Chapter 3

Existing Land Use and Management

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3.1 Project Facilities and General Operations

Lake Cascade is one of three Reclamation reservoirs in the Payette River system; the other two are Deadwood Reservoir on the Deadwood River and Black Canyon Reservoir on the main stem of the Payette River. These reservoirs are operated as an integrated system to meet irrigation, hydropower, and flood control purposes, as well as recreation and fish and wildlife needs. The operations reflect a continuous evaluation of these individual needs, contractual obligations, and physical and legal constraints. The objective is to supply sufficient water from storage for irrigation diversions at Black Canyon Dam plus enough flow passing the dam to meet downstream irrigation requirements. The flow passing the dam is often great enough to allow full generating capacity at the Black Canyon power plant near Emmett and to meet irrigation needs downstream. In addition, Idaho Power Company operates a hydroelectric facility at Cascade Dam.

Reclamation follows general objectives for reservoir operation, including flood control, irrigation releases, and salmon augmentation flows (Reclamation 1997). Flood control rule curves established for Lake Cascade and Deadwood Reservoir are designed to limit flows at Horseshoe Bend, Idaho, to 12,000 cubic feet per second (cfs). The rule curves specify that 80% of the flood control space should be provided by Lake Cascade. Releases to provide flood storage space typically occur in late winter to meet estimated April 1 space requirements. The target date to refill Lake Cascade is typically June 20 to 25 during an average runoff year. This date is earlier during drought years and later following wet winters. Irrigation demands on Lake Cascade waters typically begin in June after natural flows in the Payette River at Horseshoe Bend drop below 2,400 cfs and continue through September. Deadwood Reservoir is typically drafted more heavily in July and August to maximize summer water levels at Lake Cascade for recreation, water quality, and aesthetics. Salmon flow augmentation releases from the Payette River system ranged from about 62,000 to 155,000 acre-feet between 1991 and 1997 (Reclamation 1997). In recent years, some of the water has been released in July and August, with the remainder being released in December and January (Reclamation 1997).

Natural flows occurring below Lake Cascade and Deadwood Reservoir are used primarily during winter for power production at the Black Canyon power plant. Informal flood control operations are used during the spring thaw and less frequently during winter rainstorms. Storage for irrigation begins in the fall and peaks in the early part of summer. Irrigation releases end by November. Water is released downstream to Black Canyon Dam where it is either diverted or released downstream for irrigation to a large number of contractors and passed through generators to produce electricity (Reclamation 1991).

Table 3.1-1 provides project operations data regarding maximum and minimum reservoir pools, allocation of the reservoir's storage capacity, and Cascade Dam. It should be noted that although Reclamation has authorization to lower water levels to a 46,662 acre-foot minimum pool, an administrative decision was made in 1984, following public input on the Boise Project Power and Modification Study, to maintain a 300,000 acre-foot minimum whenever possible, not precluding future requests for water by irrigators (pers. comm., R. Wells, Flow Operations Specialist, Reclamation, Boise, ID, June 2, 1999). Various pool levels are shown on Figure 2.1-1. The 300,000 acre-foot volume is now recognized as 293,956 acre-feet based upon a new reservoir capacity survey.

The Congressionally authorized minimum pool of 50,000 acre-feet was changed to 46,662 acre-feet based on the most recent bathymetric survey published in May 1998 (Reclamation 1998). In addition, since the 1991 RMP was completed, Reclamation has provided storage releases from Lake Cascade as part of the National Marine Fisheries Service (NMFS) requirement for salmon flow augmentation; however, the releases have not encroached on the conservation pool.

3.2 Land Status and Management

3.2.1 Overview

Reclamation's land holdings include the submerged lands beneath Lake Cascade as well as a band of land varying from approximately 10 feet to more than 1 mile in width around most of the reservoir. As the landowner, Reclamation has ultimate authority and responsibility for management of all Reclamation lands. The Idaho Department of Parks and Recreation (IDPR) manages all of Reclamation's public recreation areas at Lake Cascade. Rec-

Table 3.1-1. Project Operations Data—Lake Cascade

Normal Maximum Water Surface	
Elevation	4809.21 feet mean sea level (msl)
Storage	293,956 acre-feet
Surface area	26,307 acres
Shoreline	86 miles (approx.)
Inactive (Minimum) Pool	
Elevation	4787.5
Storage	46,662 acre-feet
Surface area	5,837 acres
Administrative Minimum Pool	
Elevation	4809.21 feet msl
Storage	293,956 acre-feet
Allocation of Capacity	
Inactive space (Part of Administrative Minimum Pool)	46,662 acre-feet
Special use pool (Part of Administrative Minimum Pool)	247,294 acre-feet
Irrigation contracts	310,450 acre-feet
Uncontracted space	88,717 acre-feet
Total	693,123 acre-feet
Cascade Dam	
Structural height	107 feet
Hydraulic height	75 feet
Top width	35 feet
Maximum base width	630 feet
Crest length	785 feet
Crest elevation	4840 feet msl
Spillway crest elevation	4808 feet msl
Spillway capacity at maximum normal pool	12,500 feet3/second
Maximum powerplant capacity	2,300 feet3/second

Sources: Reclamation 1997; 1998; and 1999

lamation also leases more than 400 acres of land for recreation purposes to the cities of Cascade and Donnelly, the YMCA, 4-H Club, and SISCRA. These leases include management responsibilities by these entities. Of Reclamation's land holdings around Lake Cascade, 1,846 acres are subject to permanent AEs. In addition, an estimated 1,279 acres of private land around the reservoir, but outside of Reclamation ownership, are subject to the agency's flowage easements.

3.2.2 Land Use Designations

Over 6,000 acres of land above the normal high water line around Lake Cascade are owned by the United States and managed by Reclamation in accordance with the existing 1991 RMP, which established the following four distinct land use designations (Figure 3.2-1): Wildlife Management Areas (WMAs); Conservation/ Open Space (C/OS); Recreation; and Rural Residential (RR). An Operations and Maintenance (O&M) designation was added more recently. All five of these land use designations are discussed below.

The WMAs were established to maintain and enhance areas to protect wildlife habitat, especially for migratory birds, and sensitive and endangered wildlife species. The 1991 RMP identified six WMAs at various locations around the reservoir. Overnight use, motorized access, recreation development, and grazing are generally prohibited within WMAs. However, passive recreation activities such as hiking and wildlife observation are generally allowed in designated areas except during nesting season closures.

The C/OS areas are intended to serve as a buffer between the WMAs and public recreation areas and private development. They are also intended to protect undeveloped landscapes, thus contributing to the area's rural character, as well as providing protection of vegetation, wildlife, and soil and water quality. Public access is limited within C/OS areas to passive recreation activities, primarily to protect habitat values and minimize wildlife impacts. Motorized vehicles other than snowmobiles are limited to roads and designated trails.

Fill material for Cascade Dam was quarried from Reclamation land at Crown Point. The quarry is on C/OS designated land. About 200,000 to 300,000 cubic yards of material are being held in reserve for future dam re-building and other operational needs. The quarry is located at a prominent site overlooking the reservoir, providing panoramic vistas of the reservoir and the mountains to the west.

The Recreation designation covers Reclamation-owned lands that have been developed or set aside for recreation-related purposes, including campgrounds, day use areas, trails, boat launches, and other public recreation facilities. These, along with several USFS facilities, are scattered around Lake Cascade.

The RR designation applies to the developed shorelines along the northeast portion of the reservoir where Reclamation owns a narrow strip of property (generally less than 100 feet wide) between the high water line and the adjacent privately owned residential lots. Management of the RR lands is focused on limiting encroachment of privately owned structures and shoreline erosion control and prevention.

Operations and Maintenance lands are managed for the purpose of operating and maintaining Cascade Dam and the reservoir. These lands provide the facilities needed to adequately manage all Reclamation lands.

3.2.3 Leases

Reclamation leases portions of its holdings around Lake Cascade to several public and private entities for a variety of uses. Most of this land is leased for recreation, by far the dominant use of land leased from Reclamation on a renewable basis. Recreation lease holders include IDPR, the cities of Cascade and

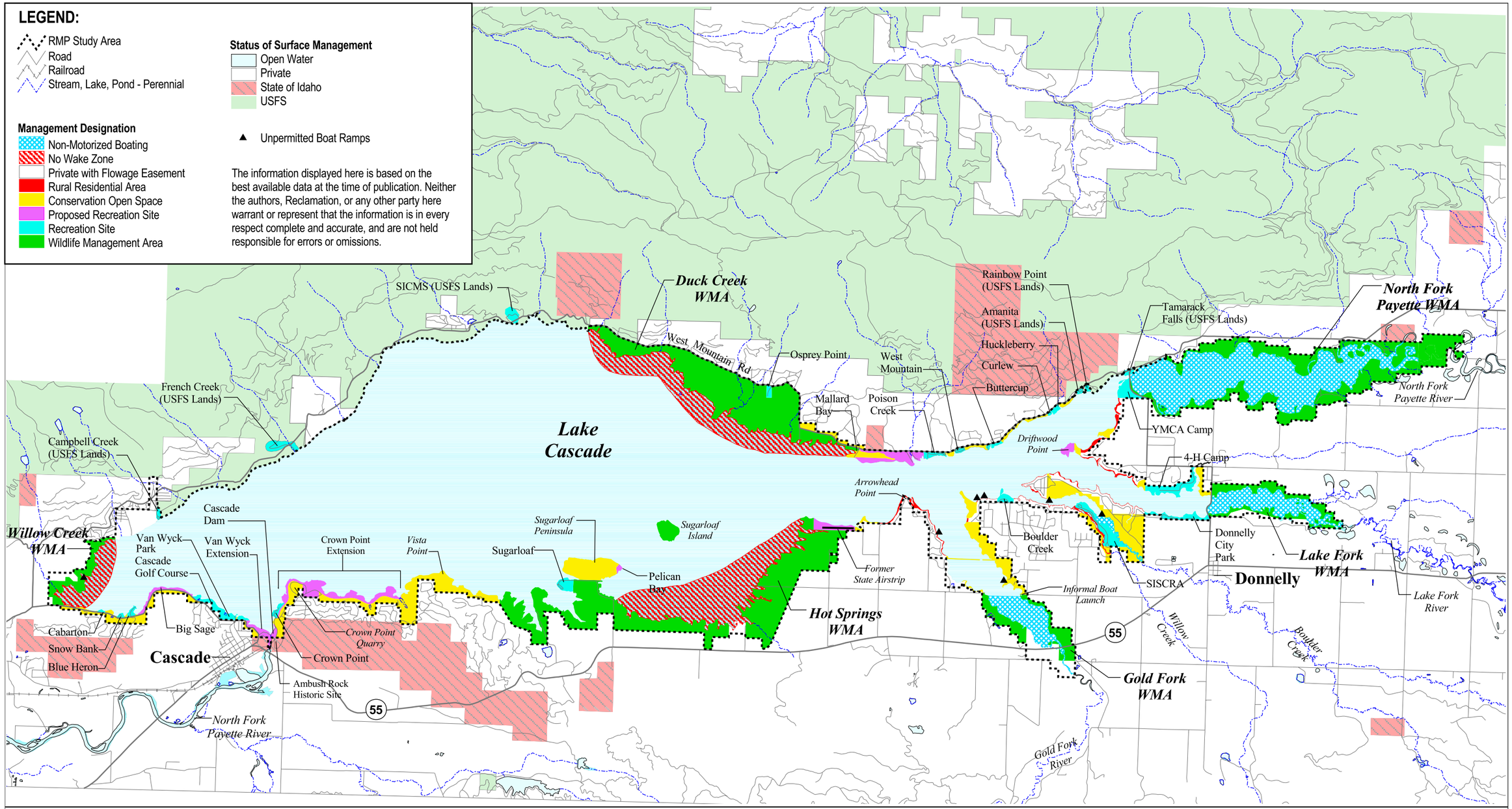

Figure 3.2-1

Existing Land Use Plan (1991 RMP)
Land Status Map

Source: USBR, 2000; EDAW, 2001

P: 8E317.01/GIS/APR/C_RMP_2.APR

Donnelly, the YMCA, 4-H Club, and SISCRA.

The IDPR operates the majority of Reclamation's recreation facilities under a 20 year lease agreement signed in August 1999. The terms of the lease give IDPR management responsibility over the applicable recreation facilities and state that IDPR must adhere to all guidelines set forth in Reclamation's RMP for Lake Cascade. Refer to Appendix C for further details regarding the lease agreement between Reclamation and IDPR. Most of the other recreation-oriented leases are for facilities such as camping and day use, with leases ranging from 10 to 30 years.

The only residential lease is for a parcel of land occupied by a private cabin that was discovered on Reclamation land across the creek from SISCRA in the mid-1990s. Reclamation responded by issuing a 5-year non-transferable lease that expired in 2001. At expiration, this permit will be reviewed for renewal.

3.2.4 Agricultural Easements and Agricultural Leases

Permanent reserved agricultural easements apply to approximately 1,800 acres of Reclamation lands that allow livestock grazing and other agricultural uses. In some areas, for example on the east side of the reservoir at the Sugarloaf Peninsula and within the North Fork Arm, cattle graze the uplands and wade into the reservoir to drink, particularly from June through September. These reserved rights mostly date from before the reservoir was created in 1948.

In contrast to the agricultural easements are agricultural leases. As a result of the 1991 RMP, all but one of the agricultural leases were terminated by Reclamation in response to concerns about water quality deterioration caused in part by agricultural runoff and cattle grazing in and adjacent to the reservoir. The single remaining exception is an 8-acre agricultural lease used for row crops that remains in effect along the Gold Fork Arm.

3.2.5 Flowage Easements

Flowage easements release Reclamation from liability for property damage caused by shoreline erosion resulting from fluctuating lake levels. These easements encumber several hundred of the private land holdings adjacent to the reservoir, covering a total of 802 acres. These easements were established where flooding or shoreline erosion was expected or had occurred on private property. Flowage easements are of particular importance to Reclamation in several areas where the shoreline is close to, or has already retreated across, Reclamation lands and is nearing private lands (for example, south of Arrowhead Point).

Photo 3-1. Agricultural Easement

3.2.6 Permits

Permits have been issued by Reclamation to private parties allowing for three types of improvements on Reclamation lands or within the reservoir: erosion control, boat docks, and mooring buoys. These are described in greater detail below.

Erosion Control Permits

The main purpose for this type of permit is to assist private property owners in controlling erosion adjacent to their property. Retaining walls are the most common type of structure permitted under these permits. Adjacent

property owners can apply for this type of permit on Reclamation lands within RR designated lands.

Because retaining walls can benefit both the adjacent landowner and Reclamation by preventing shoreline erosion, they have been allowed as long as required permits were obtained from Reclamation and the COE. These permits are issued for 10-year terms and allow the agency to periodically inspect the retaining walls and require necessary maintenance. Before the 1991 RMP was adopted, no standards were in place to ensure structural integrity or aesthetic quality. Therefore, many of the earlier walls are now deteriorating, falling over, and exacerbating the shoreline erosion problem. Furthermore, because these earlier retaining walls were constructed with an assortment of materials and construction techniques, they vary considerably in appearance from one property front to the next, often resulting in a visually haphazard waterfront.

Out of concern that retaining walls do not provide fish habitat, the COE prefers the use of native vegetation and rock riprap to a structural retaining wall unless the wall has a coarse rock facing. As required under Section 404 of the Clean Water Act, the COE requires 404 Permits for retaining walls built below summer pool (ordinary high water), or in wetlands.

The COE issues retaining wall permits according to two separate review procedures. The simplest is the Nationwide Permit, which is applicable to typical residential applications. To be eligible, retaining walls must be no longer than 500 linear feet, result in no more than 1 cubic yard per lineal foot of discharge, and be faced with rock 6 inches in diameter or greater. The more complex Individual Permits required for larger erosion control projects than discussed above require extensive notification and agency review, often taking many months to process (pers. comm., G. Martinez, COE, Boise, Idaho, August 24, 1999).

Boat Dock Permits

Boat docks and other boating support structures have proliferated over time as new residences have been built, especially around the reservoir arms. As of July 2000, approximately 400 boat docks were permitted at Lake Cascade, including five community docks. In the 1991 RMP, the policy at Lake Cascade allowed land owners adjacent to RR lands to obtain annual or 5-year permits for boat docks. Both individual and community-owned docks were permitted. If pilings are used, a COE permit is also required. Community docks have been encouraged over individual docks through the permit pricing system, as community docks are less expensive on a per-moorage basis. Ideally, community docks are large enough to accommodate approximately 6 boats and are built, maintained, and used by a large number of residents. Currently, there are six community boat docks; three in the Lake Fork Arm, and one each in the Boulder Creek Arm, Vista Point and Arrowhead Point. The number of users at each of these docks ranges from the majority with 5 to 6 users to one with 14 users. All individual and community boat docks, although built and maintained at the expense of the private property owners, are required to be accessible to the general public in emergency situations.

Photo 3-2. Public Boat Docks – Boulder Creek Day Use Area

Mooring Buoy Permits

Each shoreline lot owner located in RR may be permitted one mooring buoy permit per lot. These permits are issued by Reclamation.

3.2.7 Encroachments on Reclamation Lands

Encroachments and other management problems have continued to increase since the 1991 RMP, primarily on the RR-designated lands along the reservoir's northeast shoreline. Reclamation ownership is limited to a narrow strip of land (generally less than 100 feet in width) in this area between the high water line and subdivided private property.

One residence is known to be located beyond the private property line on Reclamation land, as well as minor portions of other homes and many decks. A majority of these encroachments exist in the older subdivisions that were established when buyers and sellers were lax about surveying property. In addition, free-standing decks, storage structures, fences, restroom facilities, trailers, landscaping, irrigation systems, and similar personal property extend across Reclamation property (primarily RR lands) to the water's edge. In addition there are 7 unpermitted boat ramps (see Figure 3.2-1).

Construction in Valley County is regulated by the County's Land Use and Development Ordinance. This ordinance was first passed in 1982 after nearly all of the near shore subdivisions had been approved. The Land Use and Development Ordinance, which was updated most recently in 1992, requires that all residential buildings be set back at least 30 feet from the high water line. These updated development regulations prohibit development within 7.5 feet of Reclamation property, but permits are required only for structures more than 30 inches in height. Therefore, it is permissible under County regulations to construct uncovered decks or other low structural features right up to the boundary line. The ordinance requires other buildings to be set back at least 100 feet from high water lines as measured horizontally to the face of a building, including eaves, projections, or overhangs.

The County's current development regulations may have prevented some of the encroachments on Reclamation lands; however, setback violations remain common. Some of these encroachments have been attributed to deliberate violations (trespass), while most are attributed to lack of knowledge or understanding by property owners (encroachments). Many home owners and builders may not be aware of the locations of actual property lines, even though it is their legal responsibility to know where their property boundaries are located.

3.3 General Land Use Patterns

3.3.1 Overview

Lake Cascade occupies the western side of Long Valley, a broad, long, flat-bottomed valley. A high ridge rises to the west and includes West Mountain. A smaller ridge borders the reservoir to the east, just north of the City of Cascade, but most of the eastern and northern sides of the reservoir consist of gently sloping rangeland. Dominant land uses in the general vicinity include forest, rangeland and agriculture, and housing.

Most of the lands contiguous to the reservoir that are not in Reclamation ownership are currently managed as part of the Boise National Forest. These were originally acquired by Reclamation from private landowners when the project was planned and constructed then subsequently transferred to the USFS. Several smaller areas along the reservoir's shoreline are held in private ownership. Reclamation maintains flowage easements over these properties, authorizing the agency to flood the property if necessary.

3.3.2 Forest

Most of the West Mountain slope is timber land managed by the USFS. A relatively minor amount of timber cutting occurs here. USFS ownership extends to the lakeshore throughout much of the southwestern shoreline as well as around Tamarack Falls Bridge. The USFS supports public recreation in these areas with developed day use sites and campgrounds. Grazing permits are issued on the USFS lands.

Two large tracts of forest land on West Mountain are in private and state ownership. The private landowner is currently proposing to construct a major four-season destination resort called WestRock near the northwest shore of the reservoir. As proposed, the development would include downhill ski facilities including 14 ski lifts with a capacity for 7,300 skiers per hour; 2,040 new housing units; an 18-hole golf course; 270,000 square feet of commercial/retail space (including an ice skating rink; tennis, racquet ball, and equestrian facilities; restaurants); and the utility systems and infrastructure to support these facilities (ISLB 1999; McCall-Cascade Times Advocate 2001d). In the spring of 2000, the WestRock proposal received concept approval from the Valley County Planning and Zoning Commission and Board of Commissioners, allowing the planning process to continue, as well as a Conditional Use Permit for the site. Additional permits would also be required for use of 2,124 acres of state lands and the planned unit development. In May 2001, WestRock developers received concept approval by the Valley County Planning and Zoning Commission for a scaled-back (smaller) version of their original proposal (as described above) (McCall-Cascade Times Advocate 2001c).

3.3.3 Agriculture

Livestock grazing on either irrigated or non-irrigated pasture is the dominant use in the general area. The central eastern area is primarily agricultural. In addition, some grazing occurs on the west side both on private and public lands. A small amount of farming occurs on private lands.

3.3.4 Residential Subdivisions

Lake Cascade and the surrounding area are becoming even more of a recreation destination area than it was prior to the 1991 RMP. This trend has been fueled primarily by the rapid economic development in nearby Treasure Valley. Recreation opportunities are available all year long, but the visitor population is largest during the summer when climatic conditions and water-based recreation draw visitors to the area, primarily from Boise and other parts of Ada and Canyon counties. The area also attracts a limited number of visitors during the winter and other seasons, primarily for snowmobiling and other winter-related activities on private lands.

Photo 3-3. Residential Subdivisions

An estimated 5,696 residential lots are located within a 2-mile radius of Lake Cascade. These lots are primarily part of about 150 rural subdivisions, although there are several short plats and individual residential parcels as well. For the most part, these figures do not include homes in the cities of Cascade and Donnelly. Of the total number of residential lots, about 34% are developed with residences or mobile homes. This percentage is much higher (approximately 70%) near the waterfront, where 557 of the lots have residential improvements. Only 240 lots near the reser-

voir shoreline remain undeveloped. Noticeable growth has occurred around Lake Cascade since the 1991 RMP. This is especially true adjacent to the shoreline, where 71 new houses have been built, representing a 14% increase in the percentage of near shore lots with houses.

Subdivisions are concentrated adjacent to the RR-designated land around the reservoir's northeastern points and arms, including the Lake Fork Arm, Boulder Creek Arm, Willow Creek, Gold Fork Arm, and at Arrowhead Point. A considerable number of homes are also located near the southwestern portion of the reservoir. The majority of these homes belong to owners whose primary residence is outside Valley County. Accordingly, most use occurs during summer weekends and holiday periods. Winter use is much less frequent, especially in subdivisions southwest of the reservoir and wherever the roads are not plowed (pers. comm., L. Ankenman, Valley County Engineer, May 11, 1999).

In recent years, subdivision activity has accelerated inland of land designated C/OS. This has resulted in numerous indiscriminate foot trails through C/OS areas that enable adjacent property owners to access the shoreline.

3.4 Public Facilities, Utilities, and Services

Most Reclamation-owned and IDPR-managed public facilities at Lake Cascade consist of recreation facilities such as campgrounds and day use areas (discussed in greater detail in Section 3.5, Recreation). Utility infrastructure varies around the reservoir ranging from limited to fully developed sites and facilities. Police and fire services are provided for the entire valley by the County Sheriff's Department and several volunteer fire departments and other agencies, as discussed below.

3.4.1 Electrical

Idaho Power Company provides electrical service in the area and has expansion capabilities. Electrical power is available to most Reclamation recreation sites, supplying light and power for restroom facilities and maintenance needs. None of the campgrounds have individual electrical hookups, except for SISCRA, which is on lands leased from Reclamation.

A 69-kV transmission line crosses the Gold Fork Arm. No other transmission lines exist or are currently planned across Reclamation lands.

3.4.2 Potable Water

All developed Reclamation/IDPR recreation sites have potable water, although one well—at the Sugarloaf Recreation Area—requires chlorination. Water faucets are distributed throughout the campgrounds and picnic areas. Showers are not available at any Reclamation facility; however, two of the lease holders do provide showers at their facilities (SISCRA and the 4-H Club Camp).

3.4.3 Wastewater

Since the 1991 RMP, two new sewer and water districts have been established within the Lake Cascade basin. The recently completed North Lake Sewer and Water District serves about 900 residential hookups in subdivisions around the northeast corner of the reservoir between Arrowhead Point and Tamarack Falls. An even newer sewer and water district has been established to provide utility service to subdivisions adjacent to the southwestern portion of the reservoir, but construction has yet to begin on collection or treatment facilities. Both Cascade and Donnelly operate municipal sewage systems. Donnelly's system failed in 1998 when excessive infiltration overwhelmed its lift station pumping capacity, resulting in direct discharge of untreated wastewater into Boulder Creek. This event attracted media attention and was attributed

to: (1) a drain that was left open at a trailer court; and (2) the systems' age and poor condition. Cascade's system has also failed in recent years but poses less of a threat to the reservoir because most of the system is downstream of the reservoir.

Over the years, only 7 of 36 toilet facilities at Lake Cascade recreation areas have been converted to flush toilets. The use of flush toilets improves operational performance, particularly during the busy summer season. However, flush toilets are generally rendered inoperable and closed in the winter because of maintenance concerns related to frozen pipes. The Van Wyck facilities are connected to the Cascade City Sewer System. The Poison Creek and West Mountain recreation areas and some of the lease holder sites have flush toilets with septic systems.

Dump stations for recreational vehicles (RVs) are available at West Mountain Campground on the west side, and SISCRA and Van Wyck on the east side. There is also a dump station at a private trailer park in Donnelly.

No shore-based dump stations exist for boaters; however, a floating pump-out barge is anchored off the shore south of Van Wyck for this use. Lack of dump stations is one of the most frequently expressed complaints of visitors to the reservoir (pers. comm., R. Brown, IDPR, Cascade, ID, May 11, 1999).

3.4.4 Solid Waste

Dumpsters are provided at all IDPR-managed recreation areas, and the solid waste is collected by a private contractor and taken to the county transfer station. Use of some of the dumpsters by non-recreation users to dispose of household garbage has been, and continues to be, a problem at some locations.

3.4.5 Fire Protection

Wildland fire protection on Reclamation lands bordering Lake Cascade is handled through two separate contracts. These contracts are between Reclamation and the Donnelly Rural Fire Protection Association for the northern half of the reservoir, and between Reclamation and the Southern Idaho Timber Protection Association for the southern half of the reservoir. In addition, the USFS has firefighting capability, including aerial tankers and smokejumpers based in McCall.

Fires have not been a problem on or around Reclamation lands in recent years. The few fires that have occurred typically consisted of brush fires a few acres in size or less, which were caused by campfires or other human sources. Lightning is considered less of a threat in lower elevations around the reservoir than in higher mountain areas. Nevertheless, the county's increasing urbanization concerns firefighters because future wildfires could involve developed areas, increasing risk to life and property (pers. comm., J. Daniels, Chief, Cascade Rural Fire District, Cascade, Idaho, August 24, 1999).

3.4.6 Law Enforcement

The Valley County Sheriff's Department provides law enforcement throughout the county, including a contract with Reclamation to provide law enforcement on Reclamation-owned lands and on Lake Cascade. The Valley County Sheriff's Department provides a seasonal sheriff's boat patrol on Lake Cascade, Thursday through Sunday on a weekly basis. These boat patrols are conducted during the boating season, from Memorial Day Weekend through Labor Day Weekend. During low water years, boat patrols are limited to the deeper areas of the lake. At minimum pool, the Sheriff's Department is unable to launch a boat from any of the existing boat ramps, precluding any boat patrols during low water. The Sheriff berths a patrol boat at each end of the reservoir for fast response anywhere on the water. Some of the more common duties include boat and ramp inspections, responding to emergencies, removing boating hazards, righting capsized catamarans, towing boats

that have broken down or run out of gas, and picking up floating debris. The increasing availability of private cellular phones by boaters and shore observers has aided telephone dispatch (pers. comm., Sgt. Helms, Sheriff, Valley County, Idaho, August 31, 1999).

Boater conflicts on the reservoir are fairly limited because of the size of the reservoir and the fact that different boating activities are taking place in different parts of the reservoir. Anglers and sailors prefer the southern portion of the reservoir while waterskiers and personal watercraft (PWC) operators use the more sheltered waters north of Sugarloaf Island. The main area where user conflicts occur is in Boulder Creek Arm. The protection from the wind and waves afforded by the relative lack of fetch and high banks make this a preferred area for waterskiers seeking flat water. However, many land owners within this narrow arm of the reservoir view this use as incompatible citing safety, noise, and wake-related damage to boat docks and shorelines as their major concerns. New legislation now allows Reclamation to contract with local law enforcement officials and provides them authority to enforce Federal laws and regulations in addition to state and local laws and ordinances.

Non-motorized zones in or adjacent to all of the WMAs were designated in the 1991 RMP. This has generally not been a problem. However, speeding motorboats occasionally have been reported in these non-motorized zones upstream of the Tamarack Falls Bridge, and PWC are occasionally seen in the Gold Fork Arm above the old highway.

Although serious accidents rarely occur on the reservoir, there was one drowning in 1992, two in 1996, and one in 1997. The Sheriff routinely inspects vessels for safety equipment, issuing warnings and citations for missing safety equipment such as personal flotation devices and fire extinguishers. The reservoir patrols provide safety lectures and literature to violators as well as loaner life jackets when necessary (pers. comm., Sgt. Helms, Sheriff, Valley County, Idaho, August 31, 1999).

The County Sheriff is on-call for campground disturbances that cannot be settled by IDPR personnel or the camp host. In general, vandalism, theft, and other problems are relatively minor; however, alcohol-related misconduct such as domestic disturbances do occasionally require police response. Nuisances such as all-terrain vehicle (ATV) riding by juveniles in campgrounds and on adjacent county roads have been an ongoing law enforcement problem. Additionally, the County Sheriff patrols the area in the winter by snowmobile and conducts educational efforts in local schools on snowmobile safety (pers. comm., Sgt. Helms, Sheriff, Valley County, Idaho, August 31, 1999).

3.5 Recreation

Recreation use at Lake Cascade encompasses many forms including land-, water-, and snow-based activities. Certain activities occur at a single location while others are more widely dispersed. These activities involve both day and overnight use at developed recreation facilities, as well as undeveloped dispersed sites or use areas.

The diverse recreation opportunities available in the Lake Cascade area are provided by: Reclamation, USFS, IDPR, IDFG, City of Cascade, City of Donnelly, YMCA, 4-H Club, various church camps, the SISCRA, and many private sector enterprises (Figure 3.5-1). The IDPR operates all Reclamation recreational facilities at Lake Cascade. The Reclamation/IDPR lease requires that the IDPR comply with the 1991 RMP and any subsequent updates to that plan.

3.5.1 Recreation Activities and Use Levels

Results from a questionnaire collected during the summer of 1999 reveal that the most com-

mon visitor activities at Lake Cascade are resting and relaxing (79% of visitors), RV camping (67%), tent camping (44%), observing wildlife (44%), fishing from a boat (43%), swimming (42%), and fishing from shore (41%). While these responses reflect common activities, visitors also indicated their primary activity while on their trip.

Photo 3-4. Campground at Lake Cascade

These primary activities include rest and relaxation (41%), RV camping (17%), and fishing from a boat (12%) (EDAW and IDPR 1999). Since rest and relaxation is not mutually exclusive to these other activities, it can be assumed that RV camping and fishing from a boat represent the primary activities for visitors to the reservoir. Aside from these specific activities, several primary general recreation experiences are provided at Lake Cascade. Existing recreation facilities provide for the most common and popular experience and can be generalized as a developed recreation experience. This visitor experience is provided at many campgrounds, day use areas, and public boating facilities. Also popular is the undeveloped or dispersed recreation experience that can be found on and adjacent to the reservoir.

This includes undeveloped camping or day use areas that provide a more primitive experience with few, if any facilities. Two additional recreation experiences include motorized and non-motorized boating. Currently, non-motor-ized boating is focused in the upper ends of several arms of the reservoir, while the motorized boating experience occurs in the remaining areas. Non-motorized trail experiences are also becoming more popular with visitors, particularly along the old railroad grade in the Crown Point Extension area. Non-motorized and motorized trails occur in various areas off of Reclamation lands (that is, the Payette National Forest), but near the reservoir.

Approximately 86% of Lake Cascade visitors are from the Boise metropolitan area. Because of the travel distance, most visitors stay overnight in the area while on their trip. The average length of stay for campers (who also participate in other activities) in 1999 was 4 days. Many visitors stay in area campgrounds; however, some visitors stay in more developed lodging facilities in Cascade, Donnelly, or surrounding areas.

Additional information about campers at Lake Cascade was obtained in a 1999 questionnaire conducted at six IDPR-managed campgrounds (EDAW and IDPR 1999). These results provide a recent snapshot of visitor perceptions and attitudes at Lake Cascade. Most campers have been coming to the area for many years; the average year for their first visit is 1981. Campers tend to come more than once a year, averaging 2.3 visits per year. Most campers stay on or near the reservoir. About one-third (31%) of visitors had been out on the reservoir in a boat during the day they were contacted.

Photo 3-5. Dispersed Camping

Group use is popular at Lake Cascade because many other recreation areas in the region cannot accommodate large parties. Groups ranged in size from 20 to 300 people, although 100 to 200 is most common. Group visitors were affiliated with many organizations and came from all parts of Idaho and occasionally from neighboring states. In addition, several groups or organizations have their own facilities at Lake Cascade, including SISCRA, 4-H Club, YMCA, and South Idaho Christian Mission Society (SICMS [located on USFS land]).

The greatest concentration of recreation use occurs at the southern and northern ends of the reservoir where most IDPR and USFS campgrounds and day use areas and the Donnelly City Park are located. In the northern portion of Lake Cascade, the reservoir arms are also surrounded by residential development with numerous private boat docks.

Data on camper's perceptions of the existing facilities show that most campers contacted feel that the current number of facilities (such as boat ramps and campgrounds) at the reservoir is about right. Despite the high facility occupancy levels observed in recent years, there appears to be limited support by campers for construction of new recreation facilities at this time. While there may be limited support for new facilities by campers, area boaters see a strong need for a new public boat marina(s) at Lake Cascade.

Overall, visitors contacted at Lake Cascade perceived relatively little crowding. In general, campers feel slightly to moderately crowded while visiting the area, while boaters on the reservoir appear to not perceive any substantial crowding at this time.

It is estimated that 330,000 people visit Lake Cascade during a typical year, and nearly 86% are residents of the Boise metropolitan area (Ada or Canyon counties) (EDAW and IDPR 1999). The Boise area is one of the fastest growing areas in the state and is projected to experience a 20% increase in population by 2010 (Ada County Community Planning Association 2000). Assuming that these new residents would participate in recreation activities at rates similar to those of current residents, it can be estimated that visitation at Lake Cascade would increase by approximately the same amount. Thus, visitation at Lake Cascade is estimated to increase by approximately 20% to 396,000 annual visitors by 2010.

Photo 3-6. Sailing on Lake Cascade

3.5.2 Recreation Facilities

Developed recreation facilities are provided at numerous locations around Lake Cascade by the IDPR, USFS, and other municipal, private or religious organizations. The cities of Donnelly and Cascade and private or religious organizations lease land from either Reclamation or the USFS. An inventory of recreation facilities at Lake Cascade is provided in Table 3.5-1.

Public use at Lake Cascade is greatly enhanced by a substantial amount of public access to the water via public and group boat launches and docks. Approximately 150 floating docks and 30 boat ramp lanes are located at public or organizational recreation launches on the reservoir. Eleven of the public boat lanes are located along the eastern shoreline; while eight of these are located on the western shoreline.

		Idaho Department of Parks and Recreation (IDPR)														USBR Leases					U.S. Forest Service						
		Buttercup	Blue Heron	Snow Bank	Cabarton	Crown Point	Curlew	Poison Creek	Sugarloaf	Van Wyck Park	Huckleberry	West Mountain	Big Sage	Boulder Creek	Osprey Point	Donnelly City Park	4-H Club Camp	SISCRA	Cascade Golf Course	YMCA Camp	Amanita	Campbell Creek	French Creek	Rainbow Point	Tamarack Falls	SICMS Church Camp (USFS)	Total
		6	**9**	**2**	**1**	**30**	**3**	**20**	**15**	**26**	**12**	**12**	**24**	**23**	**60**	**40**	**20**	**60**	**50**	**55**	**4**	**2**	**49**	**11**	**5**	**65**	**603**
Access & Parking	Road Access (Paved/Dirt)	P/D	P	P	P	P	P/D	P/D	P	P	P/D	P/D	P	P	P/D	P	P/D	P/D	P	P	P/D	P/D	P/D	P/D	P/D	P/D	
	Interior Circulation	P	P	P	P	P	D	P	P	P/D	P	P	D	P	D	D	D	D	D	D	D	P	D	D	D	D	
	Car Parking Spaces	10	23	25	9	6	10	22	23	40				13	30	25	25	25	25			20			25	20	376
	Boat Trailer/Car Parking	20	22			11		24	27	20				10		10		40				30	12	15		8	249
	Boat Ramps (lanes)	2	2					2	2	2				1		2		2				2	1	1			19
	Courtesy Docks	*	*			*		*	*	*	*	*		*		*		*				*	*	*		*	
	Fishing/Swimming Docks							*							*	*						*				*	
Day Use Areas & Facilities	Picnic Sites - Single Units		14	18	10			17	6					15	20	9		6							4	3	122
	Group Picnic Shelters							1							1	1		1									4
	Dining/Recreation Halls														2		1	1								1	5
	Beaches at High Water		*	*	*	*			*						*	*											
	Trails/Paths	*	*	*					*					*			*	*							*		
	Group Campfire Areas			*				*							*		*									*	
	Archery/Volleyball Areas														*		*									*	
	Informal/Interpretation														*			*							*		
Overnight Use Areas & Facilities	Campsites - Single Units	28	10			33		44	42	61	31	31	*			11		203			10		21	11		18	554
	Group Campsites			1				3										2									6
	Tent Only Campsites						10																				10
	Cabins/Yurts														3		4									5	12
Support Facilities	Flush Restrooms, 1-Unit																		2							1	3
	Flush Restrooms, 2-Unit							3						2			2	1		1							9
	Flush Restrooms, 3-Unit									1																2	3
	Flush Restrooms, 4-Unit											1			4			2									7
	Flush Restrooms, 5-Unit																			4							4
	Flush Restrooms, 8-Unit																	2									2
	Vault Restrooms, 1-Unit							1	1	1	1		1			1											6
	Vault Restrooms, 2-Unit	3	1			1		1	1	2	1		3	2							1	1	3	2	1		23
	Vault Restrooms, 4-Unit		1	1	1	3			3			1															10
	Showers and Sinks														*			*	*							*	
	Potable Water	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*		*	*		*	
	Electrical Hookups																									*	
	Dump Stations									*		*						*									
	Maint./Storage Facilities							*							*		*	*	*								
Miscellaneous	Disabled Persons Facilities	*	*	*	*	*			*	*	*	*			*		*	*							*		
	Restaurant/Bar/Clubhouse																		*								
	9-Hole Golf Course																		*								
	Year Lease Expires	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2006	2015	2008	2012	2016						2007	

Source: Reclamation (1991, 1999); IDPR (2001); EDAW (2001)
**Indicates existence of facility, number not relevant or known.*

Additionally, one floating pump-out waste platform is located on the south end of the reservoir for use by boaters. Also, public docks are available for short-term loading and unloading at various points around the reservoir. Docks are found at IDPR sites that have boat launches and at Crown Point, West Mountain, and Buttercup recreation areas.

Public picnicking facilities are provided at eight locations including Donnelly City Park, Tamarack Falls, Blue Heron, Snow Bank, Cabarton, Poison Creek, Boulder Creek, and Sugarloaf recreation areas. These sites generally have picnic tables, grills, toilets, and water. Two public facilities (Poison Creek and Donnelly City Park) have group picnic day use shelters. These group sites are used extensively; group sites in general appear to be in short supply in the region. Picnicking at Poison Creek is particularly attractive, as some of the tables are scattered within an aspen grove next to the water. The Blue Heron, Snow Bank, Cabarton, and Sugarloaf picnic sites are exposed to heavier winds and lack shade for day use visitors during hot days. However, they are the only picnic areas with beaches at high water. Picnicking facilities at Lake Cascade generally receive lower use when compared to more heavily used camping and boat launch facilities. This may be because of lower demand for developed picnicking sites, the type of experience provided at these sites, or the location of picnicking sites. At Blue Heron, 10 of the previous picnic sites were converted to overnight campsites over the last few years to meet the demand for camping facilities.

Campgrounds at Lake Cascade provide a spectrum of camping opportunities ranging from group reservation sites, cabins, yurts, and RV campgrounds, to more rustic tent-only camping with gravel access roads. Campgrounds are widely dispersed around the reservoir. As shown in Table 3.5-2, there are a total of 564 individual campsites at 16 locations around the reservoir.

More than half (308, or 55%) of the campsites are operated by IDPR under an agreement with Reclamation.

These are found in 11 recreation areas around the reservoir. More than one-third (203, or 36%) of the sites are found at one location (SISCRA), while the remaining four campgrounds make up 9% of the total number of campgrounds. The IDPR campgrounds are typically well developed. In contrast, USFS campgrounds are smaller, less developed, and more heavily forested. All USFS campgrounds are located on the west side of the reservoir within the Boise National Forest. The IDPR campgrounds are concentrated along the northwest and southeast shorelines.

The IDPR manages nine campgrounds at Lake Cascade. Big Sage, which provides dispersed camping opportunities with no facilities, is an undeveloped IDPR-managed site, as is the Van Wyck Extension area. IDPR-managed campsites per location range in size from 42 at Sugarloaf Park to 10 at Blue Heron (formerly day use picnic sites). All nine developed sites to the northwest, except for Curlew, have paved roads and camping spurs with picnic

Table 3.5-2. Campgrounds at Lake Cascade

Owner/Operator	Total Number of Camping Areas	Total Number of Campsites	Percent of Total
Reclamation/IDPR	11	308	55%
Reclamation/SISCRA	1	203	36%
Reclamation/City of Donnelly	1	11	2%
USFS	3	42	7%
Total	16	564	100%

Sources: EDAW 1999, IDPR 1999.

tables and grills. Campsite spurs are generally spaced 40 to 80 feet apart with 50 feet being most common. Most of the campsite spurs were constructed many years ago and cannot accommodate new longer RVs. Some roadway turning areas are also tight for many of today's longer RVs.

Three of the nine IDPR-managed recreation sites can accommodate larger groups; however, formal group reservation sites are lacking. One of these newer sites, Osprey Point (former site leased to Boise State University and now managed by IDPR), is a group reservation site only. This and other group areas have generally evolved out of necessity and in response to demand; they were not initially planned as group areas. As a result, they are not necessarily in the best locations and do not adequately buffer groups from nearby individual campsites.

In the city of Cascade, a nine-hole public golf course with clubhouse, restaurant, and bar facility is leased to the City of Cascade by Reclamation. The facility is operated by a concessionaire. The facility is located along the southeastern shoreline south of Van Wyck Park.

During the late 1960s, the Idaho State Division of Aeronautics constructed an unpaved airstrip on the east shore of the reservoir south of Arrowhead Point. For several years, this airstrip was operated and maintained by the Division of Aeronautics and used by private pilots for recreational fly-ins (day use trips and short-term overnight camping). In 1972, a dispute arose between the AE owner and the Division of Aeronautics that resulted in the closure of the airstrip, which remains in effect today. The aeronautic community continues to support the permitting of this airstrip.

No formal hiking or mountain biking trails, or designated areas for off-road vehicles, are provided at Lake Cascade, although both have been considered in the past. Minor trails exist within established recreation sites, but no continuous shoreline trail exists. Use of an abandoned railroad right-of-way in the proposed Crown Point extension has been gradually increasing in the past several years.

3.6 Access and Transportation

3.6.1 General

Lake Cascade is accessed through two main communities: Cascade on the southeast side of the reservoir, or Donnelly on the northeast. SH 55, directly east of the reservoir, is the main arterial connecting Boise to the south and McCall to the north. SH 55 is maintained by the Idaho Transportation Department (ITD). It is a typical rural, mountain highway with a standard paved width of approximately 24 to 28 feet with 2- to 6-foot gravel shoulders and a speed limit of 55 to 65 mph. Roadway and bridge improvements along SH 55 during the past decade have helped reduce travel time from the north and south. ITD is currently developing an alternative route for a section of SH 55 near the Smith's Ferry area to eliminate some the narrowest and most serpentine stretch of the highway.

The following local roads provide access to Reclamation facilities from SH 55:

- At Clear Creek on Cabarton Road south of Cascade;
- Cabarton Road at the south end of Cascade;
- Old State Highway Road at the north end of Cascade;
- Minor paved and unpaved roads on either side of the Payette River SH-55 bridge at the north end of Cascade;
- Sugarloaf Recreation Area turn-off;
- Two turn-offs onto county roads between Gold Fork River and Donnelly; and

- Tamarack Falls Road in Donnelly.

Circulation to and around the reservoir is generally circuitous and inadequately signed, especially along SH 55. Some signs have been added recently, although signs directing visitors to Reclamation facilities are inconsistent in graphic style and content, not always fully explanatory, and non-existent at some of the above locations. Visitors can obtain maps, find out which campgrounds are vacant, and acquire other information from the Reclamation/IDPR Cascade office. However, signage directing visitors to the office is less than adequate.

3.6.2 Local Road System

Lake Cascade is circled by a series of two-lane paved and unpaved roads, as described below.

Donnelly Access

Beginning at Donnelly, the Rosewood Road circles the reservoir for about 1.5 miles and crosses the Lake Fork Arm of the reservoir on a narrow bridge. This 24-foot wide, two-lane paved road is used westbound from SH 55, and intersects Norwood Road, a similar 35 mph facility that runs south. After approximately 1 mile, Norwood Road intersects Tamarack Falls Road, at a 90-degree turn, similar in dimensions to the previous two roads. Tamarack Falls Road is in good condition, but has a 90 degree turn at the junction with Norwood and a 26-foot wide curvilinear causeway across the Lake Fork Creek that is dangerous for high speed traffic. The Tamarack Falls Road passes through a newly developing subdivision area and ends at the Tamarack Falls store, approximately 1.4 miles beyond the Norwood intersection.

West Side Access

Tamarack Falls Road carries recreation traffic to West Side Road, an unpaved county road running along the west side of the reservoir to the south end. A majority of the traffic occurs on the southern (West Mountain) and northern (Tamarack Falls) 3-mile stretches; the long central segment of the road is only lightly traveled. The West Side Road is paved from the Tamarack Falls store to the new WestRock site, a distance of about 3 miles. This paved road was built to the same 24-foot width as the other roads. From the WestRock site south, the West Side Road is a 25- to 30-foot wide gravel road for approximately 15 miles to the intersection with Lake Shore Drive.

Cascade Access

The Old State Highway Road through Cascade is in relatively good condition, but, because it is heavily used, it requires considerable maintenance. The City has considered adding a third (turning) lane and bike path, but there are no firm plans to date.

The intersection of Old State Highway Road and Lakeshore Drive at the city's golf course and Van Wyck Park boat ramp parking lot lacks traffic control and is potentially dangerous, particularly during the peak use season. The angled intersection of Old State Highway Road and SH 55 is also less than desirable because of the awkward turns motorists must make. Lake Way provides access into the Crown Point area along the west side of Cascade Dam. Vista Point Boulevard was recently constructed to provide additional access into the Crown Point area from north of the dam.

Access to the eastern shore north from the dam to Sugarloaf Peninsula is limited. Sugarloaf Peninsula can be accessed from SH 55 using Stonebreaker Lane. Stonebreaker Lane is approximately a third of the way heading north between the towns of Cascade and Donnelly on SH 55. The area to the north of the dam is mainly subdivisions with private accesses.

Winter Access

The Old State Highway, Tamarack Falls, West Side, and Lakeshore Roads are plowed in the winter, as well as most county and subdivision roads. The 6- to 8-mile section of West Side Road occasionally is not plowed immediately after big storms. IDPR does plow the Blue Heron, Van Wyck Park, Crown Point, and Poison Creek parking lots for winter recreationists.

The County has difficulty plowing the Crown Point subdivisions. They have expressed an interest in acquiring access through Reclamation lands to the west along an abandoned Union Pacific Railroad bed, so that plowing equipment can make a large loop rather than having to turn around on a narrow road on steep terrain.

Transit and Air Access

Visitors may also reach Lake Cascade via Northwest Stages, which provides daily round trip bus service along SH 55. Another option is flying into either the Cascade or McCall airports. Cascade can service only small private and chartered aircraft. With the recent improvements, the McCall Airport can accommodate not only large private planes, but a potential future commercial commuter service.

Shoreline Access

Shoreline access is most restricted in the northeast area where subdivisions are prevalent. Roads into these areas are circuitous and unsigned, and it is difficult to find specific locations without detailed subdivision road maps. Few access easements to the reservoir are provided between privately owned lots, which in some cases occupy miles of the shoreline. Public access along the shoreline is also constrained in this area because of the lack of public land at the high water line and the presence of improvements that give the perception of private ownership (for example, individual docks and retaining walls).

Shoreline access is further limited in those areas without public roads, most notably from Sugarloaf Peninsula to Arrowhead Point, where land is predominantly in permanent AEs. Parts of the Sugarloaf and Duck Creek areas are inaccessible when wet. The entire lower west shoreline is inaccessible to boaters late in the season as the water recedes far beyond the existing roads and facilities. The shoreline between Crown Point and Vista Point has unimproved roads and an abandoned railroad bed running through it; however, the roads and railroad bed are closed to vehicular access. In the past there was a great deal of damage being done, but recent efforts to close the area to vehicles have been successful due to signage, fencing access points, and enforcement.