</b>			
<b>Implementation 2012-2015</b>	<p>21. Test baling plastic bottles in down stroke baler.</p> <p>22. Test accepting additional recycled materials at the existing compactor building, which are currently accepted at the Chelan County Transfer Station, including all colors of #1 and #2 plastic bottles, plastic bags, and mixed paper.</p> <p>23. Evaluate in ISWAP available recycling markets, consider adding to recycled materials processed at the compactor building.</p> <p>24. Evaluate in ISWAP recycling equipment options, including sorting, baling, compacting, bulk loading in larger containers, and glass crushing equipment options.</p> <p>25. Evaluate in ISWAP equipment for glass pulverizing and reuse of pulverized glass product.</p> <p>26. Evaluate in ISWAP recycling container locations and effectiveness, replace or relocate as necessary.</p>	<ul style="list-style-type: none"> <li>• Completed in ISWAP</li> <li>• Staff time: additional analysis required</li> <li>• Staff time: additional analysis required</li> <li>• Staff time: additional analysis required</li> <li>• Staff time: additional analysis required</li> <li>• Staff time: completed in ISWAP, container costs variable</li> </ul>	<ul style="list-style-type: none"> <li>• Facility Manager/</li> <li>• Facility Manager/EMS team</li> <li>• Facility Manager/</li> <li>• Facility Manager/</li> <li>• Facility Manager/</li> <li>• Facility Manager/</li> </ul>
<b>Program Maturity 2015-beyond</b>	<p>26. Evaluate recycling container locations and effectiveness, replace or relocate as necessary.</p>	<ul style="list-style-type: none"> <li>• Staff time: container costs variable</li> </ul>	<ul style="list-style-type: none"> <li>• Facility Manager/</li> </ul>

**Table 6-6 — North Cascades National Park Complex - Stehekin Schedule and Resources for Composting**

<b>Phase</b>	<b>Action</b>	<b>Cost</b>	<b>Responsibility</b>
<b>Planning 2012</b>			
<b>Implementation 2012-2015</b>	<p>28. Test brush chipping of materials from separate burn pile for use as mulch and composting additive.</p> <p>29. Evaluate in ISWAP composting operation for separated food waste, waste paper and green waste from Park staff offices and housing facilities as part of new processing operation.</p>	<ul style="list-style-type: none"> <li>• Staff time, equipment operation</li> <li>• Staff time: additional analysis required</li> </ul>	<ul style="list-style-type: none"> <li>• Facility Manager</li> <li>• Facility Manager</li> </ul>
<b>Program Maturity 2015-beyond</b>			

## **APPENDICES**

- Appendix A — Trash and Recycling Quantity Estimates
- Appendix B — Trash and Recycling Inventory Spreadsheet
- Appendix C — Waste Composition Estimate
- Appendix D — Waste Facility Schematic Floor Plan
- Appendix E — 36 CFR Part 6 Analysis

## Appendix A — Trash and Recycling Quantity Estimates

Update 12.1.10 FY 2010		North Cascades National Park - Stehekin Municipal Solid Waste Quantity Estimate								
<p>Instructions: The purpose of this log sheet is for NPS use in tracking annual solid waste disposal and diversion (recycling or composting) quantities. To enter a disposal quantity, use one row for each container and annual quantity to be recorded, fill in the entity, container and estimate basis information cells, and use the volume estimate columns to calculate the annual quantity or (if known) enter the annual quantity in the Total Pounds Disposed column. To enter a diversion quantity, use one row for each container and annual quantity to be recorded, fill in the entity, container and estimate basis information cells, and use the volume estimate columns to calculate the annual quantity or (if known) scroll right to the correct item heading and enter the amount diverted in pounds. If you do not know the weight, but know the volume or container size or type, use the attached Conversion Tool to convert volumes to weight. Each fiscal year, the Tracking Tool should be updated with quantities for that fiscal year and saved. A copy of the final version can be made and used as a starting point for the next fiscal year.</p>										
MSW DISPOSED										
Updated for 2010	C&D, MSW (Trash) or Diversion	Container Service Entity	Container Type	Container Capacity (cubic yards)	Number of Pickups per Year	Estimated % Capacity on Pickup(4)	Estimate Basis and Entity	Total Capacity (cubic yards)	Conversion Factor (lbs/cubic yard)	Total Pounds Disposed
Yes	MSW	NPS Contractor Courtney Tub	Compacted Cubic Yards	428.0	1	100%	Contract invoice records	428.00	420	179,760
Yes	MSW	NPS Contractor Courtney Tub	Loose Cubic Yards	311.0	1	100%	Contract invoice records	311.00	250	77,750
Yes	Diversion	NPS - Stehekin	Boxes, cubes, bales				NPS Stehekin Recycling Log FY 2010			
SUBTOTAL NPS MSW MATERIALS								739.00		257,510
for 2010	C&D	NPS Contractor Courtney Tub	C&D Debris Cubic Yards	150.0	1	100%	Contract invoice records	150.00	900	135,000
SUBTOTAL C&D MATERIALS										135,000
TOTAL MATERIALS										392,510
Notes:								TOTAL MSW GENERATED (TOTAL DISPOSED + TOTAL DIVERTED) 296,277 TOTAL C&D WASTE GENERATED (TOTAL DISPOSED + TOTAL DIVERTED) 135,000 TOTAL MSW AND C&D GENERATED (TOTAL DISPOSED + TOTAL DIVERTED) 431,277 MSW DIVERSION RATE (TOTAL DIVERTED/TOTAL GENERATED) 13.1% C&D DIVERSION RATE (TOTAL DIVERTED/TOTAL GENERATED) 0.0% TOTAL MSW AND C&D DIVERSION RATE (TOTAL DIVERTED/TOTAL GENERA 9.0%		

Totals for the Department of Interior Sustainable Practices Reporting System (Pounds)	
Construction and Demolition Waste	135,000
Other Solid Waste (MSW or Trash)	257,510
Aluminum	825
Antifreeze	0
Asphalt	0
Batteries (Lead/acid-car)	0
Batteries (Lead/acid-truck)	0
Batteries (NiCd rechargeable):	0
Brick	0
Car Tires	0
Cardboard	11,050
Carpet	0
Ceiling tiles	0
Co-mingled (glass,Al cans, plastic)	0
Concrete	0
Constr/Demo waste (mixed)	0
Desktop PC	104
Drywall	0
Fluorescent lamps	0
Food Waste	0
Glass	16,000
Green Waste (composting)	0
Keyboards	0
Light Ballasts	0
Manure	0
Mixed Paper	5,960
Monitor	186
Newspaper	800
Notebook PC	0
Pallets	0
Plastic (#1PET/#2HDPE)	1,000
Printer	29
Scrap Metals	0
Steel Cans	1,500
TVs	833
Toner Cartridges	0
Truck Tires	0
Used Oil	0
White Paper	480
Wood Chips	0
Other	0
TOTAL	38,767

NORTH CASCADES NATIONAL PARK COMPLEX - STEHEKIN

RECYCLING LOG FY 2010																	EWASTE: 06-09 4 UPS's 17 TV's 1 printer 6 crt's 4 cpu's	
DATE	Brown Glass (Box)	Clear Glass (Box)	Green Glass (Box)	Plastic (Cube)	Aluminum (Cube)	Cardboard (Bale)	Glossy Paper (Box)	Non-Glossy (Box)	Brown Paper (Box)	Newsprint (Box)	Tin Cans (Box)	Scrap Aluminum (Box)	TV (Unit)	Printer (Unit)	Monitor (Unit)	Desktop PC (Unit)	Total	
Oct/Nov/Dec	4		2	2	2	2	3		1	6	1	2					25	
Jan 31			2			2											4	
Feb 28				2	1		9	1	3	1							17	
Mar 31				1			1		1	2		1					6	
Apr 30							4		3				1				8	
May 05						1			1	1							3	
May 21						1	1	1	1	1	1						6	
May 27	2			1					1								4	
Jun 10		2				1	1		1					17	1	6	33	
Jun 14				2	1				1								4	
Jun 19			2			1			1	1							5	
Jun 26					1		1		1								3	
Jun 30						1	1										2	
Jul 02	2								1								3	
Jul 07					1			1	1		1						4	
Jul 13				2	2												4	
Jul 20					1				2								3	
Jul 22	2		2						2								6	
Jul 29				1	1				1			1					4	
Jul 31								1		1							2	
Aug 01									1								1	
Aug 04			2														2	
Aug 07									1								1	
Aug 10	2																2	
Aug 11									1								1	
Aug 14									1								1	
Aug 23			2	2	1		2	1	1	1							10	
Aug 25	2																2	
Aug 27									1								1	
Sep 06					1				1								2	
Sep 08						1											1	
Sep 14	2																2	
Sep 16					1												1	
Sep 21				7	1	1		1		1							11	
Sep 27									1								1	
																	0	
																	0	
																	0	
																	0	
YTD SUBTOTAL	16	10	6	20	14	13	19	8	36	8	6	1	17	1	6	4	185	
Weight conversion Rates	500.00	500.00	500.00	50.00	55.00	850.00	200.00	60.00	60.00	100.00	250.00	55.00	49.00	29.00	31.00	26.00		
Weight Total	8,000	5000	3000	1000	770	11050	3800	480	2160	800	1500	55	833	29	186	104	38,767	
Notes: large plastic bale estimated to weigh 350 pounds, based on staff account of 15-20 boxes compacted into the bale.																		

Notes: large plastic bale estimated to weigh 350 pounds, based on staff account of 15-20 boxes compacted into the bale.



Year:		2011		North Cascades National Park Complex - Stehekin Municipal Solid Waste Collection Container Inventory					Revised						
Current									Revised						
Waste/Recyclables Containers									Waste/Recyclables Containers						
Containers (1)									Containers (1)						
District	Area	Collected By	Location	Type	Color	Volume (Gal)	Number	Total Vol Volume (Gal)	Action	Type	Color	Volume (CY)	Number	Total Vol Volume (CY)	
Visitor Center/Land	Visitor Center	NPS	Restrooms	BS Double Trash/Al	Green	60	2	120		BS Double Trash/Al	Green	60	2	120	
		NPS	Restrooms	BS Double Plastic/Glass	Green	60	2	120		BS Double Plastic/Glass	Green	60	2	120	
	Landing	NPS	Marina	BS Double Alum/Plastic	Green	60	2	120		BS Double Alum/Plastic	Green	60	2	120	
		NPS	Marina	BS Triple glass	Brown	60	3	180		BS Triple glass	Brown	60	3	180	
	Lodge	NPS	Marina	BS Double Trash	Green	60	2	120		BS Double Trash	Green	60	2	120	
		NPS	Stairs to Store	BS Double Trash/Al	Green	60	2	120		BS Double Trash/Al	Green	60	2	120	
		SLR	Store	BS Single Trash	Green	60	1	60		BS Single Trash	Green	60	1	60	
		SLR	Store	BS Double Plastic/Plast	Brown	60	2	120		BS Double Plastic/Plast	Brown	60	2	120	
		SLR	Store/Restaurant	BS Single Alum	Brown	60	1	60		BS Single Alum	Brown	60	1	60	
		SLR	Store/Restaurant	BS Triple glass	Brown	60	3	180		BS Triple glass	Brown	60	3	180	
		SLR	Store/Restaurant	BS Double Trash	Brown	60	2	120		BS Double Trash	Brown	60	2	120	
		SLR	Restaurant	BS Single Trash	Brown	60	1	60		BS Single Trash	Brown	60	1	60	
		SLR	Restaurant	BS Single Trash	Green	60	1	60		BS Single Trash	Green	60	1	60	
		SLR	Bldg 2	BS Double Trash/Al	Green	60	2	120		BS Double Trash/Al	Green	60	2	120	
		SLR	Bldg 2	BS Double Plastic/Glass	Green	60	2	120		BS Double Plastic/Glass	Green	60	2	120	
		SLR	A Frame	BS Double Trash/Al	Green	60	2	120		BS Double Trash/Al	Green	60	2	120	
SLR	A Frame	BS Double Plastic/Glass	Green	60	2	120		BS Double Plastic/Glass	Green	60	2	120			
DV Public Areas	Picnic Site	NPS	Near Purple Point CG	BS Double Al/Glass	Green	60	2	120		BS Double Al/Glass	Green	60	2	120	
		NPS	Near Purple Point CG	BS Double Trash/Plastic	Brown Wood	60	2	120		BS Double Trash/Plastic	Brown Wood	60	2	120	
	Imus Picnic Area	NPS	Imus Picnic Area	BS Double Trash/Al	Green Wood	60	2	120		BS Double Trash/Al	Green Wood	60	2	120	
		NPS	Purple Point CG	BS Triple Al/Plastic/Glas	Brown Wood	60	3	180		BS Triple Al/Plastic/Glas	Brown Wood	60	3	180	
	Purple Point CG	NPS	Purple Point CG	BS Double Trash	Green	60	2	120		BS Double Trash	Green	60	2	120	
		NPS	Purple Point CG	BS Food Locker						BS Food Locker					
	Swim Dock	NPS	Swim Dock	BS Double Trash/Al	Green Wood	60	2	120		BS Double Trash/Al	Green Wood	60	2	120	
		NPS	Swim Dock Picnic Area	BS Double Trash/Al	Green Wood	60	2	120		BS Double Trash/Al	Green Wood	60	2	120	
	Weaver Point	NPS	Dock	Hooded Top Trash	Brown	60	3	180	Replace	BS Double Trash	Brown	60	4	240	
		NPS	Dock	BS Double Al/Al	Green Wood	60	2	120	Add plastic and glass recycling container	BS Triple Al/Plastic/Glas	Green	60	3	180	
	Community Center	NPS	Water Station	Hooded Top Trash	Brown	60	2	120	Remove, relocate to dock	BS Triple Al/Plastic/Glas	Green	60	3	180	
		NPS	Honeymoon Dock	BS Food Locker						BS Food Locker					
	UV Public Areas	Rainbow Falls	NPS	Community Center	BS Double Trash	Brown	60	2	120		BS Double Trash	Brown	60	2	120
			NPS	Parking Lot	Hooded Top Trash	Brown	60	1	60		Hooded Top Trash	Brown	60	1	60
		Harlequin CG	NPS	Harlequin CG Site	Hooded Top Trash	Brown	60	1	60	Remove	Hooded Top Trash	Brown	60	1	60
			NPS	Harlequin Group Site	BS Food Locker						BS Food Locker				
		NPS	Harlequin Group Site	Hooded Top Trash	Brown	60	2	120	Remove	Hooded Top Trash	Brown	60	2	120	
		NPS	Restrooms	Hooded Top Trash	Brown	60	2	120	Add trash container	BS Triple Al/Plastic/Glas	Brown Wood	60	3	180	
		NPS	Picnic Site	Hooded Top Trash	Brown	60	1	60	Add recycling containers	BS Triple Al/Plastic/Glas	Brown Wood	60	3	180	
		NPS	Bullion	Hooded Top Trash	Brown	60	1	60	Remove	BS Triple Al/Plastic/Glas	Brown Wood	60	3	180	
High Bridge		NPS	Bullion	Hooded Top Trash	Brown	60	1	60	Remove, add PIP0 signage	BS Triple Al/Plastic/Glas	Brown Wood	60	3	180	
		NPS	High Bridge Parking	BS Food Locker						BS Food Locker					
Turnwater		NPS	High Bridge CG	Hooded Top Trash	Brown	60	1	60	Replace, add trash container	BS Double Trash	Brown	60	2	120	
		NPS	Turnwater CG	Hooded Top Trash	Brown	60	1	60	Add recycling containers	BS Triple Al/Plastic/Glas	Brown Wood	60	3	180	
		NPS	Turnwater CG	BS Food Locker					Remove, add PIP0 signage	BS Food Locker					
		NPS	Turnwater CG	BS Food Locker						BS Food Locker					
Current									Revised						
TOTALS BY AREA															
Visitor Center/Landing															
Down Valley Public Areas															
Up Valley Public Areas															
TOTAL															

## Appendix C — Waste Composition Estimate

North Cascades National Park - Stehekin																																																			
Weighted Average Waste Composition Estimate																																																			
Park's Total Solid Waste Generation (Tons Per Year)																																																			
148.1																																																			
NPS Administrative Offices				NPS Maintenance/Support				Private - Residential				Lodging - Food Service				Visitor - Public Areas				Visitors - Inn Lodging				Public Areas																											
Share of Park's Total				Share of Park's Total				Share of Park's Total				Share of Park's Total				Share of Park's Total				Share of Park's Total																															
Annual Waste (%)				Annual Waste (%)				Annual Waste (%)				Annual Waste (%)				Annual Waste (%)				Annual Waste (%)																															
Annual Waste (TPY)				Annual Waste (TPY)				Annual Waste (TPY)				Annual Waste (TPY)				Annual Waste (TPY)				Annual Waste (TPY)																															
Typical Composition(1)				Annual				Typical Composition(2)				Annual				Typical Composition(3)				Annual				Typical Composition(6)				Annual				Typical Composition(4)				Annual				Total		Rate									
Total(%)				Unit(%)				Waste(TPY)				Total(%)				Unit(%)				Waste(TPY)				Total(%)				Unit(%)				Waste(TPY)				Total(%)				Unit(%)				Waste(TPY)				(TPY)		(%)	
MATERIALS																																																			
PAPER				74.8				35				38.1				32.5				22				46				11																							
Corrugated Cardboard				3.9 0.35				2.67 30				1.95 3.8				11.08 16.3				0.7 6				0 40				0.00 0.0				16.74 11.3																			
Newspaper				10 0.89				0.00				2.31 4.5				3.26 4.8				0.2 2				0 2				0.00 0.0				6.66 4.5																			
Office Paper				25.8 2.29				0.18 2				0.31 0.6				0.00 0.0				0.00 0.0				0 1				0.00 11.0				2.78 1.9																			
Mixed Paper				35.1 3.12				0.27 3				14.96 29.2				7.75 11.4				1.5 14				0 3				0.00 0.0				27.60 18.6																			
PLASTIC				6.6				2.5				9.6				7.1				8.4				7.6				14.4																							
PET				0.1 0.01				0.00				0.31 0.6				0.00 0.0				0 0.4				0 0.6				0.00 4.8				0.32 0.2																			
HDPE				0.4 0.04				0.00				0.31 0.6				2.45 3.6				0.1 1				0 0.6				0.00 0.3				2.89 2.0																			
Film				2.3 0.20				0.00				1.74 3.4				1.84 2.7				0.2 2				0 3.4				0.00 2.8				3.98 2.7																			
Polystyrene				1.9 0.17				0.00				0.46 0.9				0.20 0.3				0 0.9				0 2.0				0.00 2.0				0.83 0.6																			
Other				1.9 0.17				0.22 2.5				2.10 4.1				0.34 0.5				0.6 5				0 2.1				0.00 4.5				3.43 2.3																			
GLASS				2.4				2.5				6.5				4.5				13				5.4				23.5																							
Containers				2.2 0.20				0.00				3.33 6.5				2.99 4.4				1.4 13				0 5.4				0.00 23.2				7.92 5.4																			
Other				0.2 0.02				0.22 2.5				0.00				0.1 0.1												0.00 0.3				0.24 0.2																			
METALS				2.3				20				7.9				3.0				8				4.6				4.2																							
Ferrous				1 0.09				1.33 15				2.97 5.8				1.84 2.7				0.6 5				0 3.5				0.00 1.7				6.83 4.6																			
Aluminum				0.00				0.00				0.00				0.00				0.00				0.00				0.00 0.0				0.0 0.0																			
Used Beverage Container				1 0.09				0.00				0.26 0.5				0.20 0.3				0.3 3				0 0.5				0.00 2.5				0.8 0.5																			
Other				0.00				0.00				0.77 1.5				0.00 0.0				0.00				0.00 0.0				0.00 0.0				0.8 0.5																			
Other				0.3 0.03				0.44 5				0.05 0.1				0.00 0.0								0.1 0.1				0.00 0.0				0.5 0.3																			
ORGANICS				13.5				20				29.8				52.4				29.6				27				46.9																							
Yard Waste				1.3 0.12				0.00				5.12 10				0.00 0.0				0 0.3				0 0.6				0.00 0.0				5.24 3.5																			
Food Waste				10.6 0.94				0.00				3.23 6.3				30.87 45.4				2.8 25				0 17.3				0.00 45.2				37.84 25.6																			
Wood Waste				0.2 0.02				1.78 20				3.33 6.5				0.14 0.2				0 0.3				0 3.1				0.00 0.3				5.26 3.6																			
Other				1.4 0.12				0.00				3.59 7				4.62 6.8				0.4 4				0 6				0.00 1.4				8.74 5.9																			
OTHER WASTES				0.4				20				8.1				0.5				19				9.4				0.0				8.40 5.7																			
TOTAL				100 8.89				100 8.89				100 51.24				100 68				100 11				100 0				100.0 0.00				148.01 99.9																			
NOTES: (1) Composition based on typical 'Office Waste' composition; detailed composition of metals estimated by contractor																																																			
(2) Based on contractor's estimate for typical park-oriented activity consisting of warehousing, utilities and building and site maintenance - overall NPS office and maintenance/support split assumed by contractor to be 25:75																																																			
(3) Composition based on typical 'Household Waste' composition; detailed composition of metals estimated by contractor																																																			
(4) Composition based on typical 'Food Service' composition, from NPS Solid Waste Management Handbook; detailed metals breakdown by contractor.																																																			
(5) Based on contractor field sort composition results in Parks for picnic areas, parking lots and trailheads.																																																			

## Appendix D — Waste Facility Schematic Floor Plan

### Solid Waste Facility

The Solid Waste Facility would provide enclosed operations space for sorting, processing and storage of trash and recycled materials. Operations space inside the building would include sorting and processing equipment such as conveyor belt(s), baler(s), compactor(s), glass crusher, and possibly enclosed composting tubs. Operations space should include overhead doors and vehicle access for a fork lift, loader or skid-steer, and space for interim materials storage. Additional materials storage and some equipment placement may be in attached exterior covered storage.

Assumed Total Gross Square Feet for Solid Waste Facility	2,000 GSF
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### Solid Waste Facility Exterior Functions

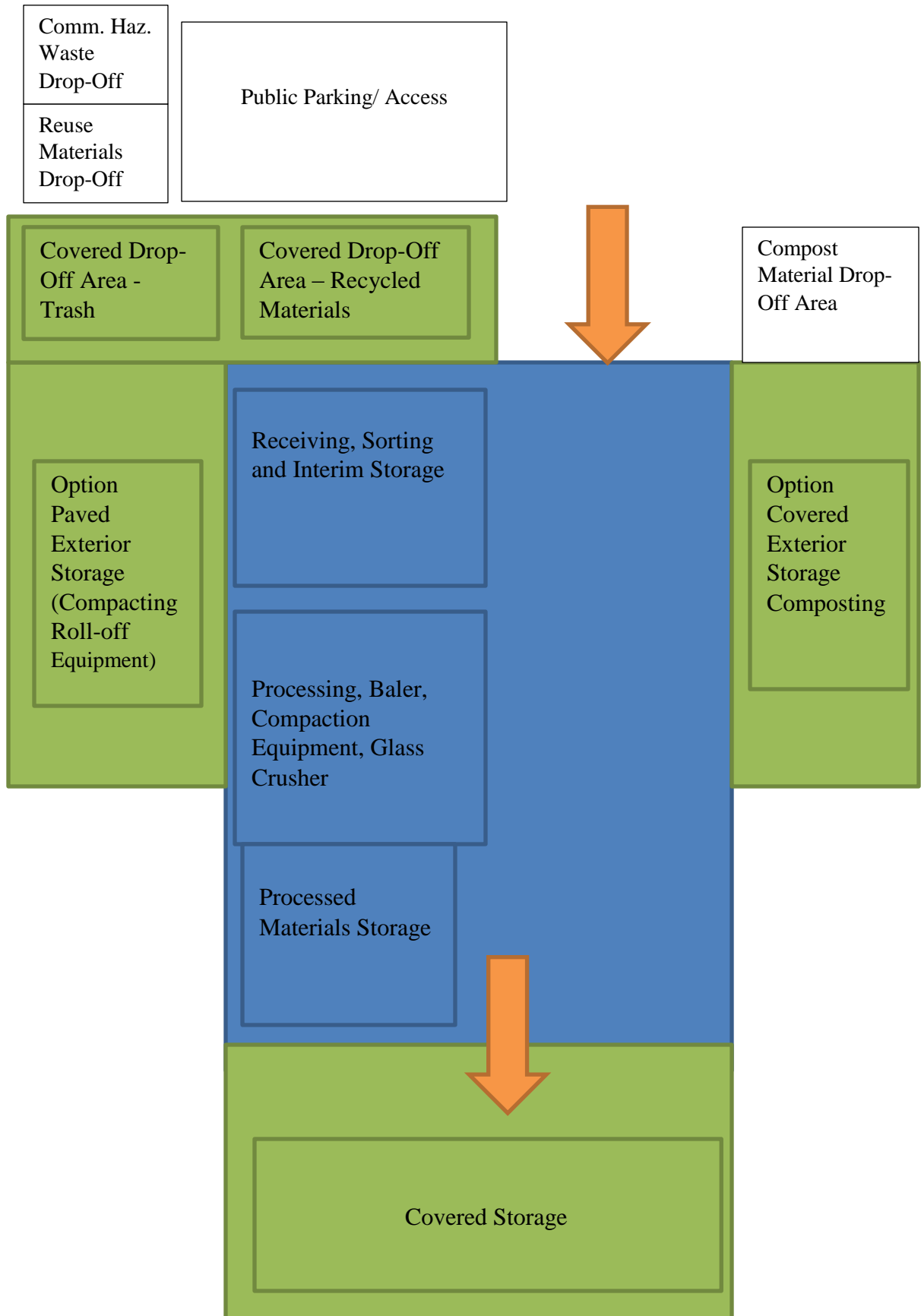
Covered area for public drop-off of trash and recycled materials (into exterior containers or through wall openings), access separate from operations	200 SF
Covered exterior storage for baled materials	800 SF
Option: paved exterior storage for processing equipment, glass crusher and trash compacting roll-off container.	400 SF
Option: covered exterior storage for composting	200 SF
Paved areas for equipment and operations vehicle access	

### Functional Description

The solid waste facility would house four main functions: receiving, sorting, processing and storage. Materials (trash and recycled materials) would move sequentially through the four functions and ideally move through the building in the same manner. The receiving function may be outside the building, using containers for interim storage of materials or drop-off through openings in the building exterior wall. The sorting function would be inside the building and would use tables, containers and/or conveyor equipment. Interim storage of sorted materials would be inside the building. The processing function would involve a number of equipment items potentially including down stroke baler(s), glass crusher, can flattener, compactor(s), compacting roll-off container(s), and mobile equipment including a fork lift, loader or skid-steer. All processing equipment would be located inside the building, with the option to locate the glass crusher and the compacting roll-off equipment outside in covered or uncovered areas adjacent to the building. If enclosed composting is included in the processing operations, the enclosed composting tubs could be located in an exterior covered storage area. Storage of processed materials could be inside the building or outside in an exterior covered storage area. To preserve the option of establishing limited operating hours and charging solid waste disposal fees at the solid waste facility at some point in the future, the exterior covered drop-off areas and other exterior storage facilities have been arranged to allow for a single public access point and the ability to close public access to the facility.

### Concept Floor Plan

Using the 2,000 GSF size, a 40' x 50' building shape is assumed, with receiving on one 40' side, sorting and processing equipment located inside the building and exterior covered storage located on the opposite 40' side, accessed through an overhead door. One 50' side would have overhead door(s) for vehicle and equipment access, as well as paved areas for optional equipment placement.



## Appendix E — 36 CFR Part 6 Analysis

Draft Discussion of Select Sections of 36 CFR part 6 – Solid Waste Disposal Sites in Units of the National Park System

### Overview

This discussion document addresses one deliverable included in the Statement of Work for Contract D8078100241, P.O. 9476-1058-524, the North Cascades National Park Complex (the Park), which reads as follows:

The Contractor shall address the following under 36 CFR part 6 – Solid Waste Disposal Sites in Units of the National Park System: 6.4 (a)-(6), (10), (11), (b)-(3), (4), (5), (6), (8), (9)-(iv), and (vi) as applicable.

This discussion is intended to coordinate with the Park's efforts to draft a special regulation for Lake Chelan NRA under 36 CFR Part 7.62 that would bring the Park into compliance with 36 CFR Part 6, and to assist the Park in obtaining necessary permits and approvals under 36 CFR part 6 for operation of a new solid waste handling facility in the Stehekin area of Lake Chelan NRA.

### Discussion

The relevant section of 36 CFR Part 6 is restated in bold, and the discussion regarding that section provided immediately after.

**6.4 (a) No person may operate a solid waste disposal site within the boundaries of a National Park System unit that was not in operation on September 1, 1984, unless the operator has shown and the Regional Director finds that:**

- (1) The solid waste is generated solely from National Park Service activities conducted within the boundaries of that unit of the National Park System;**

Discussion: The Park would not be in compliance with this section of the regulation. The Park is working with the NPS Regulations Program Manager to draft a special regulation for Lake Chelan NRA under 36 CFR Part 7.62 that would bring the Park into compliance with 36 CFR Part 6. Final rule will be published in the Federal Register. The target completion date for this document is June 2012.

**6.4 (a) No person may operate a solid waste disposal site within the boundaries of a National Park System unit that was not in operation on September 1, 1984, unless the operator has shown and the Regional Director finds that:**

- (2) There is no reasonable alternative site outside the boundaries of the unit suitable for solid waste disposal;**

Discussion: Within the boundaries of Lake Chelan NRA, there are no alternative sites or road access to any sites suitable for solid waste disposal outside of the Stehekin Valley. The proposed solid waste handling facility will not be a solid waste disposal facility, but will serve as a solid waste transfer station. The most suitable site within the Stehekin Valley area for the new solid waste handling facility, as part of a new maintenance facility complex, is being evaluated. The Park has contracted to produce an Environmental Assessment as part of the NEPA process to study impacts associated with constructing new maintenance buildings, housing, a fire cache & dorm, and a solid waste handling facility outside of the Stehekin River Channel Migration Zone. The target completion date for this document is July 2011.

Outside of the boundaries of Lake Chelan NRA, the NRA is surrounded by National Forest Service and National Park Service designated wilderness areas, which would not provide any reasonable alternative sites for solid waste disposal. This includes the North Cascades National Park South Unit and the Stephen Mather Wilderness Area to the North, the Lake Chelan Sawtooth Wilderness Area to the East and South, and the Wenatchee National Forest to the West.

**6.4 (a) No person may operate a solid waste disposal site within the boundaries of a National Park System unit that was not in operation on September 1, 1984, unless the operator has shown and the Regional Director finds that:**

**(3) The site will not degrade any of the natural or cultural resources of the unit;**

Discussion: The Park has contracted to produce an Environmental Assessment as part of the NEPA process to study impacts associated with constructing new maintenance buildings, housing, a fire cache & dorm, and a solid waste handling facility outside of the Stehekin River Channel Migration Zone. The Environmental Assessment will include an evaluation of impacts on natural or cultural resources for the preferred site for the maintenance and housing facility complex. The target completion date for this document is July 2011.

**6.4 (a) No person may operate a solid waste disposal site within the boundaries of a National Park System unit that was not in operation on September 1, 1984, unless the operator has shown and the Regional Director finds that:**

**(4) The site meets all other applicable Federal, State and local laws and regulations, including permitting requirements;**

Discussion: No other applicable Federal permits, laws or regulations for a solid waste handling facility or transfer station operation have been identified.

A new solid waste handling facility would be required to obtain a permit for operation under the State of Washington regulations. Washington State Regulation RCW 70.95.010(6)(c) directs “county and city governments to assume primary responsibility for solid waste management and to develop and implement aggressive and effective waste reduction and source separation strategies.” In Washington State, most of the solid waste facilities are permitted by the local Jurisdictional Health Departments, which for the Lake Chelan NRA, would be the Chelan Douglas Health District, and the Chelan County Public Works Department, Division of Solid Waste. There are several different solid waste handling facilities types that require permits in Washington State, which include: composting facilities, land application sites, intermediate solid waste handling facilities (transfer stations, bailing and compaction sites, and drop boxes), piles for treatment and storage, surface impoundments and tanks, waste tire storage facilities and moderate risk waste facilities. All of these facilities are regulated under [chapter 173-350 WAC](#), *Solid Waste Handling Standards*. The local jurisdictional health departments have the responsibility to issue permits and enforce the regulations. Under RCW 70.95.160, they are required to adopt regulations that may be more stringent than the state’s “minimum” standards. The permit process is outlined in [chapter 70.95 RCW](#), *Solid Waste Management*, with specific permit application procedures outlined in [chapter 173-351 WAC](#), *Criteria for Municipal Solid Waste Landfills* and [chapter 173-350 WAC](#), *Solid Waste Handling Standards* for other solid waste facilities.

The [local jurisdictional health department](#) (JHD) is the permitting entity in Washington State. Complete permit applications, meeting the requirements of the appropriate regulation are available from the JHD for the county in which the facility is located, and are submitted to the jurisdictional health departments. The

permitting form developed by the Department of Ecology can be found on the [Solid Waste Facility Forms](#) page. The jurisdictional health department has a ninety day review period to determine if the facility conforms to all solid waste, air and other applicable laws and regulations, conforms to the approved comprehensive solid waste handling plan and complies with zoning requirements. All solid waste permit applications must include evidence of compliance with the State Environmental Policy Act, chapter 197-11 WAC, SEPA Rules.

Chapter 173-350 WAC, *Solid Waste Handling Standards*, specifies that certain solid waste facilities are exempt from solid waste permitting, if they meet certain requirements and operating procedures as identified in the rule. These facilities include certain recycling facilities, compost facilities, intermediate solid waste handling facilities, piles used for treatment or storage, and moderate risk waste facilities. One of the requirements is for the facility to notify the Department of Ecology and the local jurisdictional health department of their intent to operate as a facility exempt under chapter 173-350 WAC. For most exempt facilities, there is also an annual reporting requirement.

No other applicable local laws or regulations for a solid waste handling facility or transfer station operation have been identified.

**6.4 (a) No person may operate a solid waste disposal site within the boundaries of a National Park System unit that was not in operation on September 1, 1984, unless the operator has shown and the Regional Director finds that:**

**(5) The site conforms to all of the restrictions and criteria in 40 CFR 257.3-1 to 257.3-8, and 40 CFR part 258, subparts B, C, D, E and F;**

Discussion: This section of the regulation does not appear to be applicable to a solid waste handling facility, or transfer station. Although 36 CFR part 6 includes transfer stations in its definition of solid waste disposal sites, it is implied that this inclusion is only for the purposes of 36 CFR part 6, and would therefore not be applied to any other regulations. The restrictions and criteria in 40 CFR 257.3-1 to 257.3-8, and 40 CFR part 258, subparts B, C, D, E and F are specifically applicable to municipal solid waste landfill facilities and other solid waste disposal units.

From the Scope and purpose section prior to 40 CFR 257.3-1 to 257.3-8:

§ 257.1 Scope and purpose.

(a) Unless otherwise provided, the criteria in §§257.1 through 257.4 are adopted for determining which solid waste disposal facilities and practices pose a reasonable probability of adverse effects on health or the environment under sections 1008(a)(3) and 4004(a) of the Resource Conservation and Recovery Act (The Act).

From the Purpose, scope and applicability section of 40 CFR part 258, this section appears to be only applicable to municipal solid waste landfill units that received waste before October 9, 1991, and would not be applicable to a new transfer station:

§ 258.1 Purpose, scope, and applicability.

(a) The purpose of this part is to establish minimum national criteria under the Resource Conservation and Recovery Act (RCRA or the Act), as amended, for all municipal solid waste landfill (MSWLF) units and under the Clean Water Act, as amended, for municipal solid waste landfills that are used to dispose of

sewage sludge. These minimum national criteria ensure the protection of human health and the environment.

(b) These Criteria apply to owners and operators of new MSWLF units, existing MSWLF units, and lateral expansions, except as otherwise specifically provided in this part; all other solid waste disposal facilities and practices that are not regulated under subtitle C of RCRA are subject to the criteria contained in part 257 of this chapter.

(c) These Criteria do not apply to municipal solid waste landfill units that do not receive waste after October 9, 1991.

**6.4 (a) No person may operate a solid waste disposal site within the boundaries of a National Park System unit that was not in operation on September 1, 1984, unless the operator has shown and the Regional Director finds that:**

- (6) The site will not be used for the storage, handling, or disposal of a solid waste containing:**
  - (i) Hazardous waste;**
  - (ii) Municipal solid waste incinerator ash;**
  - (iii) Lead-acid batteries;**
  - (iv) Polychlorinated Biphenyls (PCBs) or a PCB Item;**
  - (v) A material registered as a pesticide by the Environmental Protection Agency under the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. 136 et seq.);**
  - (vi) Sludge from a waste treatment plant, septic system waste, or domestic sewage;**
  - (vii) Petroleum, including used crankcase oil from a motor vehicle, or soil contaminated by such products;**
  - (viii) Non-sterilized medical waste;**
  - (ix) Radioactive materials; or**
  - (x) Tires;**

Discussion: The solid waste handling facility will not be used for the storage, handling or disposal of any of the above-listed materials. The facility design will include provisions to prevent illegal dumping of any materials at the facility. The facility design will include warning signs specifying what material types are accepted at the facility, and prohibited materials, including all of the above-listed materials. Separate supervised receiving and storage facilities will be provided for the proper interim storage of approved special waste materials such as lead-acid batteries, used motor oil and tires.

**6.4 (a) No person may operate a solid waste disposal site within the boundaries of a National Park System unit that was not in operation on September 1, 1984, unless the operator has shown and the Regional Director finds that:**

- (10) The site will not be detectable by the public by sight, sound or odor from a scenic vista, a public use facility, a designated or proposed wilderness area, a site listed on, or eligible for listing on, the National Register of Historic Places, or a road designated as open to public travel;**

Discussion: The Park has contracted to produce an Environmental Assessment as part of the NEPA process to study impacts associated with constructing new maintenance buildings, housing, a fire cache & dorm, and a solid waste handling facility outside of the Stehekin River Channel Migration Zone. This Environmental Assessment will include addressing all of the above-listed potential impacts. It is anticipated that the selected site for the housing and maintenance facility complex, including the new solid waste handling facility, may be able to effectively, but not completely meet all of these criteria and may not be in compliance with this section of the regulation. The Park is working with the NPS Regulations Program Manager to draft a special regulation for Lake Chelan NRA under 36 CFR Part 7.62



that would bring the Park into compliance with 36 CFR Part 6. Final rule will be published in the Federal Register. The target completion date for this document is June 2012.

**6.4 (a) No person may operate a solid waste disposal site within the boundaries of a National Park System unit that was not in operation on September 1, 1984, unless the operator has shown and the Regional Director finds that:**

**(11) The site will receive less than 5 tons per day of solid waste, on an average yearly basis;**

Discussion: The expected amount of solid waste received, based on historical quantities, is approximately 0.6 tons per day. The planned capacity of the new solid waste handling facility is approximately two tons per day, also significantly lower than the limit of 5 tons per day on an average yearly basis.

**6.4 (b) A person proposing to operate a solid waste disposal site that was not in operation on September 1, 1984, must submit a request for a permit to the proper Superintendent for review by Regional Director demonstrating that the solid waste operation meets the criteria in paragraph (a) of this section. The following information must be included in a permit request:**

**(1) A map or maps, satisfactory to the Regional Director, that adequately shows the proposed area of solid waste disposal, size of the area in acres, existing roads and proposed routes to and from the area of operations and the location and description of surface facilities;**

Discussion: The Park has contracted to produce an Environmental Assessment as part of the NEPA process to study impacts associated with constructing new maintenance buildings, housing, a fire cache & dorm, and a solid waste handling facility outside of the Stehekin River Channel Migration Zone. This Environmental Assessment will include maps showing the location of all planned structures, including the new solid waste handling facility, the size of the overall site as well as the size of individual structures and areas within the site, all existing and proposed roadways to and from the site and the location of any other planned surface facilities.

**(2) The name and legal addresses of the following:**

**(i) Owners of record of the land; and**

**(ii) Any lessee, assignee or designee of the owner, if the proposed operator is not the owner of the land;**

Discussion: The Owner is the Park (North Cascades National Park Complex). The legal address is: North Cascades National Park Service Complex, 810 State Route 20, Sedro-Woolley, WA 98284.

The Operator has not yet been determined; options include the owner (the Park), a contractor to the Park (assignee or designee), or the Chelan County Public Works Department, Solid Waste Division (lessee).

**(3) The mode and frequency (in number of trips per day) of transport and size and gross weight of major vehicular equipment to be used;**

Discussion: Solid waste will be delivered to the solid waste handling facility by generators in personal vehicles. Estimated number of trips per day based on historic operation. Vehicles are personal passenger vehicles, cars and pickup trucks; largest would be similar to a one-ton pickup truck, Gross Vehicle Weight of approximately 8,800 pounds. Solid waste will be transported away from the solid waste handling facility by larger roll-off trucks or boom trucks. The frequency of solid waste removal trips will be approximately two trips per month. Roll-off trucks are available with single or tandem rear axles and a

range of Gross Vehicle Weights, but typical roll-off trucks have an approximate Gross Vehicle Weight of 75,000 pounds.

**(4) The amount of solid waste to be received, in average tons per day and average cubic yards per day;**

Discussion: The expected amount of solid waste received, based on historical quantities, is approximately 0.6 tons per day, or approximately 8 cubic yards per day.

**(5) The estimated capacity of the site in cubic yards and tons;**

Discussion: This information is interpreted to refer to disposal capacity of a landfill or other disposal facility. The proposed solid waste handling facility is a transfer station and not a disposal facility, and as such it does not have a disposal “capacity” in the sense of a landfill or other final disposal facility would. The facility does have a throughput capacity. For a transfer station or processing facility, this is the same as the receiving, and processing throughput capacity of the facility. At the time of this draft, the design, equipment selection and processing capacity of the proposed solid waste handling facility has not been completed, therefore the design processing capacity of the facility is not known. Based on planning-level recommendations for equipment and processing methods, the processing capacity is anticipated to be approximately two tons per day, or approximately 27 cubic yards per day.

**(6) A detailed plan of the daily site operations;**

Discussion: At the time of this draft, the design, equipment selection and processing capacity of the proposed solid waste handling facility has not been completed. The operator has also not been selected. A detailed daily site operations plan will be developed by the selected operator. A preliminary SOP is being developed as part of the ISWAP and can be included in the permit request.

**(8) Evidence that the proposed operator has obtained all other Federal, State and local permits necessary for solid waste disposal;**

Discussion: No other applicable Federal permits, laws or regulations for a solid waste handling facility or transfer station operation have been identified.

A new solid waste handling facility would be required to obtain a permit for operation under the State of Washington regulations. The local jurisdictional health department (JHD) is the permitting entity in Washington State, which for the Lake Chelan NRA, would be the Chelan Douglas Health District, and the Chelan County Public Works Department, Division of Solid Waste. Once determined, the proposed operator will obtain and provide proof of obtaining the required permit.

No other applicable local laws or regulations for a solid waste handling facility or transfer station operation have been identified.

**(9) An environmental report that includes the following:**

- (i) A description of the natural and cultural resources and visitor uses to be affected;**
- (ii) An assessment of hydrologic conditions of the disposal site with projections of leachate generation, composition, flow paths and discharge areas and geochemical fate of leachate constituents;**

- (iii) An analysis of the quantitative and qualitative extent to which natural and cultural resources will be affected based on acceptable and appropriate monitoring of existing resource conditions;**
- (iv) Steps to be taken by the operator to prevent degradation of air and water quality, to manage pests and vermin, and to minimize noise, odor, feeding by native wildlife and conflicts with visitor uses;**
- (v) An analysis of alternative locations and methods for the disposal of the solid waste; and**
- (vi) Any other information required by the Regional Director to effectively analyze the effects that the proposed solid waste disposal site may have on the preservation, management and public use of the unit.**

Discussion: The Park has contracted to produce an Environmental Assessment as part of the NEPA process to study impacts associated with constructing new maintenance buildings, housing, a fire cache & dorm, and a solid waste handling facility outside of the Stehekin River Channel Migration Zone. This Environmental Assessment scope covers items (i), (ii) and (iii).

Regarding item (iv), The final facility design and operations details have not yet been developed, but the facility design and the operator's standard operating procedures will include a number of features and steps to prevent degradation of air and water quality, to manage pests and vermin, and to minimize noise, odor, feeding by native wildlife and conflicts with visitor uses. The facility equipment will be powered by electric motors; all of the facility operations will be enclosed by the building or a fully enclosed waste storage container; all outdoor operating areas will be paved and curbed with storm water control; all indoor operating areas will include wash-down drains, oil/water separators and appropriate waste water treatment. All solid waste handling and storage equipment will be fully enclosed by the building or a fully enclosed waste storage container, to manage pests and vermin and to reduce odor. Most of the operating equipment will be located inside of the building to reduce noise and odor impacts. The facility will be located in a maintenance facility complex, with a dedicated access and located away from visitor uses. Access to the facility will be restricted by the building enclosure, closeable doorways and perimeter fencing to eliminate the potential for feeding by native wildlife and conflicts with visitor uses.

Item (v) refers specifically to methods for the disposal of solid waste, which is not relevant to the proposed solid waste handling facility, as no disposal of solid waste will occur at the facility. No response addressing this item is necessary. Response to item (vi) will be made pending any requirements for other information from the Regional Director.