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10.0 SOCIOECONOMICS

10.1 SOCIOECONOMICS RESOURCE STUDY (SOC 1)

10.1.1 Study Objectives

The Socioeconomic Study focuses on the social and economic environments directly and indirectly affected by the presence and operations of the Merwin, Yale, Swift No. 1, and Swift No. 2 hydroelectric projects (Projects). This study describes the current social and economic environments and discusses the relationship between current Project-related actions and that environment. Socioeconomic resources or dynamics that occur in the Project areas, but that are outside the influence of the Projects' presence or operation, have been identified but not analyzed in this study.

This study draws from data available from various federal, state, and local governmental agencies. These data are supplemented by interviews with PacifiCorp and Cowlitz PUD staff, as well as local community service providers, government officials, business owners, and economic development interests. To respond to FERC requirements and guidelines, the Socioeconomic Study is divided into two phases. This report presents the results and findings of Phase 1 of the study. Phase 1 defines the existing demographics of the population, as well as the characteristics of the local economy and the public services in the study area. It also identifies how the Projects have supported or influenced these socioeconomic characteristics, as well as trends that may affect them in the future. Additional FERC requirements, including analysis of the socioeconomic effects of Project alternatives, identification of the cumulative or long-term effects on the local economy, and goals for economic development for cities, towns and counties in the study area, will be addressed in Phase 2.

The primary objective of Phase 1 of this study is to evaluate the current effects of the Projects on socioeconomic resources in the local and outlying areas near the Projects. In meeting this objective, cause-and-effect relationships between the Projects' presence or operation and socioeconomic resources are presented. Phase 1 is intended to provide an understanding of the socioeconomic resources over which PacifiCorp and Cowlitz PUD have some level of control or influence (i.e., Project-related demand for local services and infrastructure and related beneficial/adverse effects on the quality of life in the Lewis River basin).

Specific areas of analysis addressed in this study include:

- Factors that affect locally provided infrastructure and services, such as roads and bridges, fire protection, law enforcement, emergency services, etc.;
- Factors that influence regional and local economics, such as industry, commercial businesses, recreation, and tourism; and

- Positive and negative impacts of the Projects on the local economy and the local quality of life such as recreation opportunities for local families and youth, additional public services, and increased capital investment.

The Socioeconomic Study utilizes information developed by other resource studies to address socioeconomic issues. For example, studies related to recreational trends and visitor use at Project reservoirs and facilities provided information and analyses regarding current and projected future visitation in the area of the Projects.

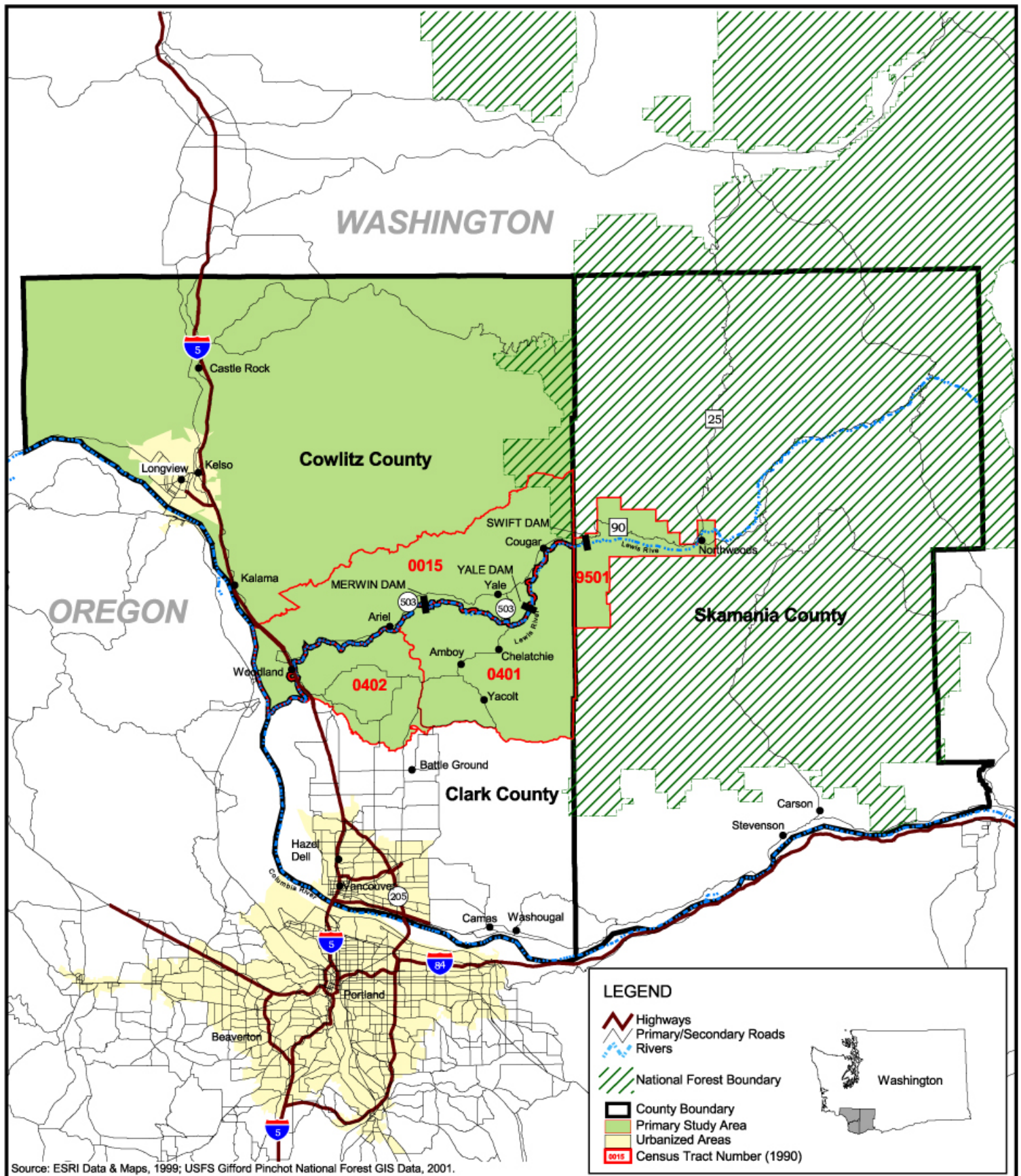
The Socioeconomic Study may also be used in the development of proposed PME during future phases of relicensing, including evaluation of National Environmental Policy Act (NEPA)-proposed alternatives. Study results regarding current Project effects on socioeconomic resources will be provided to other resource groups (Aquatics, Terrestrial, Cultural, Recreation, and Flood Management) for their consideration in developing proposed PMEs. Coordination with the Draft Recreation Resource Management Plan (RRMP), for example, to be developed as part of the recreation studies, will be necessary to consider the effects of proposed recreation development on socioeconomic resources over the term of the new license. Increases in recreational use in the Lewis River basin have the potential to affect many socioeconomic resource areas, including infrastructure, public services, and local businesses.

10.1.2 Study Area

The Primary Study Area for the Socioeconomic Study includes the FERC project boundaries for the Projects and communities in the nearby area (including Ariel, Cougar, Woodland, Yale, and Amboy). It also includes all of Cowlitz County, due to the important role that Cowlitz PUD plays as the electrical utility for most residences and businesses in the county.

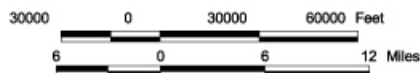
The 5 communities identified above are small towns located in the rural Lewis River Valley for which detailed statistical data are not readily available. Therefore, a focused subset of the Primary Study Area, as defined by 4 census tracts, is used for presentation of demographic statistics in the Lewis River Valley (Figure 10.1-1).

The 4 census tracts that define the Lewis River Valley include: Tracts 0402 and 0401 in Clark County, 0015 in Cowlitz County, and 9501 in Skamania County. Detailed census data are presented in this report for these 4 tracts to create a profile of the communities in the immediate vicinity of the Projects. Of these 4 tracts, Census Tract 9501 covers an extensive area, consisting primarily of land within Skamania County managed by the U.S. Forest Service (USFS). However, most of the residents in this tract are focused on the non-USFS land near the Lewis River as represented in Figure 10.1-1. A broader Secondary Study Area, encompassing all of Clark, Cowlitz, and Skamania counties, was analyzed as well to provide a broader context for the socioeconomic analysis.



Lewis River Socio-Economic Study

**Figure 10.1-1
Study Area**



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10.1.3 Methods

Methods for Phase 1 of this study involved review of published information and consultation with agencies, facility operators, service providers, and area business operators. The methodology involved 4 primary components: (1) review of existing literature and relevant data, (2) characterization of local socioeconomic factors, (3) identification of important cause-and-effect relationships, and (4) identification of the effects of operation of the Projects. Each of these components is described in detail below.

10.1.3.1 Review of Existing Information

This study is based largely on a review of existing information (reports, surveys, and published data), supplemented by direct contacts and interviews with local business owners, service providers, and governmental agencies. Table 10.1-1 lists sources of information used to characterize local socioeconomic factors and assess Project impacts.

Table 10.1-1. Local sources of socioeconomic information.

Source	Contact	Method
Local Government	<ul style="list-style-type: none"> – Clark County Department of Community Development – Cowlitz County Department of Building and Planning – Skamania County Department of Planning and Community Development – Cowlitz County Treasurer 	Telephone interviews
Public Safety Service Providers	<ul style="list-style-type: none"> – North Country Emergency Medical Services – Cowlitz Fire District #1 – Cowlitz-Skamania Fire District #7 – Cowlitz County Sheriff – Washington State Patrol – Washington State Department of Transportation – Woodland School District – City of Woodland – Clark Fire Districts – Clark County Marine Patrol 	Telephone interviews
Local Businesses	<ul style="list-style-type: none"> – Save-On-Foods - Woodland – Cougar Bar & Grill - Cougar – Cougar Ceramics - Cougar – Jack's Restaurant & Store - Yale – Eagle Cliff Store – Swift Reservoir – Lone Fir Resort – Yale Lake – Quickway Mini Mart - Woodland 	Telephone interviews
Local Organizations	<ul style="list-style-type: none"> – Skamania Chamber of Commerce – River Cities Chamber of Commerce – Lewis River Community Council – Woodland School District – Port of Kalama – Cowlitz Economic Development Council 	Telephone interviews
Licensees	<ul style="list-style-type: none"> – Cowlitz PUD – PacifiCorp 	Telephone interviews
Recreational Users	<ul style="list-style-type: none"> – EDAW, Inc. 	Recreation surveys
Other Web Sources	<ul style="list-style-type: none"> – Washington Employment Security Department 	Electronic mail

Provided by EDAW, Inc.

10.1.3.2 Characterization of Local Socioeconomic Factors

The current status of the socioeconomic resources within the Lewis River basin that potentially would be affected by current operation of the Projects is described below, with supporting tables and figures (see Section 10.1.5). The description includes a discussion of current population and economic trends in the Lewis River basin and the 3 surrounding counties. This discussion addresses factors affected by the Projects, including such items as public services, current infrastructure, economic development efforts, revenues provided by the Projects to local governments and agencies, rate benefits provided by the Projects, and the role the Projects play in attracting visitors to the area. The current status of the local and regional economy was defined using the following information:

- Population and demographic characteristics
- Income characteristics
- Labor force characteristics
- Employment and unemployment rates
- New construction permits
- Retail sales trends
- Transportation indicators
- Utility rates

To prepare this description, necessary demographic and socioeconomic data were collected. This included conducting extensive telephone interviews with responsible officials and citizens, as well as gathering and synthesizing relevant published data. The following areas are addressed:

- Census data on current conditions for population, housing, employment, household income, and tax base for the 3-county region affected by the Projects;
- Economic characteristics such as retail sales trends, lodging and restaurant sales trends, and recreation trends (in coordination with recreation resource studies);
- Population growth projections, economic factors, and socioeconomic considerations as addressed in local planning documents; and
- The roles and status of the various public service providers and public works departments including police, fire, emergency services, road operations, water, and similar public infrastructure.

A general overview of the existing and future local and regional economy is provided. The overview identifies, describes, and documents factors that influence private and commercial development, recreation, and tourism in Cowlitz County, the Lewis River basin, and the adjacent communities. To prepare this overview, the following information was gathered:

- Population projections for analysis of potential growth in demand of various recreation activities;

- Documentation of the proportion of recreation visitors drawn to the area by other attractions and the proportion determined to be Project-induced;
- PacifiCorp and Cowlitz PUD's existing tax payments or in-lieu fees that accrue to the state, counties, local communities, or local service providers, such as fire or school districts;
- Other payments or benefits conferred by PacifiCorp and/or the Cowlitz PUD to local government or service providers; and
- Information regarding the needs and preferences of companies relocating to the area.

10.1.3.3 Identification of Important Cause-and-Effect Relationships

This section of the study identifies facilities, activities, or utility customer groups in the Lewis River basin and in Cowlitz County that are directly or indirectly affected by the operation of the Projects and evaluates them with respect to variables such as type of use, scope of services provided, and revenues generated. An inventory of relevant facilities, activities, and customer groups was developed including:

- Utility customer groups;
- Public service providers (police, fire, education, public health, transportation, public works, and other government services) in the Primary Study Area; and
- Recreation and tourism facilities and services in the Primary Study Area.

10.1.3.4 Identification of the Effects of Project Operations

The information compiled in the previous tasks was used to estimate direct impacts and related economic or social effects of the Projects on both the regional and local community economies, including:

- Identification of local business and residential entities that are affected by rate changes;
- Evaluation of the impacts of ongoing operation of the Projects on housing, population, employment, household income, and the tax base for the 3 counties; and
- Identification of the elements of the local economy of Cowlitz County sensitive to changes in power rates and to other operational changes.

10.1.4 Key Questions

The socioeconomic study was intended to address the following key watershed questions that were identified during the Lewis River Cooperative Watershed Studies meetings:

- What would be the potential benefits and/or impacts of reducing or restricting motorized uses of the reservoirs (on wildlife, aquatic ecosystems, other recreational uses, and local economy)?

This question is partially addressed in the Phase 1 Socioeconomic Study in Section 10.5.1. In this section, the relationship of the projects to recreation activities, visitor-generated revenues, and visitor-related demand for services is discussed. The specific changes in these factors resulting from reducing or restricting motorized uses of the reservoirs would be addressed in the Phase 2 Socioeconomic Study, if this measure is proposed.

- What are the problems and impacts of recreation on other resources, and who should be responsible for law enforcement to limit problems? (e.g., law enforcement, emergency services, traffic, phone systems, etc.).

This question is substantially addressed in the Phase 1 Socioeconomic Study in Section 10.5.1. In this section, the demand for public services associated with project-generated recreation is discussed. Likewise, Property/Utility Tax Revenues are discussed. The effects of specific changes, such as supplemental payments for law enforcement or emergency services, would be addressed in the Phase 2 Socioeconomic Study, if these measures are proposed.

10.1.5 Results

10.1.5.1 Overview of Local Socioeconomic Factors

The Projects are located in southwestern Washington, in the vicinity the Cascade Mountain range and the Columbia River. The area is indirectly accessed by Interstate 5 (I-5), a major north-south interstate freeway linking the metropolitan centers of Seattle and Tacoma, Washington to the north and Vancouver, Washington and Portland, Oregon to the south, and beyond. The construction of Merwin, Yale, and Swift dams on the Lewis River created 3 reservoirs that offer recreation opportunities including boating, camping, picnicking, and fishing. The south or eastern shorelines of 2 of the Project reservoirs (Lake Merwin and Yale Lake) are located in Clark County, a 630-square-mile county bordered on the south by the Columbia River and on the north by the Lewis River. The entire northern shoreline of Lake Merwin and the western shoreline of Yale Lake are located in Cowlitz County, a 1,138-square-mile county bordered on the south by the Lewis River and on the southwest by the Columbia River. Swift Reservoir is located entirely within Skamania County, a 1,672-square-mile county bordered on its western edge by the Clark and Cowlitz counties and on the south by the Columbia River.

The Primary Study Area includes lands and waters within the boundaries of the Projects and communities in the nearby area (including Ariel, Cougar, Woodland, Yale, and Amboy) and Cowlitz County. The Secondary Study Area includes all of Clark and Skamania counties. As discussed earlier, additional detailed statistical data were gathered for the Lewis River Valley defined by the 4 census tracts immediately adjacent to the Lewis River (Figure 10.1-1).

County-level demographic data are presented as well. At this time, the most recent tract-level data available are from the 1990 U.S. Census. For comparative purposes, these data are discussed with county-level 1990 U.S. Census Bureau data. More recent county-level data are available and are also discussed below.

Socioeconomic History

Pre-Settlement Tribal Patterns – Because of differences between Euroamerican and Indian land tenure practices, it is often difficult to describe accurately the boundaries of areas inhabited by any one Indian group during the early historic period. People moved frequently during the spring, summer, and fall, and they inhabited a wide range of environmental zones. Marriages created relationships between different villages, and these relationships often crossed linguistic boundaries. Linguistic differences, however, did little to hinder visits between relatives, and trips to visit relatives in other areas were common.

At the time of first direct European contact in the 1790s, several different ethnic groups inhabited the Lewis River drainage¹. The villages near the mouth of the Lewis River, just across the Columbia from present-day St. Helens, Oregon, were occupied by the Cathlapootles who spoke Upper Chinookan. Other speakers of Upper Chinookan were found in villages ranging from Grays Bay in the Columbia Estuary to Celilo Falls in the middle reaches of the Columbia River at the junction of the dry, east-side ecozone and the wet, west-side ecozone. The Upper Chinookan people had more direct contact with early European traders than most other groups in the Pacific Northwest, and they appear to have suffered more heavily from epidemic disease.

Two other ethnic groups that occupied the upper Lewis River drainage, the Taidnapam and the Klickitat, spoke closely related dialects of the same language, which was also spoken by the Yakama, Wayampam, Sk'in, Umatilla, and other peoples living east of the Cascades. The Taidnapam or Upper Cowlitz, while speaking a language closely related to the languages spoken east of the Cascades, occupied a core area in the upper reaches of the Cowlitz and Lewis River drainages on the west side of the Cascades. They were well integrated into the social fabric of western Washington and shared many cultural traits with the Lower Cowlitz, who spoke a different language and occupied the lower reaches of the Cowlitz River.

During the period after the establishment of Ft. Vancouver in the 1820s until about the mid-1850s, many early historic accounts mention the presence of the Klickitat along the Lewis River. The Klickitat core area has traditionally been identified as stretching from about Mount Adams to the mouth of the White Salmon and Klickitat rivers along the Columbia. While many of the early historic period occupants of the Lewis River drainage were likely to have been Klickitats, distinguishing them from the (potentially) resident Taidnapam in early historic period records has been complicated by the fact that early Euroamerican observers tended to use generic terms for speakers of this Taidnapam/Klickitat/Yakama language. Just about any speaker of this language east of the Cascades

¹ Information on Tribal patterns is summarized from an unpublished Cowlitz PUD/PacifiCorp Cultural Study report prepared as part of the relicensing effort.

was likely to be called a "Walla Walla," while those west of the Cascades were usually referred to as "Klickitat."

Taidnapam or Klickitat settlement patterns in the Lewis River drainage are not well known, especially in comparison to the documentation that exists for the Cowlitz River drainage. A map showing the "U.S. Military Road from Columbia Barracks to Fort Steilacoom" dating to the mid-1850s shows 3 "Indian Villages" along the lower Lewis River:

- 1) At the mouth of the Lewis River;
- 2) Along the Lewis River near present-day Paradise Point State Park; and
- 3) On the southern side of the Lewis River in the vicinity of Finn Hall.

There are no "Indian Villages" listed as being located above Finn Hall on this 1855 map, and the ethnic identity of the people occupying these 3 villages is not recorded on the map. It is likely that the village at the mouth of the river is the same one documented by Lewis and Clark as Cathlapootle village, which was occupied by Chinookan speakers. The other lower Lewis River villages may have also been occupied by Chinookan speakers.

Most of the areas known to have been used by Indians in the Lewis River drainage are linked to the "Klickitat Trail" that ran from Ft. Vancouver to the Yakima area. Captain George B. McClellan's expedition went up the Klickitat Trail in 1853, documenting the route of the trail and Indian use of the Lewis River drainage. Interpretation of the route maps is difficult given McClellan's incomplete understanding of local topography. Leading out of Ft. Vancouver, the trail went north, crossing the Cedar River and Chelatchie Prairie on its way to the North Fork of the Lewis River. After crossing onto the north side of the North Fork somewhere in the eastern third of Lake Merwin, the trail ran north up Speelyai Creek, but then it turned east and rejoined the Lewis River somewhere near the western end of present-day Yale Lake. It continued along the north side of the river until it crossed back to the south somewhere between Northwoods and Curly Creek Falls. After this crossing, the trail continued to the east and into the present-day Indian Heaven Wilderness.

Aside from this information about use of the Klickitat Trail, little specific information is known about the duration of residence at these sites or the number of occupants. It is well known that Taidnapam and Klickitat people typically occupied winter villages from late fall to mid-spring and then dispersed to other areas during the rest of the year. Taidnapam winter villages appear to have been relatively small concentrations of houses. For the Cowlitz River drainage to the north (which serves as a good analogue for the Lewis River drainage), it has been estimated that local village populations ranged from about 20 to 50 people. Village locations were relatively stable features and were regularly reoccupied. Most winter villages were probably located relatively close to the Lewis River channel, but not directly alongside because of concerns about flooding. When dispersed in spring, summer, and fall, the people occupied a number of still smaller and less formalized camps that supported various economic activities. Seasonal camps were much more wide-ranging and would have included higher elevation areas.

During the 1830s and 1840s, the intensity of Euroamerican use of southwestern Washington increased, bringing increased tensions between native groups and settlers. With the passage of the Donation Land Act of 1850, the pace of Euroamerican settlement increased even more, and the new government soon saw a need to address the question of Indian lands. Territorial Governor Isaac Stevens was appointed in 1853 and began treaty negotiations with Tribes soon thereafter. The Cowlitz and other Tribes from west of the Cascades met with Governor Stevens at the Chehalis River Treaty Council in 1855. This meeting ended without agreement because the Cowlitz and neighboring groups refused to relocate to Quinalt territory.

The failure to reach a treaty agreement had a profound effect on the historic experience of the Cowlitz people. Shortly after the Chehalis River Treaty Council, many Cowlitz people were grouped together with the Chehalis Indians. Some came to take up residence on the Chehalis Indian Reservation but never accepted it as their true home. Other Cowlitz people – particularly Taidnapam – called on their relations east of the mountains and moved to the Yakama Indian Reservation. Finally, a significant number of Cowlitz people rejected both reservations and remained either in the Cowlitz Valley or elsewhere in western Washington. Despite this dispersion, the Cowlitz community worked to maintain its cohesion. A formal Tribal gathering ("the Meeting") was established in 1915 and has continued to this date. A principal focus of the Tribe during the 20th century was attaining federal recognition and the clarification of its aboriginal rights (Fitzpatrick 1986). This effort began in 1916 and appears to be in its final stages at this writing. Federal recognition of the Cowlitz Indian Tribe of western Washington is anticipated to occur in the near future.

Settlement and Development of Clark County – The Lewis and Clark Expedition stimulated considerable interest in the region of present-day Clark, Cowlitz, and Skamania counties due largely to fur trapping and trading, which became the region's first industry. The Hudson Bay Company established a headquarters in Vancouver, Washington in the early 1820s, and fur trading dominated the economy for much of the next 2 decades. The fur industry phased out in the late 1830s; however, many former trappers and fur company employees chose to remain in the area. Drawn by the promise of land ownership, most settlers homesteaded tracts of land along the Columbia River.

Logging occurred on a large scale in the 1870s – mostly to clear land for farming – and gave rise to one of Clark County's largest and most enduring industries: pulp and paper processing. By the 1920s, these were among Clark County's largest manufacturing industries.

At the turn of the century, Clark County saw extensive railroad development connecting it to Spokane, Portland, and Seattle, and spawning port activity. In 1917, what is now known as the Interstate Bridge (I-5) opened to traffic providing a link between Vancouver and Portland, Oregon, which continues today to connect the work force and economies of these 2 metropolitan areas.

Aluminum Company of America (Alcoa) began an aluminum smelting operation near Vancouver in 1940, tapping into surplus energy from the hydroelectric projects in the region, representing a major employment source. This smelting operation shut down in

June 2000, due to rising energy costs and has filed for Chapter 11 bankruptcy protection. The company hopes to reopen the plant after their finances are reorganized (Washington Business 2001).

Traditional industries, such as pulp and paper and primary metals processing, continue to be major employers in Clark County. Manufacturing employment in the county, however, has diversified into high technology and other forms of manufacturing. In addition, current trends show large increases in wholesale and retail trade and service sectors (Clark County 2000). These shifts have diversified the employment base and reduced the reliance on a single industry.

Settlement and Development of Cowlitz County – In Cowlitz County, forest products industries were the foundation of the local economy since the pioneer days. The first commercial logging and lumber processing in the Cowlitz County region was developed in the late 1840s to provide wood for homes and other buildings. Numerous other logging and lumber operations were established in quick succession. It is estimated that at the turn of the century, in excess of 1,000 workers were employed in Cowlitz County's logging and lumber firms. Logging and lumber operations prospered during World War II as military demand for wood and pulp products soared. This prosperity continued during the postwar years as a housing construction boom got underway. In the postwar period, employment in Cowlitz County's forest-related industries reached 1,600 in logging, 4,400 in lumber, and 2,500 in pulp and paper (State of Washington 1998). During the 1970s and into the 1980s, the combined lumber, wood, and paper and pulp industries accounted for more than 7,500 jobs in Cowlitz County. Even with falling employment in these industries, forest product industries currently account for approximately 6,500 jobs and lead all others as the county's major source of employment (State of Washington 1998).

Other industries significant in the economic development of Cowlitz County include fishing, food processing, agriculture, dairying, and aluminum operations. The region's location on the Columbia River provided strong incentive to establish a salmon fishing industry. Smelt fishing also became a lucrative seasonal industry during the height of the annual run. Growth in the booming fishing industry spurred growth in salmon canning operations. The first cannery in the Northwest, as well as the world's second largest at the time, was established in 1866 near Longview. In addition, livestock feed crops such as hay, grain, corn, and pasture grass prospered as dairy-product demand from logging camps soared during the 1860s.

Overall, Cowlitz County is still a manufacturing-based economy, with the manufacturing sector accounting for 27 percent of all jobs, compared to the state average of 14 percent (pers. comm., S. Bailey, 3/01). In recent years, Cowlitz County has become a more favorable industrial location due to important transportation linkages and the presence of vacant, serviced parcels and available low-cost electrical power.

Settlement and Development of Skamania County – Nearly 80 percent of Skamania County is extensively forested. As a result, settlement and commerce have historically developed along the banks of the Columbia River, such as the town of Stevenson, which was platted in the 1890s. Skamania's first industry – salmon fishing – soon emerged.

Complementing the fishing industry, a number of salmon canning operations were established. The fishing industry tapered off considerably after the 1880s due to a combination of over-fishing and poor industrial practices (i.e., logging, mining, and agriculture) that damaged spawning grounds.

Logging and lumber were also, not surprisingly, major industries in Skamania. In addition to serving local needs, Skamania's logging and lumber industry was further stimulated by demand in eastern communities on the Oregon side of the Columbia River. One of the biggest boosts to the logging and wood industry, however, was the coming of the steamboat. The transportation base serving these industries evolved from early steamboats to trains in the 1880s and then to automobiles as the Lewis and Clark Highway (Highway 14) bridged the gap between western and eastern Washington by linking Vancouver, Pasco and points between.

Major federal water and power projects were undertaken in Skamania County between the 1930s and 1970s. Chief amongst these is Bonneville Dam, completed in late 1937. Dam construction eventually provided 3,000 jobs and made the Columbia River more navigable. To meet the region's growing energy needs, a second powerhouse was constructed at Bonneville Dam in 1975. The Project created a tremendous temporary boom in construction employment as well as modest job creation in the local retail and service sectors.

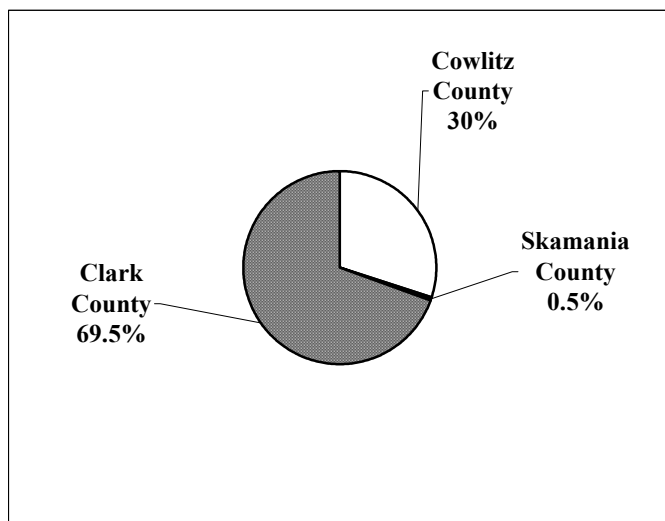
In 1986, the Columbia River Gorge was designated as a National Scenic Area. That designation advertised the region and its scenery to the American public and since then, tourism has played an ever-increasing role Skamania's economy. Additionally, roughly 80 percent of Skamania County's land mass is part of the Gifford Pinchot National Forest (GPNF), including several nationally recognized tourist attractions such as Ape Cave, Lava Canyon, and the Mount St. Helens National Volcanic Monument (Monument).

Today, Skamania County's economy is based largely on government employment—especially management of national forests and of fish and wildlife—with the balance distributed among logging and lumber, tourism and recreation, and light manufacturing. Service sector employment was boosted considerably a few years ago when the Skamania Lodge, a destination resort and conference center, was completed.

10.1.5.2 Population and Demographics

Lewis River Valley

The 4 census tracts included in the Lewis River Valley – CT 0015, CT 0402, CT 0401, and CT 9501 – had a 1990 population of 18,126 persons. Nearly 70 percent of these people resided in Clark County, and 30 percent resided in Cowlitz County. Less than 1 percent resided in Skamania County (Figure 10.1-2).



Source: Census Bureau 1990.

Figure 10.1-2. 1990 Lewis River Valley population distribution by county.

The Lewis River Valley portion of Clark County had a population of 12,599, accounting for 5 percent of the total Clark County population in 1990. That portion in Cowlitz County had a population of 5,452, accounting for nearly 7 percent of the total Cowlitz County population in 1990. The study area includes only 75 persons in Skamania County, accounting for just 0.5 percent of the study area population and just 1 percent of the total Skamania County population in 1990. Overall, the racial composition of the Lewis River Valley is similar to the county-wide areas, with whites comprising over 90 percent of the total population (Census Bureau 1990). Persons of Hispanic origin are the fastest growing demographic group in the County (OFM 1999).

The distribution of the population among various age groups is similar to trends nationwide. The percent of the total population of older age groups, those over age 45, is increasing. Table 10.1-2 shows the 1990 population distribution by age for Clark, Cowlitz, and Skamania counties, as well as the Lewis River Valley.

Table 10.1-2. 1990 population distribution by age in the secondary study area.

Age	Clark County		Cowlitz County		Skamania County		Lewis River Valley	
	Total Population	Percent of Total	Total Population	Percent of Total	Total Population	Percent of Total	Total Population	Percent of Total
0-14	57,047	24.0	18,947	23.1	2,088	25.2	4,713	26
15-24	31,323	13.2	10,518	12.8	938	11.3	2,304	12.7
25-44	80,580	33.8	25,474	31	2,756	33.2	5,534	30.5
45-64	43,670	18.3	16,081	19.6	1,619	19.5	3,606	19.9
65+	25,433	10.7	11,099	13.5	888	10.7	1,969	10.9
Total	238,053	100	82,119	100	8,289	100	18,126	100

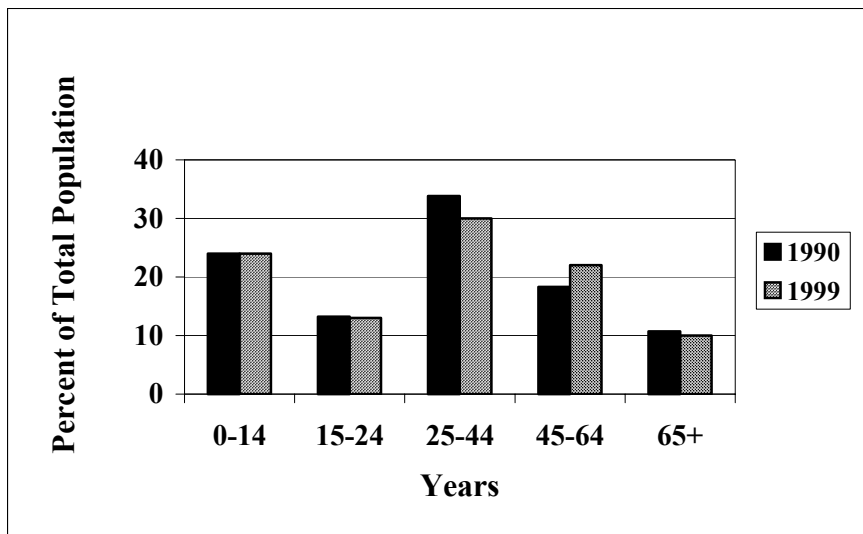
Source: Census Bureau 1990.

Clark County

The Washington State Office of Financial Management (OFM) estimates the 1999 population of Clark County to be 337,000. Clark County has been one of the fastest growing counties in the state for the past 2 decades and has gained attention as one of the faster growing areas on the national level. During the 1990s, Clark County (including the Vancouver metropolitan area) was the fastest growing county in Washington State. Growth in Clark County can be attributed to a number of factors including its relationship with the Portland, Oregon metropolitan area; good access; transportation infrastructure; and its quality of life. Clark County is 1 of 6 counties included in the Portland-Vancouver, Oregon-Washington Primary Metropolitan Statistical Area (PMSA), as defined by the U.S. Census Bureau. In 1999, the metropolitan area population was 1,798,700; Clark County represents 18.7 percent of this total (Clark County 2000).

Clark County experienced rapid growth in the mid- to late-1970s that slowed tremendously in the early 1980s as the local economy weakened due to a decline in the timber industry. However, as the economy diversified throughout the late 1980s, the county was able to stave off the economic recessions occurring at the national level and begin another period of rapid growth. Current growth in Clark County is occurring largely along the urban fringe of Vancouver. Recent growth has also occurred in rural areas, concentrating around small cities and towns.

The distribution of the population among various age groups shows that a higher proportion of the population of Clark County is over age 45 in 1999 than it was in 1990 (Figure 10.1-3). Between 1990 and 1999, the median age increased from 32.78 years to 34.34 years (Clark County 2000).



Source: Census Bureau 1990 and OFM 1999.

Figure 10.1-3. Population by age for Clark County.

Racial characteristics in Clark County have shifted slightly over the years. As the county continues to grow, the population is becoming more diverse. In 1990, whites constituted

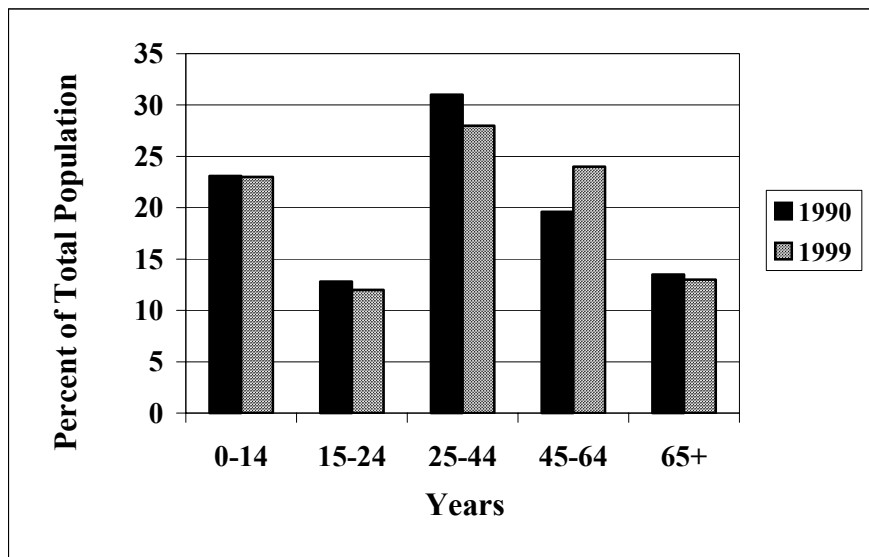
95 percent of the population (Census Bureau 1990). By 1994 this figure had dropped to 87 percent (State of Washington 1995).

Cowlitz County

The OFM estimated the 1999 population of Cowlitz County to be 94,100 persons (OFM 1999). The restructuring of the timber industry caused the population to decline and stagnate during the 1980s. However, population growth was positive during the 1990s, although less than the overall statewide growth rate. In 1997, over half (57 percent) of these residents lived in incorporated areas while 43 percent lived in unincorporated areas. The median age in Cowlitz County in 1999 was 36.8 years, an increase from 30.0 years in 1980 (OFM 1999). The population distribution among various age groups in Cowlitz County is about the same as statewide and national trends. Like Clark County, the population in Cowlitz County is aging, most notably by an increase in the 45-64 age group (Figure 10.1-4).

Woodland, the largest community in the Primary Study Area, is the third largest city in Cowlitz County, behind the cities of Kelso and Longview. As of 1994, Woodland had an estimated 2,860 residents, a gain of 14 percent since 1990, while countywide population increased nearly 7 percent in the same time frame (Lewis River Action Committee 1995).

While whites are the largest racial group in Cowlitz County, the proportion of non-whites is increasing at a much faster pace. Between 1990 and 1996, the population of non-whites grew 50 percent while the population of whites grew only 9 percent. Even so, non-whites still comprised less than 5 percent of the total population (State of Washington 1998).



Source: Census Bureau 1990 and OFM 1999.

Figure 10.1-4. Population by age for Cowlitz County.

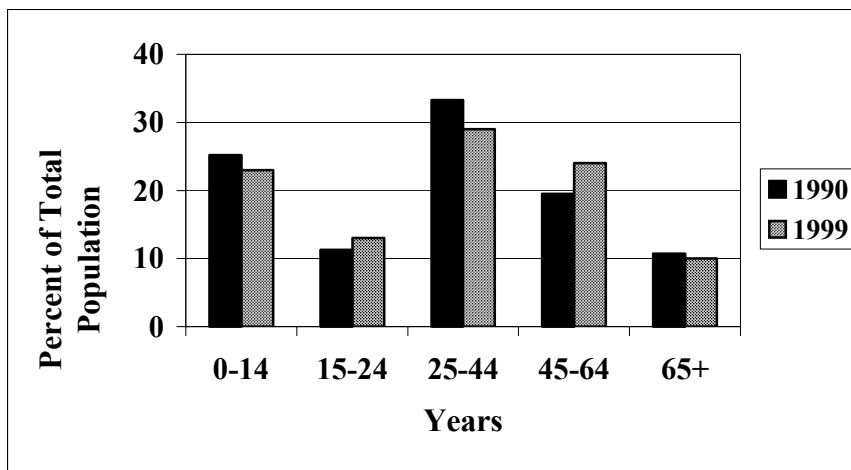
Skamania County

The OFM estimated the 1999 population of Skamania County to be 9,900 persons (OFM 1999). The population has increased only 1 percent since the 1990 census, and forecasts regarding population increases anticipate continued stability (Clark County 2000). The population of Skamania County is concentrated in the southern quarter of the county along the Columbia River. In 1997, 82 percent of Skamania County's residents lived in unincorporated areas. The 18 percent of the people who reside in incorporated areas live in 1 of 2 municipalities in the county—in the county seat of Stevenson or in North Bonneville. Both of these municipalities are near the southern boundary of the county; therefore, their economic and demographic conditions do not likely influence the study area.

Like Cowlitz County, non-whites make up a relatively small percentage of the total population of Skamania County, but that proportion is increasing at a much faster pace than the overall population. From 1990 to 1999, the general population of Skamania County grew 16 percent. The number of whites grew just under 15 percent; the number of non-whites, 147 percent (State of Washington 1998a). Another shift in the composition of the county's population is its age. The median age in Skamania County is 36.0 years, an increase from 33.6 years in 1990 (Census Bureau 1990). Like the other two counties in the study area, the proportion of the population over age 45 was larger in 1999 than in 1990 (Figure 10.1-5).

Local and Regional Population Trends

Table 10.1-3 details population projections for each of the 3 counties in the study area, as well as the state as a whole. This table indicates the rapid growth occurring in this area and projected to continue until at least the year 2020.



Source: Census Bureau 1990 and OFM 1999.

Figure 10.1-5. Population by age for Skamania County.

Table 10.1-3. Population estimates and forecasts for selected areas of Washington.

Area	1999 Population	Estimated 2020 Population	1999-2020 Population Change (percent)
Washington State	5,757,400	7,610,089	+32.2
Cowlitz County	94,100	134,122	+42.5
Clark County	337,000	425,502	+26.3
Skamania County	9,900	12,809	+29.4

Source: OFM 1999.

Since these 3 counties are the place of residence for the majority of visitors (70 percent) to the study area (EDAW 2000), their population trends will influence potential growth in demand for recreation activities provided at the Projects.

Additionally, since a significant proportion (23 percent) of the visitors to the Projects consists of residents from the Portland, Oregon metropolitan area (EDAW 2000), it is also important to examine population estimates and forecasts for this area. Most of the visitors from the Portland area reside in Multnomah, Washington, or Clackamas counties. Table 10.1-4 indicates that this area (with the exception of Multnomah County) is expected to experience increases in population similar to those in Clark, Cowlitz, and Skamania counties.

Table 10.1-4. Population estimates and forecasts for selected areas of Oregon.

Area	1999 Population	Estimated 2020 Population	1999-2020 Population Change (percent)
Oregon	3,300,800	4,244,829	+28.6
Multnomah County	646,850	721,885	+11.6
Washington County	404,750	577,983	+42.8
Clackamas County	326,850	463,473	+41.8

Source: CPRC (2000).

10.1.5.3 Labor Force and Employment

Primary Study Area

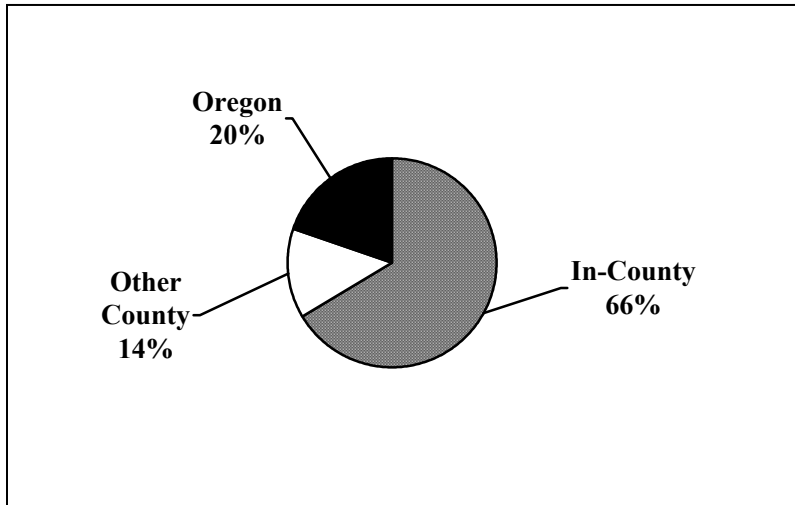
As of the 1990 census, the Lewis River Valley had a total labor force of 8,172 and an unemployment rate of 6.2 percent (Table 10.1-5). At that time, the unemployment rate of the Lewis River Valley was substantially lower than that of Skamania County (10 percent), higher than Cowlitz County (4.5 percent), and just under the rate of Clark County (6.7 percent).

Table 10.1-5. 1990 labor force and employment.

	Total Labor Force	Total Employment	Total Unemployment	Unemployment Rate
Clark County	37,900	35,360	2,550	6.7%
Cowlitz County	127,600	121,700	5,800	4.5%
Skamania County	3,910	3,520	390	10.0%
Lewis River Valley Area	8,172	7,665	507	6.2%

Source: Census Bureau 1990.

According to the 1990 census, 66 percent of residents in the Lewis River Valley who had a job worked within their county of residence. Fourteen percent commuted outside their county of residence, and the remaining 20 percent commuted out-of-state. The commuting patterns in the Lewis River Valley are similar to those in the larger, county-wide areas (Figure 10.1-6). These figures, coupled with an unemployment rate similar to the county-wide areas, suggest that commuting patterns in the Lewis River Valley are similar to that in the surrounding counties.



Source: Census Bureau 1990.

Figure 10.1-6. 1990 Lewis River Valley place of employment.

Clark County

Table 10.1-6 shows 1999 and 2000 workforce and unemployment figures for Clark County. The labor force in Clark County is on a rise, largely due to the population growth in the area. Unemployment rates have consistently hovered around 4 to 7 percent for the past 8 years (State of Washington 1995). Unemployment may rise in the near future due to volatile and rising energy prices. For example, there have been voluntary temporary layoffs in the aluminum industry. However, Clark County has successfully attracted new manufacturing industry jobs in recent years.

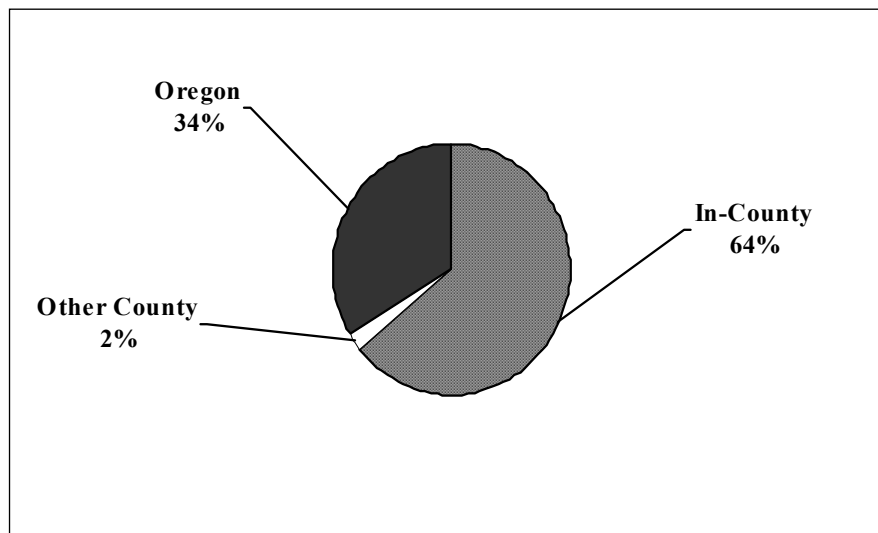
Historically, the county depended on wood products as the key industry; however, since the decline of the timber industry in the early 1980s, the economy has rebounded with new industries locating in the county. Since then, Clark County was chosen as the site for a number of high technology operations. These opportunities have diversified the employment base and reduced the reliance on a single-industry dependent employment base. The types of industries and jobs being created have stabilized the economy.

Table 10.1-6. 1999 and 2000 labor force and employment estimates for Clark, Cowlitz, and Skamania counties.

	1999			2000		
	Clark County	Cowlitz County	Skamania County	Clark County	Cowlitz County	Skamania County
Total Labor Force	180,500	41,910	4,070	182,400	42,010	3,900
Total Employment	173,300	38,450	3,730	174,600	39,190	3,550
Total Unemployment	7,100	2,950	340	7,800	2,820	340
Unemployment Rate	4.0%	7.0%	8.4%	4.3%	6.7%	8.8%

Source: State of Washington 2000

According to the 1990 census, 64 percent of Clark County residents who had a job worked within the county (Figure 10.1-7). While only 2 percent commuted to other counties within Washington, the remaining 34 percent commuted to Oregon. A majority of these out-of-state workers commuted to Multnomah County, Oregon (Clark County 2000).



Source: Census Bureau 1990.

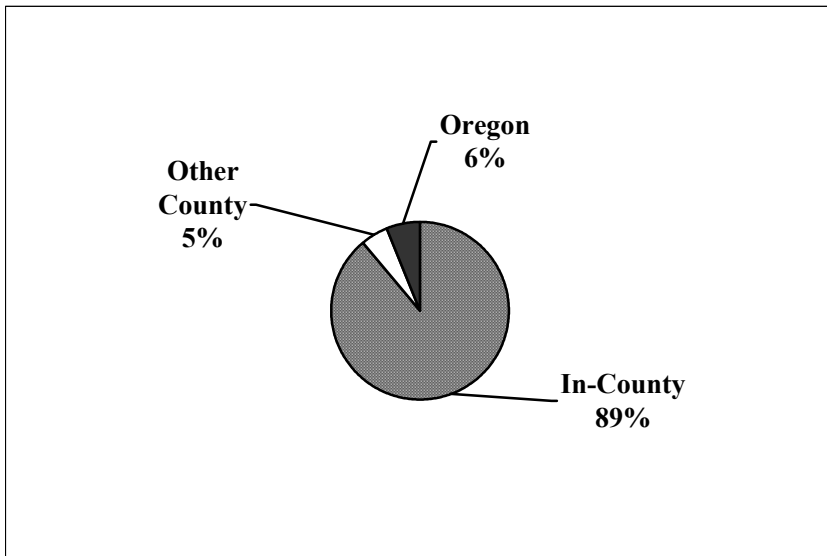
Figure 10.1-7. 1990 Clark County place of employment.

Cowlitz County

Table 10.1-6 also shows 1999 and 2000 workforce and unemployment figures for Cowlitz County. In the early 1970s, the unemployment rate in Cowlitz County was well below the statewide level due largely to the timber industry, which accounted for almost half the jobs in the area (State of Washington 1998). Since then, unemployment in the county has largely followed trends similar to those in Clark County. Traditional manufacturing, however, has maintained a larger employment base in Cowlitz County. The restructuring and modernization of the timber industry eliminated a large number of jobs, resulting in a jobless rate that hovers just above the statewide average. Since the early 1990s, there has been significant expansion in the labor force due to population growth, the stabilization

of timber jobs, and the attraction of new industries, all contributing to the relative health of the Cowlitz County economy.

In 1999, about 82 percent of Cowlitz County employment was in the Kelso-Longview area, another 9 percent in the city of Woodland, 4 percent in Kalama, 3 percent in Castle Rock, and the remaining 2 percent in smaller towns or in unknown locations (pers. comm., S. Bailey, 3/01). According to the 1990 census, 89 percent of Cowlitz County residents who had a job worked within the county. Five percent of the workforce commuted to other counties within Washington, while the remaining 6 percent commuted out of state (Figure 10.1-8).



Source: Census Bureau 1990.

Figure 10.1-8. 1990 Cowlitz County place of employment.

Skamania County

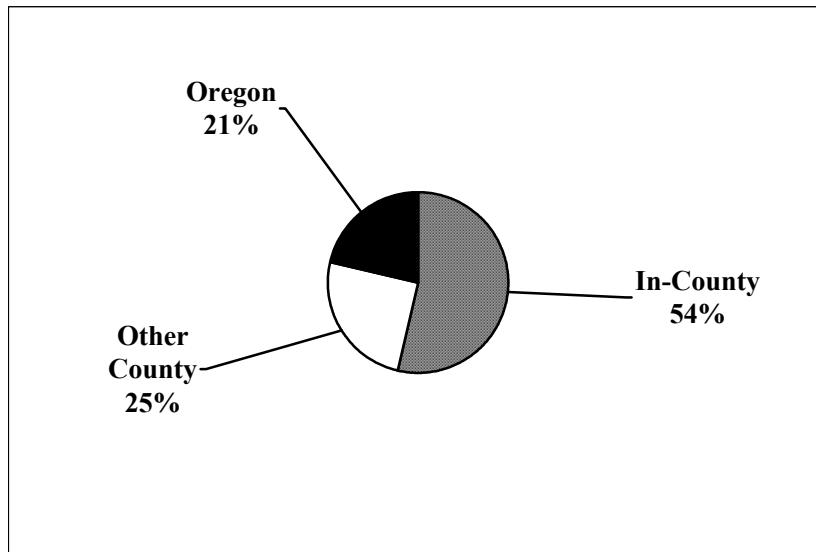
Table 10.1-6 shows 1999 and 2000 workforce and unemployment figures for Skamania County. In recent years, the labor force varied widely, growing one year only to drop back over the next several years. For example, in 1996, the unemployment rate in Skamania County was 11.3 percent, yet it dropped to 8.4 percent in 1999 (State of Washington 1998a, OFM 1999).

The annual average unemployment rate in Skamania County has been consistently higher than the statewide average (State of Washington 1998a). Even when the timber industry was flourishing, unemployment was relatively high by statewide standards because the seasonality of the industry contributed to high rates of joblessness during certain months of the year. The timber industry is still a major employer in the county, but new employment opportunities have shifted to the growing tourism industry.

Aside from government, which is relatively stable, the main industries in the county are seasonal in nature, a factor which tends to drive up average unemployment. The largest increase in the labor force is projected to be in service occupations, largely due to the

presence of the Skamania Lodge, a conference center/destination resort that is now the largest private sector employer in the county. More importantly, no decreases in any occupational sectors are envisioned in the near future (State of Washington 1998a).

According to the 1990 census, just over half (54 percent) of Skamania County residents who had a job worked within the county. This is largely attributed to fewer job opportunities within the county. Twenty-five percent of the workforce commuted to other counties within Washington, and the remaining 21 percent commuted to Oregon (Figure 10.1-9).



Source: Census Bureau 1990.

Figure 10.1-9. 1990 Skamania County place of employment.

Lewis River Projects

Employment at the Projects is not high. PacifiCorp has 25 employees at the Projects, with an additional 4 seasonal employees. Of these 25 employees, 18 live in Cowlitz County, and 7 live in Clark County. Lewis River recreation operations provide seasonal jobs for approximately 42 campground hosts and maintenance personnel under contract with Thousand Trails.

Recreation-related employment has increased at the site in the last two years. In 2000, seasonal employees hired for recreation included 9 fee attendants, 6 traffic controllers, 5 maintenance workers, 4 roving crew and 9 campground hosts for a total of 33 seasonal employees. In 1999 and 2000 a separate external contract was used for lawn mowing so the staff listed above did not perform lawn mowing. These staff also did not perform electrical, water, sewer or building structural repair, full time PacifiCorp staff performed these hard maintenance items.

In 2001, Thousand Trails is responsible for hiring all seasonal employees. These include 2 On Site Area Managers, 6 Unit Managers, and 34 Campground Hosts for a total of 42 seasonal employees. These staff do not perform electrical, water, sewer or building

structural repair, full time PacifiCorp staff perform these hard maintenance items. Thousand Trails will also employ 3 winter or off season caretakers.

PacifiCorp’s contract with Thousand Trails includes a “Staffing Strategy” based on the Thousand Trails’ proposal. That strategy gives preference to hiring managers and staff who were employed by PacifiCorp prior to the start of the Thousand Trails contract. The staffing strategy states:

“In order to ensure qualified and adequate staffing for PacifiCorp, Thousand Trails will draw from staff that existed during the 2000 season, run a recruiting clinic in Quartzite, Arizona, and utilize the Workamper News publication. Thousand Trails will give preference to managers and staff that were both onsite during the 2000 season, and are in good standing with PacifiCorp.”

Cowlitz PUD employs 150 people at its offices in Longview, but other than for relicensing, less than one full-time equivalent is dedicated to the Swift No. 2 Project. Swift No. 2 operations and maintenance activities are contracted to PacifiCorp.

10.1.5.4 Housing

Lewis River Valley

As of the 1990 census, the Lewis River Valley had 6,141 occupied housing units. Of these, a majority (4,095 units or 76 percent) are located in Clark County, 2,018 units (23.5 percent) are located in Cowlitz County, and only 28 units (0.5 percent) are located in Skamania County. However, private housing development in the Northwoods/Swift Reservoir area has grown considerably since 1990, with at least 38 new lots permitted by Skamania County in that timeframe (pers. comm., K. Pearson, 6/25/01). Nearly 80 percent of the occupied housing units in the Lewis River Valley were owner-occupied, while the remaining 20 percent were renter-occupied. Residents in the Lewis River Valley were more likely to be homeowners than their counterparts in the county-wide area, indicating a more stable long-term population (Table 10.1-7).

Table 10.1-7. 1990 occupancy status by area.

	Renter Occupied		Owner-Occupied		Total
	Total Units	Percent	Total Units	Percent	Occupied Units
Clark County	31,568	35.7%	56,872	64.3%	90,440
Cowlitz County	10,935	34.6%	20,705	65.4%	31,640
Skamania County	811	26.5%	2,255	73.5%	3,066
Lewis River Valley Area	1,265	20.6%	4,876	79.4%	6,141

Source: Census Bureau 1990.

Clark County

As of the 1990 census, Clark County had 90,440 occupied housing units. Close to two-thirds (64 percent) of the occupied housing units were owner-occupied, while the remaining one-third (36 percent) were renter-occupied (Table 10.1-7).

In 1999, there were 134,063 total housing units in Clark County, representing a 31 percent increase from 1990 (Clark County 2000). The construction of new housing units is keeping pace with the population growth, although it tapered off somewhat in 1999. In 1999, 3,133 new housing units were constructed in Clark County, compared to 3,909 in 1998 and 4,548 in 1997 (Clark County 2000).

Cowlitz County

As of the 1990 census, Cowlitz County had 31,640 occupied housing units. Close to two-thirds (65 percent) of the occupied housing units were owner-occupied, while the remaining one-third were renter-occupied (Table 10.1-7).

The construction of new housing units is keeping pace with the population growth, although it tapered off somewhat in 2000. In 2000, 197 new housing units were constructed in Cowlitz County, compared to 342 in 1999 (Cowlitz County 2000).

Skamania County

As of the 1990 census, Skamania County had 3,066 occupied housing units. Nearly three-quarters (73 percent) of the occupied housing units were owner-occupied, while the remaining one-quarter (27 percent) were renter-occupied (Table 10.1-7).

10.1.5.5 Transportation

State Route (SR) 503 is the only major public transportation arterial in the Lewis River Valley. Starting at I-5 in Woodland, SR 503 runs east through the Lewis River Valley to the community of Yale, and then turns south, crossing the Lewis River north of the community of Chelatchie and continuing south into Clark County. The SR 503 Spur runs east to the Skamania County line, where it becomes U.S. Forest Service Road (FR) 90. FR 90 continues east into the GPNF and the Monument. Most visiting vehicular traffic entering the Lewis River Valley does so along SR 503.

Washington State Patrol has law enforcement responsibility along SR 503. Conversations with the State Patrol indicate that no unusual or difficult traffic situations exist along this highway from either a safety or law enforcement perspective (pers. comm., Lt. Bob Lenz, 3/2/01). They indicate that there is nothing in the accident records that would suggest serious safety problems along any areas of SR 503. However, the Cowlitz County Sheriff's Department indicates that vehicles entering the Cresap Bay campground and Yale Lake boat launch on busy weekends may encounter congestion at pay booths and back up onto travel lanes. To date no recorded accidents have occurred at these locations, but these are potentially dangerous situations.

The Washington State Department of Transportation (WSDOT) is responsible for maintenance and capital improvements along SR 503. WSDOT engineers indicate that

there are no programmed major improvement projects along SR 503, although a Route Development Plan study is scheduled in the 2001-03 biennium for the section of SR 503 between Yale and Battle Ground. This study will identify the needs of that section of highway for the upcoming 20-year period (pers. comm., R. Keniston, 3/6/01). Preliminary indications are that there may be some minor improvements needed to widen some existing substandard curves.

Good access to recreation sites by visitors is important to tourism and recreational enjoyment. In February 1996, several days of heavy rain-on-snow events in the Cascade Mountains triggered severe slides in the Lewis River corridor, washing out several key access roads to the Monument, GPNF, Merrill Lake, and locations east of Swift Dam. Notable road closures included FR 90, 83, and 81. These roads were repaired and are essential for access to the Monument from the southeast. Although the economic impacts to private businesses were not calculated, it is clear from talking to business operators that the closed roads along and beyond the Lewis River corridor resulted in decreased tourism oriented to the Monument and Swift Reservoir in the summer of 1996. As roads were reopened in 1997 and 1998, business levels have increased.

10.1.5.6 Utility Infrastructure

Overall, there are few major utilities (aside from electricity) in the Lewis River Valley and low demand for utility services. In Washington State, the Growth Management Act (GMA) limits the provision of public services such as sewer and water outside of Urban Growth Areas (UGA). The area in the vicinity of the Projects is well outside any Cowlitz County UGA. The closest UGA is around the City of Woodland, located 12 miles west of Merwin Dam. Most residences and commercial premises in the Lewis River Valley utilize private wells and septic systems. There is a private water system in the community of Cougar that provides water to residents and businesses there from its own wells.

To accommodate the influx of summer recreational visitors into the area, Cowlitz County has maintained seasonal comfort stations along SR 503 and SR 503 Spur. For a number of years, the Cowlitz County Public Works Department has stationed 2 to 4 portable Sanican toilets at Jack's Restaurant and Store, where SR 503 turns south toward Clark County, as well as an additional 4 portable toilets in the community of Cougar. Starting in 2001, a different procedure is being followed. In coordination with the Cowlitz County Public Works Department, the Port District in Woodland oversaw construction of a public restroom in Cougar. The restroom is located near the Fire Station on 0.73 acres of land provided by PacifiCorp to the Port District at a nominal lease rate. The County will pay the Port District \$4,000 in annual lease fees for public use of this restroom, and will discontinue the placement of Sanicans along SR 503. In coordination with WSDOT, signs will be placed along SR 503 indicating the presence and location of the public restroom. In the future, a small park is planned for installation on the property containing the public toilets.

Cowlitz PUD is the electric service provider for Cowlitz County. All rate payers in Cowlitz County purchase electric power from Cowlitz PUD, with a few exceptions for some residential customers nearer to adjoining utility service areas. Cowlitz PUD normally has no difficulty supplying all the power needs of its customers. Cowlitz PUD

currently offers favorable electric rates to its customers, with a rate structure among the lowest in the state despite recent rate increases. Table 10.1-8 compares the residential rates of a number of northwest utilities.

Table 10.1-8. Comparison of Northwest utility electricity rates March 27, 2001.¹

Electric Utility	Cost of 1,600 kWh (Mar. 2001)	Average Cost per kWh (Mar. 2001)	Date of rate increase after 9/1/00
Douglas PUD	\$35.06	\$.0219	
Clatskanie PUD	\$42.40	\$.0265	9/14/2000 – 30%
Chelan PUD	\$44.85	\$.0280	
Pend Oreille PUD	\$48.60	\$.0304	
Okanagon PUD	\$51.28	\$.0321	
Cowlitz PUD	\$54.08	\$.0338	10/2/2000 – 30%
Lewis PUD	\$60.50	\$.0378	
Grant PUD	\$64.09	\$.0401	
Benton PUD	\$77.29	\$.0483	
Eugene Water and Electric Board	\$79.20	\$.0495	3/1/2001 – 5.4
PacifiCorp Washington	\$84.00	\$.0525	
Grays Harbor PUD	\$91.49	\$.0572	1/1/2001 – 20.5%
Portland General Electric	\$92.50	\$.0578	
Puget Sound Energy	\$93.80	\$.0586	
Tacoma Power	\$96.86	\$.0605	12/20/2000 – 43%
Clark Public Utilities	\$98.08	\$.0613	1/15/2001 – 21%
Seattle City Light	\$100.78	\$.0630	3/1/2001 – 18%
PacifiCorp Oregon	\$102.08	\$.0638	
Snohomish PUD	\$112.00	\$.0700	1/1/2001 – 33%

Source: Cowlitz PUD, March 2001; PacifiCorp 2000 FERC Form #1, Page 304.1.

¹ Cowlitz PUD implemented a rate increase in October 2001, after this report was completed. Residential customers now pay 4.9¢/kWh.

As a public utility, Cowlitz PUD is a Bonneville Power Administration (BPA) preference customer, excluding unusual load growth, BPA is required by law to meet Cowlitz PUD's needs over and above the assured capability that the PUD must provide from its own resources such as Swift No. 2. However, Cowlitz PUD rates will increase once again in late 2001 as BPA, the PUD's major supplier, increases its rates. Volatility in the current market for electricity, due to lack of power availability in many western states, deregulation in California, and drought conditions in the Northwest, may result in larger than usual rate increases from BPA that are unrelated to Swift No. 2 Project relicensing. The next rate increase will occur by October 2001, when Cowlitz PUD implements a new long-term contract with BPA. Drought conditions on the Lewis River will also have a significant impact on Cowlitz PUD's rates to its customers since shortfalls in the Swift No. 2 Project assured capability must be replaced by purchases on the volatile and very expensive open market.

Cowlitz PUD currently obtains approximately 80 percent of its power for resale to its residential, commercial, and small industrial customers from the BPA. Another 10

percent of its power mix for these customers comes from the Mid-Columbia projects in Grant County, and the final 10 percent is from the Swift No. 2 Project, 1 of the 4 Lewis River Hydroelectric Projects. Swift No. 2 is used as a load following plant in times of maximum power demand, has a rated maximum generating capacity of 70 MW, and can therefore provide up to 30 percent of the load peaking needs of the residential, commercial, and smaller industrial customers in Cowlitz County (pers. comm., D. MacDonald, 3/2/01).

As shown in Table 10.1-9, Cowlitz PUD has 8 major customer groups and 44,361 accounts as of the end of 2000. The single largest account is Weyerhaeuser Company, which accounts for over half of Cowlitz PUD's load. Weyerhaeuser Company is also the largest employer in Cowlitz County, with 2,400 employees (River Cities Chamber of Commerce 2001). However, no power from the Swift No. 2 Project is allocated to the Weyerhaeuser Company, nor to several other industrial customers.

Table 10.1-9. Cowlitz PUD and PacifiCorp customer base.

Type	Number of Customers	
	PUD	PacifiCorp
Residential	39,188	1,262,293
Commercial Lighting and Power	5,047	-
Small Commercial or Industrial	-	175,420
Small Industrial	58	-
Large Industrial	24	35,004
Public Streets and Highways	12	4,218
Other Sales to Public Authorities	20	28
Sales to Other Electric Utilities	2	-
Inter-Departmental Sales	10	-
Totals	44,361	1,476,963

Source: Cowlitz PUD 2000 Annual Report, PacifiCorp 2000 FERC Form #1, pp 300, 301, and 302.

PacifiCorp has a much larger customer base than the PUD, with 1,476,963 customers throughout 6 western states (Table 10.1-9). The majority of these are residential customers. The power generated by PacifiCorp on the Lewis River goes into their overall power mix, which in turn is distributed throughout the west. The Lewis River Projects are only one small portion of PacifiCorp's overall generating capacity within their service area. This study makes no effort to identify specific PacifiCorp customers within the Primary or Secondary Study Areas. PacifiCorp's electricity rates are higher than average, as seen in Table 10.1-8.

10.1.5.7 Recreation

Recreation Resources

The construction of Merwin, Yale, and Swift dams on the Lewis River created large reservoirs that offer recreation opportunities in a unique, rugged natural environment close to a large urban population in Clark County and nearby Portland. For many years,

the developed recreation facilities at the Projects have provided public recreation opportunities for residents of the nearby communities, as well as the Portland-Vancouver metropolitan area.

Recreation opportunities in the study area include boating, camping, picnicking, hiking, and fishing. These activities range from more intense/active recreation activities at Yale Lake and at Lake Merwin, closest to the population base and I-5 corridor, to more primitive/rural recreation activities at Swift Reservoir, farthest from the I-5 corridor (approximately 32 miles). Developed recreation facilities at the Projects are summarized in Table 10.1-10.

Table 10.1-10. Total developed recreation facilities at the Lewis River Projects.

Project	Campsites	Group Sites	Picnic Sites	Developed Boat Launches (Lanes)
Lake Merwin	58	15 (1 site)	180	2 (4) + 2 below dam (3)
Yale Lake	108	30 (2 sites)	75	4 (8)
Swift Reservoir	93	0	15	1 (2)
Total	259	45	270	9 (17)

Source: EDAW, Inc. 2000b.

PacifiCorp charges user fees for the campgrounds. In 1997, these fees were increased from \$12/night per site to the current rate of \$15/night at Cresap, Cougar, and Beaver Bay campgrounds (which have showers), while Swift campground continues at \$12/night because it has no showers. Other fees are charged for additional vehicles and campsite occupants. PacifiCorp charges market rate for campgrounds to cover a portion of campground operating expenses and to avoid under-pricing other private recreation providers in the vicinity, principally private sector businesses along Lewis River Road/SR 503 and SR 503 Spur.

In 1999, PacifiCorp initiated a day use fee of \$2 per car (up to 5 passengers) for use of all developed day use sites and a \$3 daily launch fee for all types of motorized watercraft and sailboats. Campers are allowed access to adjacent day use parks without paying a fee. However, campers launching boats do have to pay a launch fee for each watercraft whether launched or not. Canoes, kayaks, rubber rafts, sailboards, and other non-motorized/car-top watercraft that do not require boat ramps are not subject to launch fees. Yearly passes are also available for the 2001 recreation season. Unlimited day use passes cost \$60 and non-peak day use passes, good all day for Monday through Thursday and other days after 4:00 pm, are available for \$30. Both passes are half-price for senior citizens and local residents. Local residents include residents of Fire Districts 1 and 7 (to recognize residents for volunteer fire district support), as well as those with an Ariel zip code.

Recreation Trends

Campground occupancy data and vehicle count data at the developed recreation facilities in the study area are collected annually. Visitation results and trends for 1998-2000 are summarized in Table 10.1-11.

According to these data, visitation at recreation facilities associated with the Projects was considerably higher in 1998 than in 1999 or 2000. The decline in 1999 was likely caused by a combination of poor weather conditions, as well as the implementation of new user fees and placement of new fee booths at the entrances to day use facilities.

Table 10.1-11. Project recreation visitation for 1998 to 2000.

	1998	1999	% Increase (decrease) over 1998	2000	% Increase (decrease) over 1999
Day use Visitation	867,439	428,087	(50.6%)	502,623	17.4%
Campground Visitation	59,456	43,255	(27.2%)	56,437	30.5%
Total Visitation	926,895	471,342	(49.1%)	559,059	18.6%

Source: PacifiCorp 2000.

Other recreation sites in the area reported a reduction in visitor use of approximately 14 percent for the summer of 1999. The summer of 1998 was one of exceptionally good weather, while the summer of 1999 was generally cool and overcast, following a winter of record-setting precipitation driven by an El Nino event in the Pacific Ocean. The 2000 season saw a return of good weather.

One result of implementing new day use fees is that visitors who may be sightseeing in the area are less likely to stop at the day use areas to look around or to use the restrooms or picnic facilities. Also, visitors are less likely to visit several day use areas (or cruise from site to site, a popular activity among area youth), unsure of having to pay another fee. Since total visitation is derived from traffic counters at the day use areas and campgrounds, these explanations could account for a portion of the decrease in vehicle counts. Campground occupancy data appear to validate this explanation since occupancy declined 27 percent from 1998 to 1999, while total vehicle counts at day use areas associated with campgrounds declined 5 percent. Vehicle counts at Project day use areas declined 40 percent during this same period. From 1999 to 2000, campground occupancy increased 30 percent and total day use increased 17 percent (see Table 10.1-11). These data suggest that all 3 components—weather, reduced cruising, and a reduction in visitors related to day use fees—are all factors in the decrease in recreation visitation.

Visitor Destination Habits

Survey results regarding visitor destination habits in the study area are presented in the Recreation Demand Analysis (EDAW 2000), an appendix to the 2000 Technical Report, and have been extracted for use in this study. Surveys were conducted at recreation facilities along the 3 Project reservoirs, as well as at several dispersed (undeveloped) recreation use areas adjacent to the Projects. These survey results help document the proportion of recreation visitors that are Project-related and the proportion drawn by other attractions in the area.

Survey participants at developed Project recreation facilities were asked to indicate their main destination on their trip and if they planned to visit any recreation areas during their visit to the Lewis River basin other than the site where they were contacted. A majority of visitors (70.9 percent) surveyed at Merwin and Swift sites indicated that they planned

on remaining at or near the site where they were contacted. The remaining survey respondents (29.1 percent) indicated that visiting other sites was part of their travel plans. Over half (55 percent) of those surveyed at Yale Lake said that they would remain solely at Yale Lake during their visit. The remaining respondents (45 percent) indicated that they had plans to visit or had already visited other locations during their trip.

At developed recreation facilities at Lake Merwin and Swift Reservoir, about half (49.5 percent) of those visitors who did not plan to remain at or near the site where they were surveyed indicated that the Monument (including Ape Cave and Lava Canyon) was one of their primary destinations as part of their visit to the Lewis River basin. Approximately one-third (29.5 percent) said that they were visiting the GPNF as a main part of their trip. At Yale Lake, of those responding that they have or would visit other areas, the largest group (34 percent) listed the Monument as their primary destination.

Survey participants at undeveloped dispersed recreation sites in the vicinity of the Projects were also asked to indicate their main destination on their trip. Fifty-seven percent of visitors in the survey reported that their main destination was either in the Monument, Department of Natural Resources (DNR) lands, or USFS-managed lands. Visitors' main destinations associated with each of the reservoirs accounted for 5 to 10 percent of the survey sample. Yale Lake was the primary destination for 10 percent of participants, while Swift and Merwin reservoirs accounted for 5 percent each.

Table 10.1-12 summarizes visitor destination habits in the study area. This information is useful in characterizing the destination habits of visitors at known locations, particularly developed facilities of the Projects; however, it does not provide information about all visitors to the study area. These survey results indicate that 55 to 70 percent of the visitors contacted at the facilities were drawn to the area by the recreation facilities associated with the Projects. While the overall survey results point to the dynamic nature of recreation use in the study area encompassing multiple destinations and attractions, they also point to the strong draw of the recreation facilities associated with the Projects as recreation destinations.

Table 10.1-12. Visitor destination habits in the study area.

Location of Survey	Percentage Indicating Project Facilities as Main Destination	Percentage Indicating That Visiting Other Sites Was Part of Their Travel Plans
Merwin/Swift	70.9%	29.1%
Yale	55.0%	45.0%
Dispersed Sites	up to 20.0%	80.0%

Source: EDAW 2000.

Estimates of Future Demand and Trends for Recreation Activities in the Project Area

Detailed information regarding existing and future visitor demand for recreation opportunities and resources in the study area was presented in the Recreation Demand Analysis (EDAW 2000), and has been extracted for use in this study. A summary of estimates of future demand and trends for recreation activities in this area is presented below.

The Washington State Interagency Committee for Outdoor Recreation (IAC) conducts periodic surveys to determine participation in and growth of different outdoor activities and to identify the most popular outdoor recreation activities statewide (IAC 1995). Using these data, annual percentage increases in recreation use by activity type found in the study area were calculated. These data, various recreation user counts observations and surveys, and local and regional population trends were synthesized to identify projected increases in demand for recreation activities occurring in the study area (EDAW 2000). These projections (from the year 2000 through 2035) show an increasing level of demand in this area.

Increases in demand through the year 2035 are anticipated to range from a low of approximately 36 percent (for hunting of upland birds, small game, and waterfowl) to a high of 193 percent (for visiting interpretive displays). For most recreation activities, demand is expected to at least double during this timeframe. Out of the 28 activities occurring in the study area, only 7 activities show projected increases of less than 100 percent (i.e., doubling); 5 of these 7 activities are fishing and hunting-related.

For some of the activities, demand is expected to significantly increase (by 150 percent or more) between 2000 and 2035. Several of these activities are already popular with visitors in the study area. Although visiting interpretive displays is expected to be the fastest-growing activity for visitors to this region, there are relatively few interpretive facilities available in the Lewis River basin at this time. However, many interpretive facilities are located along SR 504 north of Mount St. Helens, which may lead to an increase in visitors passing through the Lewis River basin. The majority of the activities included in the IAC analysis are projected to expand at levels between 100 percent and 150 percent between 2000 and 2035, including many of the activities that are popular among visitors such as swimming, water skiing, power boating, non-motorized boating, and sailing.

Information from the GPNF indicates that snowmobiling and snowplay in the areas north of the 3 Lewis River reservoirs has increased significantly in recent years. In 1996, the GPNF reported that demand for parking at snow-park areas during the winter was double the available capacity during peak winter weekends (USFS 1996). This rapidly increasing demand for winter recreation activities may lead to an increase in visitors passing through the study area during the winter months.

An additional data source used to estimate regional demand was published by the Washington Department of Fish and Wildlife (WDFW). The data include recreation demand levels in the vicinity of the Projects, specifically in Clark and Cowlitz counties. As noted in WDFW (1995), hunting license demand has increased dramatically in these 2 counties, far outpacing the average statewide growth. From 1987 to 1990, resident hunting license sales in Clark and Cowlitz counties increased 17 percent and 16 percent, respectively. During the same period, non-resident license sales increased 38 percent in Clark County and 70 percent in Cowlitz County. Fishing license data also indicate that these counties' participation exceeds the state average, or that these counties are destination sites for out-of-county anglers.

10.1.5.8 Public Services

Public Safety

PacifiCorp contracts with private security personnel for the Projects, who assist recreation facility caretakers and camp hosts with security issues and crowd control. PacifiCorp also contracts with the Cowlitz County Sheriff's Department, which provides 1 to 2 land-based officers on weekends and holidays to patrol Cowlitz County land bordering Lake Merwin and Yale Lake. At Swift Reservoir, PacifiCorp employs private security personnel only; there are no additional land-based patrols by County law enforcement personnel. Current use levels at Swift Reservoir are comparatively low and do not warrant additional service at this time.

The Washington State Patrol has jurisdiction for patrolling SR 503 and SR 503 Spur, are the main routes through the study area.

Law enforcement service calls are relatively light in the southeast part of Cowlitz County due to the area's remoteness. There are no law enforcement facilities located there. Instead, Cowlitz County Sheriff's Department Deputies work from their vehicles, using the Kelso Station as their base of operations. The major demand for security services is responding to calls from the recreation facilities associated with the Projects. As these facilities are open from approximately Memorial Day to Labor Day, that period defines a window of peak operations for the Cowlitz County Sheriff's Department during the summer months.

Additional on-water law enforcement is provided on the reservoirs, by Marine Patrol Deputies in patrol boats. The Clark County Sheriff's Department maintains a patrol boat on the water on variable weekends and weekdays. These boat patrols are partially funded from fees collected from the sale of boat licensing tabs. PacifiCorp has an agreement with the Clark County Sheriff's Department (Marine Patrol Division) for marine law enforcement and safety patrol on Lake Merwin and Yale Lake 2 days per week, including 1 weekday and 1 weekend day each week (from Memorial Day to Labor Day). PacifiCorp provides financial support to the County for this service. In 1999, the Clark County Sheriff's Department Marine Patrol issued 61 citations to Merwin Lake visitors and 105 citations to Yale Lake visitors. These citations were issued for violations related to boat speed, personal flotation device (PFD) usage, illegal fires, fishing regulations, water skiing/personal watercraft (PWC) use, and intoxication. Swift Reservoir does not have similar Marine Patrol enforcement at this time due to its lower use levels. The Cowlitz County Sheriff's Department also conducts boat patrols of the reservoirs through the summer, although these are not regularly scheduled. They have discretion as to when and where their marine patrols are conducted, and they work approximately 20 to 22 10-hour shifts on the Lewis River reservoirs on weekends each summer (pers. comm., D. Bodine, 6/24/01). Patrols typically coincide with good weather patterns when recreational boat traffic is highest.

Due to the seasonal nature of law enforcement service demand in the study area, it is not practical to add additional patrol staff for what is essentially a 3-month demand window. Therefore, the Clark and Cowlitz County Sheriff's Departments rely on a combination of

an extensive use of overtime and the assistance of private security forces to meet that additional demand. PacifiCorp contributes to this effort by hiring the private security staff, and paying overtime salaries for Sheriff's Deputies. PacifiCorp makes payments to these 2 Sheriff's Departments to cover Deputy overtime costs. In 2000, Cowlitz County received a total payment of \$47,000, and Clark County received \$30,000, for a total overtime subsidy payment of \$77,000. This payment by PacifiCorp enables Deputies to dedicate their time to patrolling the study area. At the same time, these Deputies are available for emergency response calls within the communities surrounding the Projects.

Private security personnel hired and administered by PacifiCorp are staffed at variable levels of 2 employees for 3 days in the middle of the week, and 3 employees for the other 4 days a week through the summer months. This is an adequate level to staff both the fee booth at Cresap Bay campground from 11 p.m. to 7 a.m., and to provide 1 to 2 additional patrol personnel as needed.

Fire Protection

There are 4 Fire Protection Districts within the vicinity of the Projects. These include Cowlitz Fire Protection District #1, Cowlitz-Skamania Fire Protection District #7, Clark County Fire Protection District #10, and Skamania County Fire Protection District #6. The majority of the area is protected by Cowlitz-Skamania Fire Protection District #7, which covers the north side of Lake Merwin, Yale Lake and a portion of the north side of Swift Reservoir. Cowlitz Fire District #1 provides fire protection and emergency response coverage to the area around Merwin Dam and west along the Lewis River Road to Woodland, while Clark County Fire District # 10 provides protection along the south side of the reservoirs and the Lewis River. Skamania County Fire Protection District #6 covers a part of eastern part of the study area.

Cowlitz-Skamania Fire Protection District #7 covers the area from milepost #43 along SR 503 east of Woodland on the west to 5 miles into Skamania County on the east. The southern boundary of this District is the Clark-Cowlitz County line, which bisects the reservoirs and the Lewis River. Service is provided from 4 unattended stations distributed throughout the service area—Yale Valley, Saddle Dam (Frasier Road), Cougar, and Dubois Road.

Cowlitz Fire Protection District #1 is responsible for the area from the Woodland city limits along the north side of the river east past Merwin Dam (milepost #43). This service area includes the Village, hatchery, and control room. Clark County Fire District #10 is responsible for the south side of Merwin Dam and the powerhouse, as the county line passes through the center of the river. However, in reality, there is no access to these facilities from Clark County. All access is from the Cowlitz County side.

A gap in fire protection services exists in Skamania County. An area of approximately 8 miles along FR 90 is not assigned to either Cowlitz-Skamania FPD #7 or Skamania #6. In addition, the Marble Mountain neighborhood along FR 9015 is outside of any fire protection district. For the moment, Cowlitz-Skamania FPD #7 responds to calls in those areas, but receives no property tax monies to cover those calls.

Funding for fire protection services comes from property taxes and, in the case of the public utility districts, privilege taxes in lieu of property taxes. In some cases, due to the manner in which taxes are collected and distributed, the entity receiving a distribution of tax may not be able to fulfill its duty to provide service in a timely manner due to geography. For example, in the case of the Merwin powerhouse, Clark County Fire District #10 receives tax allocation for providing fire protection services. Yet due to geography and the road network, in case of fire at the powerhouse, a Fire District #10 truck would need to traverse 2 Cowlitz County Fire District territories to reach the powerhouse. Therefore, in actual practice, the Cowlitz County Fire Districts are providing the service, but are not receiving property tax funding for that service.

A significant portion of the calls that the Fire Districts make are directly or indirectly related to the Projects. Fire District #7 estimates that 54 percent of its calls are made to assist recreation visitors in the study area, although as was discussed in Section 10.1.5.7, Recreation, not all recreation activities are Projects-related. However, approximately 30 percent of all calls are made to the recreation facilities on the reservoirs or river (pers. comm., D. Stuart, 2/16/01). These services cannot be funded by user fees as state law prevents Fire Districts from imposing direct charges for services rendered. The distribution of calls is discussed in greater detail under the Emergency Services section, below. Emergency service calls typically comprise approximately 85 percent of the overall call response activity during the course of the year for Fire District #7.

None of these Fire Districts receive regular supplemental beneficial payments from either Cowlitz PUD or PacifiCorp to assist with provision of fire protection services in this remote area. However, the Fire Districts report that PacifiCorp is a good neighbor and assists in several other ways. In 1985, PacifiCorp donated land in the town of Cougar to Fire District #7 for a new station. PacifiCorp also recently provided a one-time donation of \$2,500 for general services in 2000. Fire District #1 reports that PacifiCorp personnel render other assistance as they can, through loans or use of equipment, such as a crane, when needed.

Much of this fire protection is provided by volunteers. For example, Cowlitz-Skamania FPD #7 is an entirely volunteer force of approximately 40 individuals. Of this number, half are trained as medical personnel. Volunteering is a significant time commitment for these individuals. All firefighters are required to undergo 6 hours of training a month, and medically trained personnel are required to undergo an additional 4 hours of training a month, in addition to answering calls.

Emergency Services

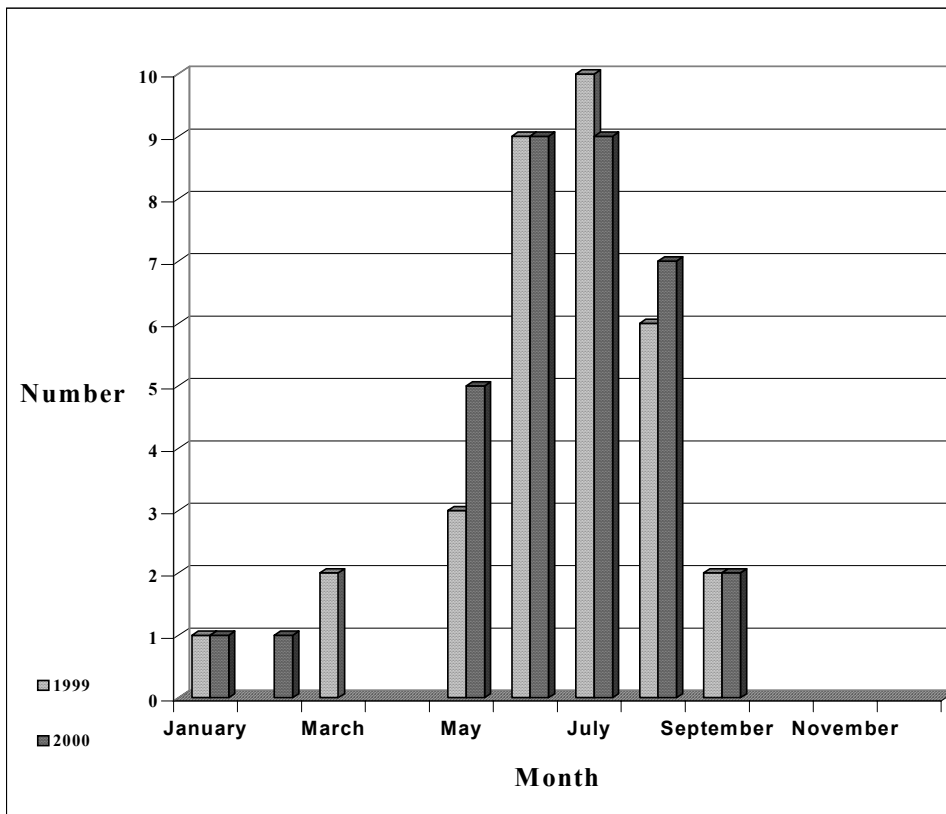
Emergency services in the area are provided by North Country Emergency Medical Services (NCEMS) and the various regional Fire Departments. NCEMS is the only organization that provides hospital transport and advanced life support in the study area. The four Fire Departments provide basic life support and first-responder capability to support NCEMS.

NCEMS is based in the Yacolt Fire Station in Clark County. An auxiliary station located adjacent to the Cresap Bay Campground entrance is staffed on weekends in the summer-

time, from Memorial Day until Labor Day. NCEMS normally operates 2 ambulances at a time. When the Cresap Bay Station is staffed, one ambulance is in the Cresap Bay Station and one remains at the Yacolt Fire Station. Standard procedure is for the Cresap Bay Station ambulance to return to Yacolt to be more centrally positioned during times that the Yacolt ambulance is responding to a call.

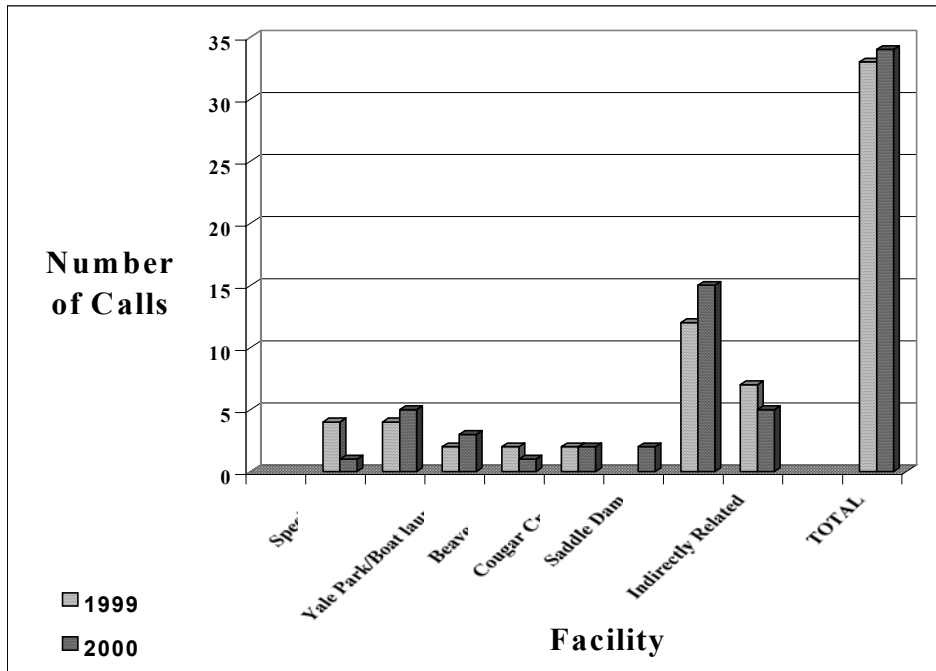
The Cresap Bay Station was established due to the high demand for emergency response in the Lewis River basin during the peak summer recreation period. In 1999, 33 emergency response calls were made, and 34 calls made in 2000, most of them during the summer months, as shown in Figure 10.1-10. The majority of the calls were made at recreation facilities associated with the Projects, as shown in Figure 10.1-11, although some were not identified by specific area, such as calls that responded to accidents involving recreation users along SR 503 or SR 503 Spur.

Other circumstances, not related to the Projects' recreation facilities, place additional demands on NCEMS, in addition to the summer peak use. For example, on May 4, 2000, the Canyon Creek Kayak Rodeo, an annual kayak event organized by other private interests downstream from the Yale Dam, required the presence of emergency medical technician (EMT) personnel as part of the event's permit requirements, and was outside of the regular summer peak use window. NCEMS staged personnel on the creek, and a Marine Patrol boat was staged on Lake Merwin. Other similar events would have related permit requirements.



Source: NCEMS 2000.

Figure 10.1-10. NCEMS emergency service calls by month.



Source: NCEMS 2000.

Note: Most of the calls identified as “Swift” are to the reservoir area or east, while only 10-20% are in the area of the Swift Canal.

Figure 10.1-11. NCEMS emergency service calls by Project-related facility.

The facilities at the Cresap Bay Station are owned by NCEMS and consist of a house and an out-building which functions as a 3-bay garage. The outbuilding houses an ambulance (NCEMS), a fire engine (Fire District #7), and a patrol boat (Clark County Sheriff’s Marine Patrol). The facilities were donated by PacifiCorp to NCEMS specifically for this function. While NCEMS owns the buildings and pays the property taxes, PacifiCorp retains title to the land.

NCEMS is funded by a property levy in Cowlitz and Clark counties and they can charge for services rendered to non-residents. The levy fee currently amounts to \$.50 for every \$1,000 assessed property value, and is capped at a maximum increase of \$.06 annually.

This levy was most recently passed in 1999 and is currently on a 10-year renewal cycle. No special funding or other financial assistance comes from PacifiCorp or Cowlitz PUD. PacifiCorp pays the levy fee on property they own in Clark and Cowlitz counties. Although NCEMS serves the Skamania County portion of the study area, they receive no property tax benefit from property in that county. Cowlitz PUD pays utility taxes to the state rather than property taxes, a portion of which is returned to Cowlitz County’s General Fund.

Tax revenues fund Fire Districts (pers. comm., I. Black, 2/19/01). There is concern on behalf of NCEMS that demand for emergency services due to recreation use is outstripping tax revenue growth (pers. comm., D. O’Brien, 2/15/01). Revenue growth is tied to property values, which have not been rising as rapidly as recreation demand in the study

area. To date, that has not created a demand for services that NCEMS has not been able to accommodate. However, NCEMS is concerned that the potential exists for long-term recreation growth to outstrip their resources to provide adequate emergency care.

Cowlitz-Skamania Fire District #7 has first response responsibility for emergency calls in southeast Cowlitz County and a small portion of Skamania County. They have 40 volunteers that respond to emergency calls, many of whom have medical training. As first responders, they typically precede NCEMS to the scene of an emergency by 15 to 25 minutes (pers. comm., I. Black, 2/26/01).

Emergency aid calls to the recreation facilities related to the Projects account for 20 to 30 percent of their overall aid calls, as shown in Table 10.1-13. Based on ongoing growth in population in the Portland/Vancouver area, Cowlitz-Skamania Fire District #7 anticipates that recreation-related demand for emergency response services will continue to grow. That growth rate was as high as 15 percent in previous years. However, the number of calls has declined with the imposition of new day use fees at recreation facilities related to the Projects (pers. comm., D. Stuart, 2/16/01).

Schools

There are no school properties affected by the Projects, nor are there any direct payments made to local School Districts (pers. comm., K. Griffin, 3/1/01). School Districts throughout the study area benefit indirectly from property taxes and/or utility taxes paid by PacifiCorp and Cowlitz PUD. These total tax payments are detailed in Section 10.1.5.10 of this report.

Table 10.1-13. Cowlitz-Skamania Fire District #7 emergency response calls to the Projects facilities.

Recreation Area	1999	2000
Beaver Bay Campground/Day Use	3	0
Cresap Bay Campground/Day Use	5	6
Cougar Camp/Park	3	1
Saddle Dam Park	0	1
Speelyai Bay Park	2	1
Swift Reservoir	2	1
Yale Park	4	6
Indirectly related	10	6
Total Project-related calls	29	22
Total aid calls for the year (Fire District #7)	95	101
Percentage of calls that are related to the Projects recreation facilities/use areas.	30%	22%

Source: Cowlitz-Skamania Fire District #7 2001.

10.1.5.9 Retail and Restaurant Sales Trends

To support the increasing demand of visitors traveling to the Monument, GPNF, and Project-related recreation facilities and reservoirs, private sector development along Lewis River Road (SR 503) has increased steadily over the years. In addition to the PacifiCorp-owned and operated campgrounds and day use areas on the Project reservoirs and lower Lewis River, there are a few private campground facilities in the vicinity, the majority catering to recreation vehicle (RV) campers desiring hookups. The Lewis River RV Park offers 70 campsites directly adjacent to Lewis River Road. There are several campsites offered in the immediate vicinity of the town of Cougar as well, including the Cougar RV Park (18 campsites) and the Lone Fir Resort and Trailer Park (32 campsites). A few smaller motels and bed and breakfast establishments, such as the Lone Fir Resort (17 motel rooms), operate along Lewis River Road, in Woodland, Ariel, and Cougar.

A variety of other private businesses support visitor activity in the Lewis River basin as well. Several restaurants and services are sustained by recreation-related traffic in the vicinity of the Projects. General stores selling food, gas, recreation equipment, souvenirs, guidebooks and maps, and local crafts are concentrated in the town of Cougar. Jack's Restaurant and Store, at the intersection of SR 503 and the SR 503 Spur, is the location of the USFS's Climber Registration for ascents of Mount St. Helens. Farther west, developed facilities such as hotels, motels, and larger stores are concentrated in the Woodland area. The Merwin Project is approximately a 20- to 30-minute drive from Woodland, while the Swift Project is approximately 1 hour from Woodland. Businesses contacted for this study include Save-On-Foods, Quickway/Texaco Mini-Mart, Jack's Restaurant and Store, Cougar Bar and Grill, Eagle Cliff Store, Lone Fir Resort, and Cougar Ceramics. Although somewhat distant from the Projects, Woodland is important as a major gateway into the Lewis River Valley from I-5, and Project visitors are an important source of revenue for Woodland businesses. Information presented below was collected from telephone interviews with the proprietors of these businesses. Topics discussed include estimated sales trends, seasonal employment, and customer destination.

Many of the businesses in the Lewis River Valley depend almost entirely on recreation visitors. While all of the businesses contacted for this study, with the exception of Cougar Ceramics, are open year-round, the peak recreation season (from Memorial Day to Labor Day) is the period in which these businesses earn most of their revenue. For example, the owners of both Eagle Cliff Store and Cougar Bar and Grill reported that they earn 50 to 60 percent of their revenue during the peak recreation season (pers. comm., K. Landacre and S. Weisser, 2/26/01). Similarly, daily revenues at Jack's Restaurant and Store are about 75 percent greater during the peak recreation season (pers. comm., M. Livingston, 2/26/01). Save-On-Foods in Woodland typically plans on a 20 percent boost in sales during the summer months, most of this coming on the sale of ice, beverages in containers, and snack foods. Quickway Mini-Mart in Woodland just east of I-5 also reports a significant boost from recreational visitors, selling as much as \$1,000 in fishing equipment in a single weekend day. Occupancy at Lone Fir Resort is about 75 to 80 percent during the peak recreation season and drops to just 5 percent during the winter. Cougar Ceramics recently closed its retail shop and sells only wholesale merchandise.

It is not open year-round, and apparently does not attract sufficient business to warrant remaining open as a retail concern.

Based on sales patterns and discussions with management, it is clear that much of the strategy of these businesses is recreation-driven. Conditions in the Monument and GPNF, and operations of the Projects, that affect visitors' recreation experience can have a substantial effect on their revenues. Accordingly, all of the business owners contacted for this study were in favor of an extended recreation season, as the weather in the area is still favorable during September and often into October. Quickway noted substantial off-season recreational sales to anglers through the winter.

Small businesses in the Lewis River Valley provide employment opportunities for local residents. Many of the businesses contacted for this study operate year-round; however, seasonal employment is available during the peak recreation season only. Each of these businesses has at least 2 additional hires during the peak recreation season, while Jack's Restaurant and Store has as many as 7 seasonal employees (pers. comm., M. Livingston, 2/26/01).

Recreation-based businesses serve visitors to the Projects' recreation facilities as well as visitors destined for other locations. As discussed earlier, between 29 and 45 percent of visitors surveyed at developed recreation facilities along the 3 reservoirs indicated that they planned to visit other sites as part of their travel plans. Since surveys of visitors just passing through the study area who did not stop at recreation sites were not conducted, no specific data on these visitors are available. However, local business owners contacted for this study were asked to estimate the proportion of their customers going to the Lewis River Projects versus those going to other destinations. Owners of the Cougar Bar and Grill reported that most of their customers are going to the Monument, although campers from the Projects' recreation facilities may not be coming for dinner because campground gates are locked at night and visitors would not be able to return to their campsite (pers. comm., S. Weisser, 2/26/01). The Eagle Cliff Store estimated that one-third of the customers are going to the Projects, while the remaining two-thirds are visiting other destinations such as the Monument or GPNF. Jack's Restaurant and Store specifically serves visitors heading to other recreation destinations, as it is the location of the USFS's Climber Registration for ascents of Mount St. Helens. Save-On-Foods and Quickway managers estimated that the majority of their recreation patrons were destined for the Lewis River Valley, not Mount St. Helens or the GPNF. This was based on the water recreation orientation of these customers.

10.1.5.10 Property/Utility Tax Revenues

The Projects generate tax revenues that help support public services in the Secondary Study Area. Since PacifiCorp and Cowlitz PUD are under different tax regulations and share the operating costs of the 2 Swift projects, the portrayal of how and where these taxes are paid and who they benefit is complex.

PacifiCorp

As a private corporation doing business in the State of Washington, PacifiCorp pays a property tax on its lands and facilities. Taxes are based on the assessed value of the entire generating system. Unlike most commercial property, this system is centrally valued. As a regulated power generating system, overall system value is established through an appraisal process that looks at every element throughout the system. PacifiCorp’s system extends across 6 states. The appraisal process includes 3 major elements to establish the overall system value: the original cost of the system, the income provided by the system, and the comparable market value. Once this system value has been established, then a portion is allocated back to each state based on that state’s portion of the original cost of the system. The state then allocates tax revenue earned to the individual taxing districts.

Because the allocation process uses original cost to establish distribution ratios, as newer elements to the overall system are added, the older assets represent a smaller portion of the total. There is a wide range of property improvements that comprise PacifiCorp’s Projects in Washington State, and the location of those improvements will affect the valuation of different parcels of land. Of these improvements, those with the greatest assessed value are the dams and powerhouses. The Lewis River, whose centerline forms the boundary between Clark and Cowlitz counties, roughly bisects the Project areas. In the case of Yale and Merwin Dams, the related powerhouses are located in Clark County. As noted above, age also affects value. Although income generated from 2 different dams may be equal, their relative age may affect the amount of tax revenue that each would generate.

Table 10.1-14 shows property taxes paid by PacifiCorp on the Lewis River Projects. These are broken out by that portion of taxes due to income from power generation, as well as the total property tax based on that portion of the entire PacifiCorp system represented by the projects.

This difference in tax payment is directly related to the assessed value of individual Project parcels within each county. As an aggregate, total 1999 property tax payments by PacifiCorp on the Lewis River facilities were \$1,386,049; distribution varied by county as follows: Clark County received \$680,956, Cowlitz County received \$388,467, and Skamania County received \$316,626. These payments represent 49 percent, 28 percent, and 23 percent, respectively, of the 3-county property taxes paid by PacifiCorp for their Lewis River facilities.

Table 10.1-14. PacifiCorp allocated property taxes for Lewis River Projects, Year 1999 taxes paid in 2000 to respective counties*.

Project	Clark	Cowlitz	Skamania
Generation Allocated Property Tax - Merwin	\$160,863	\$201,987	
Generation Allocated Property Tax – Yale	\$236,589	\$108,549	
Generation Allocated Property Tax – Swift		\$19,729	\$279,807
Other Property Taxes	\$283,504	\$58,202	\$36,819
Total Taxes Paid to each County	\$680,956	\$388,467	\$316,626
Percent by County	49%	28%	23%

Source: Information provided by PacifiCorp

* Totals for PacifiCorp Centrally Assessed Property in Clark, Skamania, and Cowlitz Counties.

Cowlitz PUD

As a Public Utility District, under state law, Cowlitz PUD does not pay property taxes on its lands and facilities. Instead, Cowlitz PUD pays a Privilege Tax and Generation Privilege Tax directly to the State of Washington. Privilege Taxes, as specified by Revised Code of Washington (RCW) 54.28.020, are levied according to a complex formula based on 3 types of overall revenue: (1) a percentage of direct sales to customers over the PUD’s distribution system; (2) a percentage of revenue from wholesale power generation; and (3) a percentage of revenue from sale of self-generated energy. Items 2 and 3 are collectively known as the “generation tax.” The text of RCW 54.28.020, detailing the formula for collecting Privilege Taxes is included in SOC 1 Appendix 1.

Table 10.1-15 shows the three types of taxes paid by Cowlitz PUD for 1999 and 2000: Privilege Tax, Public Utility Tax, and City taxes. For the 1999 tax year, the PUD paid a total of \$1,393,816 in Privilege Taxes. Cowlitz PUD also paid \$2,506,258 in Public Utility Tax directly to the State of Washington. In addition, the PUD collected a total of \$1,294,793 in utility taxes for the cities and distributed those funds to the cities for their use. These are utility taxes levied by the cities under their own taxing powers. The Public Utility Tax and city taxes are included here for reference but are not discussed further in this report.

The State of Washington distributes Privilege Taxes according to the following formula: 37.6 percent of the receipts are placed in the state’s General Fund dedicated for the benefit of the public schools, and the remaining 62.4 percent is returned to the counties in which the Projects are located. The distribution of this 62.4 percent component is based on a complex formula defined by RCW 54.28.050 and included in SOC 1 Appendix 1.

Table 10.1-16 illustrates how the State of Washington distributed Privilege Taxes paid by Cowlitz PUD for tax years 1998 and 1999. For the 1999 tax year, the State retained \$143,275 and \$470,152 for the General Fund and School Fund, respectively. The State dispersed the balance of \$780,253 to 5 counties, with Cowlitz County receiving the vast majority (\$779,516).

Table 10.1-15. Taxes paid by Cowlitz PUD for Tax Years 1999 and 2000.

	1999		2000	
Privilege Tax	\$1,324,435		\$1,463,800	
Swift No.2 Generation Privilege Tax	\$ 69,381		\$45,511	
Subtotal Privilege Tax		\$1,393,816		\$1,509,311
Public Utility Tax		\$2,506,258		\$2,711,684
City of Woodland	\$137,413		\$147,794	
City of Kalama	\$35,501		\$36,846	
City of Longview	\$780,964		\$820,387	
City of Kelso	\$303,714		\$316,466	
City of Castle Rock	\$37,201		\$37,643	
Subtotal City Taxes		\$1,294,793		\$1,359,136
Total		\$5,194,867		\$5,580,131

Source: Information provided by Cowlitz PUD.

Table 10.1-16. Distribution of Cowlitz PUD’s Privilege Taxes paid to the Washington State Department of Revenue (1999).

	1998 Tax Year	1999 Tax Year
State General Fund	\$146,236.06	\$143,275.70
State School General Fund	\$479,867.01	\$470,152.70
Cowlitz County	795,744.05	\$779,516.21
Clark County	\$447.19	\$513.40
Lewis County	\$22.69	\$25.73
Skamania County	\$101.84	\$130.73
Wahkiakum County	\$59.26	\$67.33
Total	\$1,422,478.10	\$1,393,681.80

Source: Washington State Department of Revenue. (Note: The source of the minor discrepancies between the Department of Revenue’s records and Cowlitz PUD’s records, as seen in Table 10.1-15, is unknown.)

As shown below in Table 10.1-17, Cowlitz County retains over 70 percent (\$613,704 for the 1999 tax year) of the Cowlitz PUD Privilege Taxes it receives from the State. The county then distributes the remainder to five cities: Longview; Kelso; Castle Rock; Kalama; and Woodland.

Since Cowlitz PUD’s Privilege Taxes are revenue-based, the amount of tax paid increases when utility rates increase. As discussed in Section 10.1.5.6, the PUD implemented a 30 percent rate increase in October 2000 and expects to implement another major rate increase in late 2001¹. Therefore, the absolute amount of Privilege Tax paid in 2001 and in future years is expected to be significantly greater than that paid in previous years.

Table 10.1-17. Distribution of Cowlitz PUD Privilege Taxes allocated to Cowlitz County (1999).

	Tax Year 1998	Tax Year 1999
Cowlitz County	\$640,361.62	\$613,704.40
City of Longview	\$92,360.87	\$97,620.50
City of Kelso	\$35,364.49	\$37,964.26
City of Castle Rock	\$5,393.36	\$5,580.20
City of Kalama	\$3,852.48	\$4,437.61
City of Woodland	\$18,628.58	\$20,611.96
Total	\$795,961.40	\$779,918.93

Source: Cowlitz County Treasurer’s Office 2001 (Note: The source of the minor discrepancy between the State Department of Revenue’s records and Cowlitz County’s records, as seen in Table 10.1-14, is unknown.)

PacifiCorp and Cowlitz PUD Combined Tax Payments

Table 10.1-18 presents the combined tax payment from Cowlitz PUD and PacifiCorp to Washington State and the 3 counties affected by the Projects. Percentages of total

¹ Cowlitz PUD implemented a 46% rate increase in October 2001, after this report was completed.

tax revenue received are presented for each jurisdiction. Cowlitz County receives the greatest proportion of that revenue, at 42 percent.

Table 10.1-18. Combined Cowlitz PUD and PacifiCorp tax payment in 1999¹.

County	Tax Revenue	% of Total Taxes Paid
State of Washington		
- Cowlitz PUD Privilege Tax	\$613,428 ⁴	22.1%
Cowlitz County (incl. cities)		
- Cowlitz PUD Privilege Tax	\$779,919 ²	
- PacifiCorp	\$388,467 ³	
Subtotal	\$1,168,386	42.0%
Clark		
- Cowlitz PUD Privilege Tax	\$513 ⁴	
- PacifiCorp	\$680,956 ³	
Subtotal	\$681,469	24.5%
Skamania		
- Cowlitz PUD Privilege Tax	\$131 ⁴	
- PacifiCorp	\$316,626 ³	
Subtotal	\$316,757	11.4%
Total Combined Project Taxes – 1999	\$2,780,084	100%

¹ The PUD tax payments to the State are reflective of the entire revenue of the PUD, of which the Swift #2 Project is only a small part.

² Source: Cowlitz County Treasurer

³ Source: Provided by PacifiCorp

⁴ Source: Washington State Department of Revenue

A primary purpose of property taxes is to provide local governments with the necessary funds to provide public services, including fire and police protection, education, and infrastructure development and maintenance, as well as other basic human services. The majority of the human service demand generated by the Projects, consisting of law enforcement and emergency response services, is driven by recreation-oriented visitation during the period from Memorial Day to Labor Day. This is the same time when all of the Projects' campgrounds and day use areas are open.

The issue of equity has been raised by some of the service providers in Cowlitz County, as most of the Projects' developed recreation facilities and most of the service demand are located in Cowlitz County. This issue will be explored further in the Phase 2 portion of the Socioeconomic Study. Several things should be noted at this time regarding the subject of Project-related revenue flows to Cowlitz County. First, as noted, Cowlitz County is clearly the chief beneficiary of Project-related property/privilege tax payments, with \$1,168,386, or 42 percent of tax revenue, paid in 1999. This compares to \$681,469 (24.5 percent) paid to Clark County, \$316,757 (11.4 percent) paid to Skamania County, and \$613,428 (22.1 percent) paid to the State General Fund (Table 10.1-18).

Secondly, in addition to taxes related to the Projects, most sales tax revenues generated by recreation-related business in the study area occur within Cowlitz County, including sales generated in the communities of Woodland, Yale, and Cougar. Most of the recreation facilities and rural communities within the study area are in Cowlitz County,

concentrating retail activity. To the degree that these sales tax revenues go into Cowlitz County's General Fund, Cowlitz County benefits more from this economic activity than do the other 2 counties.

Local Sales Taxes

The combined state and local sales tax rate in Cowlitz County is 7.6 percent. Of this, 6.5 percent is the State Sales Tax that goes directly to the State and 1.0 percent is the Local Sales Tax (for unincorporated Cowlitz County) that is distributed to the County. The 1.0 percent sales tax revenues are used for general County purposes, although a portion of the receipts may be dedicated to a particular program. Counties receive all of the local tax, after a State administrative fee is deducted (a flat administrative fee of 1.0 percent has been charged to all local jurisdictions since 1997), for transactions that occur in the unincorporated area of Cowlitz County, as well as 15 percent of the tax on sales within cities (e.g., Woodland). As a result, there are economic benefits for Cowlitz County due to recreation-related expenditures by visitors to the recreation facilities and reservoirs of the Projects.

Recreation-Related Spending

Spending associated with recreation-related activities generates a substantial amount of economic activity across the U.S. (USFWS and Bureau of the Census 1996). Participants spend money on a variety of trip-related goods and services such as food, lodging, and transportation. Because this spending directly benefits towns and communities where these purchases are made, recreation can have a significant impact on local economies, especially in small towns and rural areas such as the study area (USFWS and Bureau of the Census 1996). To identify an approximate value of this benefit, estimates for the total annual sales associated with the Projects and the resultant sales tax revenue for Cowlitz County were made using an econometric model developed by the National Park Service (NPS).

The NPS has developed a model for estimating the economic benefits to a local area resulting from expenditures by park visitors who live outside the local area, called the Money Generation Model (MGM) (see SOC 1 Appendix 2). The MGM uses a number of variables, such as estimated non-local percent of park use, total recreation visits, and average daily expenditures, to calculate total sales (Hornback 1990). These sales represent the income of area businesses or individuals for goods and services that are the result of expenditures by non-local visitors. Using this model, it is estimated that the total annual sales associated with the Projects is approximately \$10.9 million (Table 10.1-19).

Table 10.1-19. Calculation of estimated economic benefits resulting from recreation-related expenditures in the study area.

Estimated Non-Local Percent of Park Use	X	Annual Recreation Visitor Days (for peak season)	X	Average Daily Expenditures (per person)	X	Indirect and Induced Sales Multiplier	=	Total Sales
0.90		402,451		\$25		1.2		\$10.9 million

Source: Hornback 1990.

Provided by EDAW, Inc 2000a

This figure, calculated for the peak recreation season, is based upon 402,451 total recreation visits, 90 percent estimated non-local park use (EDAW 2000a), and an average daily expenditure of \$25 (USFWS and Bureau of the Census 1996). This value for average daily expenditures is the lowest figure obtained from the various resources reviewed for this study. Other values, ranging from \$68 to \$150, included lodging at a hotel, motel, or resort (pers. comm., B. Kline, 3/01), none of which are offered at the Projects. The total sales benefits resulting from recreation-related expenditures are calculated by multiplying direct sales by an indirect and induced sales multiplier, which varies with the complexity of the local economy. Smaller and more isolated areas generally have lower multipliers because support spending for goods and services will usually be done outside the local area. In the MGM, this multiplier ranges from 1.2 to 2.8 with an average of 2.0. The lowest multiplier was used since the study area is fairly isolated and provides limited goods and services. Finally, while the estimated non-local park use of 90 percent may seem high since many local residents use the facilities related to the Project, this calculation was done for the peak recreation season whereas higher percentages of local use tend to be in the off-season.

A general estimate for the local sales tax distributed to Cowlitz County as a result of recreation-related expenditures in the study area using the MGM is just under \$109,000. This figure is calculated by multiplying the total sales by 1.0 percent, the proportion of the sales tax that is distributed to the County. A direct correlation, however, cannot be made since distributions are made to the County on a monthly basis and other taxes and financial activities are often included in the distribution (pers. comm., S. Maddux, 3/01). This is considered to be at the lower range of the likely sales tax revenue, as choice of a higher daily expenditure rate would raise the amount. A lower daily expenditure rate is not considered likely. In actual practice, this revenue probably fluctuates widely, as visitation can vary widely from year to year, as discussed in Section 10.1.5.7.

10.1.5.11 Socioeconomic Effects of Project Operations

Effects of Reservoir Pool Level

Pool levels at the 3 reservoirs are voluntarily maintained by PacifiCorp at a high level during summer months to support the recreation season; that is, there are no formal requirements to maintain pool levels for recreation use. During the non-peak season, pool levels typically drop several feet and are occasionally drawn down significantly (up to a 70-foot drawdown at Swift Reservoir) for maintenance and flood control purposes.

Local business owners suggested that changes in reservoir pool levels during the recreation season and the resulting effects on the recreation experience negatively impact their business (pers. comm., K. Landacre and M. Livingston, 2/22/01). Two local business owners, both of whom stated that their business is entirely dependent upon recreational visitors, cited low reservoir pool levels as a negative impact to their retail and restaurant sales (pers. comm., K. Landacre and M. Livingston, 2/22/01). Large drops in pool levels, such as occurred in 2000, can shorten the peak recreation season. As a result, such pool level drops can economically impact area stores, restaurants, and services that are sustained by recreation-related visitors.

Survey data gathered for the Recreation Demand Analysis (EDAW 2000) do not entirely support the perception that reservoir pool levels affect visitor trips to the area. Respondents to each of the various surveys were asked directly if reservoir pool levels had impacted their trip in any way. Reservoir pool levels did not appear to have a significant impact on the vast majority of visitors to the area (particularly peak season visitors). This is not surprising given that, during the recreation season (Memorial Day to Labor Day), changes in pools levels have historically been minimal. However, individuals who visit the area during the off-season (area residents, fall season visitors) indicated that it was a more important issue. Area residents ranked reservoir pool levels as their number 4 issue of concern out of 25 listed. Pool levels drop significantly during the off-season to accommodate seasonal runoff and to provide flood control.

Effects of Recreation User Fees

With the recent implementation of PacifiCorp's day use fee in 1999 and continued increases in camping fees over the years, an important issue related to the use of recreation facilities and services is user fees. Survey results regarding user fees at facilities of the Projects are presented in the Recreation Demand Analysis (EDAW 2000) and have been extracted for use in this study. Although most visitors were surveyed in years before day use fees were put into effect, they were asked to estimate how their use would change with a specific user fee. These survey results help show how user fees may impact future long-term visitation to the area, and consequently the effect on local socioeconomic factors.

Of the various user groups participating in the survey, fall season visitors were the most likely to visit the area less if user fees were initiated. Forty-four percent said they would visit the area less or never in the future due to new user fees. Area residents ranked new user fees as the number 3 issue of biggest concern to them out of 25 possible issues. New user fees were the number 1 reason that they were visiting the area less than in the past (area residents were surveyed the year after user fees went into effect). Visitors to Merwin, Yale, and Swift reservoirs had similar responses to this question, with one-quarter (25 percent) feeling that new user fees were too high, and 29 percent indicating that they would visit the area less or never in the future due to new user fees.

Since fall season visitors and area residents are more likely to live close to the Projects and visit the area more frequently, it is logical that they are the visitors most impacted by fees and most likely to visit the area less in response to user fees. Since visitors from the Lewis River Valley and nearby areas, such as Longview, comprise a significant portion of the user days in the study area, it appears that user fees would potentially decrease overall visitation. In addition, a large proportion of area residents indicated that user fees could affect their future use of the Project-related facilities.

As stated earlier, the decrease in visitor counts during 1999 and 2000 can be attributed partly to the implementation of new day use fees in the area, with weather another contributing factor. Recreation day use fees were instituted to pay a portion of the cost of operating day use facilities, and to discourage cruising from site to site. This fee was coupled with the enforcement of regulations prohibiting alcoholic beverages in the campgrounds to create a more family-oriented camping experience. The new day use user-fee

program appears to have resulted in a decrease in “cruising” from site to site, which has lowered vehicle counts. Another possible result of implementing new day use fees is that visitors sightseeing along SR 503 are deciding not to stop at day use facilities, likely due to user fees. Since total visitation figures are dependent on traffic counters at the day use areas and campgrounds, these explanations could account for much of the decrease in vehicle counts. Overall, it is difficult to assess whether new user fees have resulted in a significant overall decrease in visitors or primarily a reduction in cruising, since visitation is measured by vehicle counters. However, it is very likely that there was at least some reduction in day use visitation after the new fee was instituted.

From a local business perspective, each of the 7 local business owners contacted for this study indicated that the recent institution of new day use user-fees has caused some decrease in their overall business levels. Effects of user-fees cited by local business owners ranged from listening to negative customer comments to a decrease of overall business revenues (estimated at 20 to 50 percent) (pers. comm., S. Weisser, M. Livingston, and J. Vannoy, 2/01 and 3/01). These figures, however, are not entirely supported by information gathered from recreation surveys and/or telephone interviews conducted for this study. As discussed earlier, many visitors to the area do not envision the Project area as their main destination. In addition, while no specific data on visitors just passing through the area are available, local business owners indicated that many of their customers are also going to other non-Project recreation destinations (see Section 10.1.5.8).

In addition to the economic impacts of the new day-use user fees, local business owners and residents also reported that the new day use fees likely have a negative effect on the social structure and activities in the community, particularly for local elderly and youth. For many years, the developed recreation facilities at the Projects have provided public recreation opportunities for residents of the immediate rural area. Cowlitz County and the local communities provide no recreation facilities for these residents. With the institution of the new day use fees, the cost of recreation opportunities in the local area has increased. To respond to this issue, yearly passes have since been added by PacifiCorp and are available for the elderly and youth at a discount rate. These half-price passes are available to all residents within the Fire District 1 and 7 service areas, as well as those with an Ariel zip code. There is some lingering concern, however, that youth, in an attempt to avoid paying a fee, may access the reservoirs in hazardous or unsupervised areas, thereby creating a potential safety issue.

Effects of Rate Increases

The cost of power is an important factor in the socioeconomic structure of Cowlitz County. Potential rate increases related to relicensing the Swift No. 2 Project could have a significant impact on the County. Traditionally, relicensing socioeconomic studies focus on potential impacts to high-energy use manufacturers. However, because many of the major manufacturers in Cowlitz County do not receive power from the Swift No. 2 Project, the relicensing process does not have a significant affect on this sector. Instead, because the Swift No. 2 Project provides 20 to 30 percent of the power needed for the Cowlitz PUD’s residential, commercial, and light industrial loads, including a significant amount of the peak load capacity, these 44,000 customers would be most impacted by

relicensing-related rate increases. Swift No. 2 provides 10 percent of Cowlitz PUD’s overall power needs.

Nonetheless, it is important to describe Cowlitz County’s major employers and manufacturers. Seven of the 10 major employers in Cowlitz County are manufacturing plants (Table 10.1-20).

Table 10.1-20. Ten largest private employers in Cowlitz County.

	Employer	Employees	Sector
1.	Weyerhaeuser Company*	2,400	Wood/paper products
2.	Longview Fibre Company*	2,000	Wood/paper products
3.	PeaceHealth/St. John Medical Center	1,400	Health care
4.	J.H. Kelly	1,064	Design and construction
5.	Longview Aluminum LLC**	925	Metals (now closed)
6.	Foster Farms*	550	Chicken processing
7.	NORPAC*	500	Wood/paper products
8.	Fred Meyer	260	Retail and distribution
9.	Steelscape (formerly BHP Steel)*	245	Metals
10.	B.F. Goodrich	215	Chemicals

* Does not receive power from Swift No. 2

** Does not receive power from Cowlitz PUD

Source: River Cities Chamber of Commerce 2001.

In addition, Cowlitz County has attracted a number of manufacturing investments in recent years (Table 10.1-21). Most of these industries receive some power from Swift No. 2 Project and are sensitive to electrical rates. The cost of power is a major factor considered in the profitability of a manufacturing plant, and even the ability of the owner to continue running the plant.

A number of the manufacturing companies listed in the above tables are very sensitive to electrical rate increases, particularly those that use a lot of energy in their manufacturing processes, such as the steel and aluminum industry. Steelscape (formerly BHP Steel) recently completed Phase 1 of an integrated cold rolling mill in Kalama. Phase 2 is planned as construction of an arc furnace to feed that mill – a major rate increase could conceivably affect those expansion plans. The wholesale power supplier for Cowlitz PUD’s contract with Steelscape is currently PacifiCorp. Cowlitz PUD’s wholesale supplier for Longview Fibre Company is BPA. However, Longview Fibre also has its own electrical generating plant, which generates excess power that is then sold to utilities and marketers in the region such as BPA. Longview Fibre can also use its generation to decrease its purchases from Cowlitz PUD.

Table 10.1-21. Companies locating to Cowlitz County, 1996–1998.

Company	Location	Jobs	Sector
PBI Machinery	Kelso	20+	Machinery
Denny's Machine	Woodland	20+	Machinery
Prudential Steel	Longview	100+	Metals
Behrman Transport	Woodland	60	Transportation
Mac Chain	Woodland	60	Manufacturing
MG Industries	Kalama	40	Industrial gas
Steelscape (formerly BHP) Steel*	Kalama	245	Metals
Hamilton Materials	Woodland	60	Drywall
Denharco inc.	Woodland	35	Manufacturing
Sonoco Products	Woodland	117+	Gas/oil
Foster Farms*	Kelso	550	Food
Daybreak Enterprises	Woodland	10	Machine shop
LifePort	Woodland	80	Healthcare
PDM/General Steel	Woodland	150	Metals
Nitta Gelatin	Longview	50	Gelatin

* Does not receive power from Swift No. 2

Source: Cowlitz Economic Development Council 2001.

Weyerhaeuser Company also has a relatively small amount of its own generation, but at the same time, is the major user of electrical power supplied by Cowlitz PUD, accounting for over half of Cowlitz PUD's load. Weyerhaeuser Company and Longview Fibre Company do not receive any power from the Swift No. 2 Project, and Longview Aluminum buys power directly from BPA (pers. comm., D. MacDonald, 3/2/01). Therefore, none of these high-energy use companies would be directly affected by rate changes from the Lewis River Projects. However, the Swift No. 2 relicensing process will directly affect the rates paid by their +/- 4,000 employees.

10.1.6 Discussion

The Lewis River Hydroelectric Projects affect the socioeconomic environment of the study area in a wide variety of ways. The provision of low-cost power over the years has been a positive factor in the development of Cowlitz County in particular. The Projects also influence the type of economy that has developed. In general, the major socioeconomic effects of the Projects are related to 5 factors: (1) local recreation use, (2) land values, (3) power generation, (4) employment, and (5) taxes.

10.1.6.1 Local Recreation Use

One major effect of the Projects is the impact of peak season recreational use. This recreation use is stimulated in part by the presence of the reservoirs and the related recreation facilities, such as campgrounds, day use facilities, and boat launches. At the same time, this recreation use is also stimulated by the presence of other major visitor attractions such as the Monument and GPNF. Seasonal recreation visitors have a number of impacts on the Lewis River Valley including:

- Recreational use imposes a seasonal demand on public service providers, such as law enforcement, fire and rescue, and emergency services. Other public services, such as schools or human service agencies, are not affected by recreational use. PacifiCorp pays overtime costs to support local Sheriff's Departments who provide additional Deputies during summer months. These payments amounted to \$77,000 in 2000.
- Using the Money Generation Model (MGM), it is estimated that the total annual sales associated with recreation use at the Projects are approximately \$10.9 million. Most sales tax revenues generated by recreation-oriented activities occur within Cowlitz County, including sales generated in the communities of Woodland, Yale, and Cougar. To the degree that these sales tax revenues go into Cowlitz County's General Fund, Cowlitz County benefits much more from this economic activity than do the other 2 counties (Clark and Skamania).
- Maintenance and management of the Projects' recreation facilities provides approximately 42 seasonal jobs. In addition, many of the businesses contacted for this study provide seasonal employment opportunities during the peak recreation season. Each of these businesses hires between 2 and 7 seasonal employees.
- The reservoir pool levels at the 3 reservoirs fluctuate during the non-peak season and are occasionally drawn down significantly for maintenance and flood control purposes. The economic vitality of local stores, restaurants, and services sustained by recreation-related visitors may be impacted by drawdowns during the peak recreation season, such as occurred in 2000. Such drops effectively shorten the peak recreation season and reduce both visitation and dollars spent at local businesses.
- There is a strong recreation-based economy in the Lewis River Valley, not all of which is due to the Projects. Between 29 and 45 percent of visitors surveyed at developed recreation facilities at the 3 reservoirs indicated that they planned on visiting other destinations as part of their travel plans. No surveys were conducted of visitors passing through the area other than those that stopped at recreation sites associated with the Projects. Local business owners contacted for this study identified a number of other destinations for their customers in addition to the Projects, including the Monument and GPNF. FR 90, leading into the Lewis River Valley from the GPNF to the east, averages 2000 daily vehicle trips on summer weekends, despite extremely low population densities in that direction.

10.1.6.2 Land Values

The presence of reservoirs in a community typically may be seen as a positive effect in terms of stimulating real estate development and land values in the immediate vicinity. This cause and effect would primarily be felt in Cowlitz County where more developable and accessible land is available. This is particularly true for private land with lake views.

10.1.6.3 Power Generation

The direct effect of power generation from the Projects on the 3 local counties is not focused on local businesses. PacifiCorp sells its generation from Merwin, Yale, and

Swift No.1 dams to customers throughout the western United States, and the effects are not concentrated in the vicinity of the Projects. Cowlitz PUD is the power provider within Cowlitz County, and Swift No. 2 serves 20 to 30 percent of the PUD's residential, commercial, and light industrial loads including a significant amount of the peaking load capacity. Swift No. 2 is extremely valuable in assisting with peak loads and providing flexibility in operations, as well as being a key factor in providing stable rates for these customers. However, none of Cowlitz PUD's largest industrial customers receive power from Swift No. 2. Overall, Swift No. 2 provides 10 percent of Cowlitz PUD's total power needs.

10.1.6.4 Employment

Employment at the Projects is not high. PacifiCorp has 25 employees at the Projects, with an additional 4 seasonal employees. Of these 25 employees, 18 live in Cowlitz County, and 7 live in Clark County. Operation of recreation facilities is contracted to Thousand Trails. They employ approximately 42 staff during the peak recreation season and 3 off-season caretakers. Cowlitz PUD employs 150 people at its offices in Longview, but other than for relicensing, less than one full time equivalent is dedicated to the Swift No. 2 Project. Swift No. 2 operations and maintenance activities are contracted to PacifiCorp.

10.1.6.5 Taxes

Cowlitz County is the primary beneficiary of Project-related property and utility tax payments. A total of \$1,168,386, or 42 percent of tax revenue, was paid to Cowlitz County in the 1999 tax year. This compares to \$681,469 or 24.5 percent paid to Clark County, \$316,757 or 11.4 percent paid to Skamania County, and \$613,428 or 22.1 percent paid to the State General Fund.

10.1.7 Schedule

Future work on socioeconomics will be conducted in Phase 2, as summarized below.

The purpose of Phase 2 is to evaluate the effects of proposed NEPA Alternatives (potential changes to the current project design and operations and to current license articles [PMEs]) on socioeconomic resources. Phase 2 may include evaluations of the following:

- Effects of rate increases due to the costs of relicensing studies or other factors, and future costs for mitigation and enhancement measures on the local economy, using available data.
- Effect of proposed project modifications or changes in operation on housing, population, employment, household income, and the tax base for the 3-county region affected by the project.

- Effects of continued or changed operations and effects of recreation changes on local service providers for education, police, transportation, public works, fire, health, and other government services and how should these costs be covered.
- Effects of the proposed PME's on the local economy, particularly those related to fisheries and recreation that may affect the local tourist industry.

The Study Plan for Phase 2 was presented at the October 2001 SRG meeting. SRG comments were incorporated into the study plan and a revised copy presented to the SRG and approved at their November 2001 meeting. Work will begin on the Phase 2 study when the NEPA alternatives are available from the settlement group for evaluation. The Phase 2 study will:

1. Compile key resource actions from the NEPA alternatives that affect socio-economic resources and provide a summary of potential effects for consideration by the Settlement Team.
2. Consult with PacifiCorp and Cowlitz project engineers to identify the components of the NEPA alternatives that may have an effect on socioeconomics via increased staffing, need for construction labor, etc.
3. Consult with PacifiCorp and Cowlitz rate departments to identify the general effects on rates.
4. Consult with PacifiCorp and Cowlitz tax departments to identify the general effects on taxes related to future increases in costs associated with costs related to PME's.
5. Prepare a report describing the findings of the analysis described above and submit to the Settlement Group for their information in decision-making. Assuming that the NEPA alternatives are developed by June 2002, the Phase 2 report would be completed by September 2002.

The product of this study will be a Socioeconomic Report addressing the effects of NEPA alternatives. This report will contain summaries of the Phase 1 information, such as economic baseline analyses (baseline and project area, county, and local levels) and the Phase 2 analysis. The report is anticipated to range from 35 to 75 pages of analysis, tables, and graphs. In addition, the report will contain a stand-alone executive summary, suitable for incorporation into the PDEA and License Application.

10.1.8 References

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10.1.9 Comments and Responses on Draft Report

This section presents stakeholder comments provided on the draft report, followed by the Licensees' responses. The final column presents any follow-up comment offered by the stakeholder and in some cases, in italics, a response from the Licensees.

Commenter	Volume	Page/ Paragraph	Statement	Comment	Response	Response to Responses
Ilene Black - Emergency Services	3 Socio- Economi cs	SOC 01-32 - 2 nd Para 2 nd Sentence	Should read: The majority of the area is protected by Cowlitz- Skamania Fire Protection District #7, which covers the north side of Merwin, Yale Reservoirs and a portion of the north side of Swift.		This change will be made to the report.	
Ilene Black - Emergency Services	3 Socio- Economi cs	SOC 01-32 - 2 nd Para 3 rd sentence	Should Read: Cowlitz Fire District #1 provides Fire and Emergency response to the area around Merwin Dam and west along the Lewis River to Woodland,		This change will be made to the report.	

Commenter	Volume	Page/ Paragraph	Statement	Comment	Response	Response to Responses
Ilene Black - Emergency Services	3 Socio- Economi cs	SOC 01-32 - 5 th Para 1 st Sentence	Should read Skamania #6		This change will be made to the report.	
Ilene Black - Emergency Services	3 Socio- Economi cs	SOC 01-35 - 4 th Para 1 st Sentence	Delete: but not emergency services	Statement doesn't apply in this sentence. All Fire Districts and NCEMS have tax levies, law enforcement does not.	This change will be made to the report.	

SOC 1 Appendix 1

Text of RCW 54.28.050

RCW 54.28.020

Tax imposed -- Rates -- Additional tax imposed.

(1) There is hereby levied and there shall be collected from every district a tax for the act or privilege of engaging within this state in the business of operating works, plants or facilities for the generation, distribution and sale of electric energy. With respect to each such district, except with respect to thermal electric generating facilities taxed under RCW 54.28.025, such tax shall be the sum of the following amounts: (a) Two percent of the gross revenues derived by the district from the sale of all electric energy which it distributes to consumers who are served by a distribution system owned by the district; (b) five percent of the first four mills per kilowatt-hour of wholesale value of self-generated energy distributed to consumers by a district; (c) five percent of the first four mills per kilowatt-hour of revenue obtained by the district from the sale of self-generated energy for resale.

(2) An additional tax is imposed equal to the rate specified in RCW 82.02.030 multiplied by the tax payable under subsection (1) of this section.

[1983 2nd ex.s. c 3 § 8; 1982 1st ex.s. c 35 § 18; 1977 ex.s. c 366 § 2; 1959 c 274 § 2; 1957 c 278 § 2. Prior: 1949 c 227 § 1(a); 1947 c 259 § 1(a); 1941 c 245 § 2(a); Rem. Supp. 1949 § 11616-2(a).]

NOTES:

Construction -- Severability -- Effective dates -- 1983 2nd ex.s. c 3:
See
notes following RCW 82.04.255.

Severability -- Effective dates -- 1982 1st ex.s. c 35: See notes
following
RCW 82.08.020.

Severability -- 1947 c 259: "If any section, subsection, clause, sentence or phrase of this act be for any reason adjudged unconstitutional, such adjudication shall not invalidate the remaining portions of this act, and the legislature hereby declares that it would have enacted this act notwithstanding the omission of the portion so adjudicated invalid." [1947 c 259 § 2.]

RCW 54.28.050

Distribution of tax.

After computing the tax imposed by RCW 54.28.020(1), the department of revenue shall instruct the state treasurer, after placing thirty-seven and six-tenths percent in the state general fund to be dedicated for the benefit of the public schools, to distribute the balance collected under RCW 54.28.020(1) (a) to each county in proportion to the gross revenue from sales made within each county; and to distribute the balance collected under RCW 54.28.020(1) (b) and (c) as follows: If the entire generating facility, including reservoir, if any, is in a single county then all of the balance to the county where such generating facility is located. If any reservoir is in more than one county, then to each county in which the reservoir or any portion thereof is located a percentage equal to the percentage determined by dividing the total cost of the generating facilities, including adjacent switching facilities, into twice the cost of land and land rights acquired for any reservoir within each county, land and land rights to be defined the same as used by the federal power commission. If the powerhouse and dam, if any, in connection with such reservoir are in more than one county, the balance shall be divided sixty percent to the county in which the owning district is located and forty

percent to the other county or counties or if said powerhouse and dam, if any, are owned by a joint operating agency organized under chapter 43.52 RCW, or by more than one district or are outside the county of the owning district, then to be divided equally between the counties in which such facilities are located. If all of the powerhouse and dam, if any, are in one county, then the balance shall be distributed to the county in which the facilities are located.

The provisions of this section shall not apply to the distribution of taxes collected under RCW 54.28.025.

[1982 1st ex.s. c 35 § 21; 1980 c 154 § 8; 1977 ex.s. c 366 § 4; 1975 1st ex.s. c 278 § 32; 1959 c 274 § 4; 1957 c 278 § 5. Prior: 1949 c 227 § 1(d); 1947 c 259 § 1(d); 1941 c 245 § 2(d); Rem. Supp. 1949 § 11616-2(d).]

NOTES:

Severability -- Effective dates -- 1982 1st ex.s. c 35: See notes following RCW 82.08.020.

Purpose -- Effective dates -- Savings -- Disposition of certain funds -- Severability -- 1980 c 154: See notes following chapter 82.45 RCW digest.

Construction -- Severability -- 1975 1st ex.s. c 278: See notes following RCW 11.08.160.

Effective date -- 1959 c 274: "The effective date of section 4 of this 1959 amendatory act shall be January 1, 1960." [1959 c 274 § 6.]

RCW 54.28.010

Definitions.

As used in this chapter:

(1) "Operating property" means all of the property utilized by a public utility district in the operation of a plant or system for the generation, transmission, or distribution of electric energy for sale;

(2) "Taxing districts" means counties, cities, towns, school districts, and road districts;

(3) "Distributes to consumers" means the sale of electric energy to ultimate consumers thereof, and does not include sales of electric energy for resale by the purchaser;

(4) "Wholesale value" means all costs of a public utility district associated with the generation and transmission of energy from its own generation and transmission system to the point or points of inter-connection with a distribution system owned and used by a district to distribute such energy to consumers, or in the event a distribution system owned by a district is not used to distribute such energy, then the term means the gross revenues derived by a district from the sale of such energy to consumers;

(5) "Thermal electric generating facility" means a steam-powered electrical energy producing facility utilizing nuclear or fossil fuels;

(6) "Placed in operation" means delivery of energy into a transmission or distribution system for use or sale in such a manner as to establish a value accruing to the power plant operator, except operation incidental to testing or startup adjustments;

(7) "Impacted area" for a thermal electric generating facility on a federal reservation means that area in the state lying within thirty-five statute miles of the most commonly used entrance of the federal reservation and which is south of the southern boundary of township fifteen north.

[1977 ex.s. c 366 § 1; 1967 ex.s. c 26 § 22; 1959 c 274 § 1; 1957 c 278 § 7. Prior: (i) 1941 c 245 § 1, part; Rem. Supp. 1941 § 11616-1, part. (ii) 1949 c 227 § 1(f); Rem. Supp. 1949 § 11616-2(f).]

NOTES:

Effective date -- 1967 ex.s. c 26: See note following RCW 82.01.050.

RCW 54.28.011

"Gross revenue" defined.

"Gross revenue" shall mean the amount received from the sale of electric energy excluding any tax levied by a municipal corporation upon the district pursuant to RCW 54.28.070.

[1957 c 278 § 12.]

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SOC 1 Appendix 2

Descriptive Text of Money Generation Model

THE MONEY GENERATION MODEL

From: <http://www.nps.gov/planning/mgm/mgmdoc.doc>

INTRODUCTION AND DISCUSSION

The Money Generation Model (MGM) provides a way to estimate economic benefits of parks on gateway communities and adjacent local areas. The model provides for the following:

- First, a calculation of the economic benefits to the local area resulting from expenditures by park visitors who live outside the local area (non-local tourists).
- Second, a calculation of the economic benefits to the local area resulting from Dark-related Federal Government expenditures, (for example, NPS expenditures for park employee salaries, supplies, services, construction projects, etc.).
- Third, a calculation of the economic benefits to the local area resulting from Dark-related expenditures by other non-local parties, (for example, State expenditures for park access roads; or capital expenditures to build concessioner facilities, such as a new marina).

In other words, the Money Generation Model estimates the economic benefits to the local economy resulting from monies that come into the local economy from outside sources.

In applying the Money Generation Model, the following three types of economic benefits are considered: SALES BENEFITS; TAX REVENUE BENEFITS; AND JOB BENEFITS.

SALES BENEFITS consist of income to local area businesses or individuals for goods and services that these businesses or individuals provide as a result of expenditures by non-local park visitors, Federal Government expenditures, and park-related expenditures by other non-local parties such as State governments, concessioner capital expenditures, etc.

TAX BENEFITS consist of increases in local area tax revenues that result from expenditures by non-local park visitors, Federal Government expenditures, and park-related expenditures by other non-local parties.

JOB BENEFITS consist of the new jobs that are created in the local area as a result of expenditures by non-local park visitors, Federal Government expenditures, and park-related expenditures by other non-local parties.

The material that follows provides a step-by-step procedure for calculating the economic benefits of parks on the local economy. Section I deals with the economic benefits resulting from expenditures by non-local park visitors.

Section II deals with the economic benefits to the local area resulting from park-related Federal Government expenditures.

Section III deals with the economic benefits to the local area resulting from park-related expenditures by other non-local parties such as State governments or outside developers.

A set of Standardized Worksheets is attached at the end of the report to facilitate carrying out the economic benefit calculations. Two examples showing completed sets of worksheets also are included, one set for a rural area national park in the Rocky Mountain Region, and one set for an urban area national

historic site in the Midwest Region.

Finally, it is noted that, in most cases, year-to-year expenditures by park visitors will be considerably greater than park-related expenditures by the Federal Government or by other outside parties. Therefore, a preliminary estimate of the economic benefit of the park in the local area economy frequently may be calculated by considering only monies spent by non-local tourists, and by ignoring, at least initially, monies spent in the local area by the Federal Government, or by other outside interests. Such a preliminary estimate will involve only SECTION I: THE ECONOMIC BENEFITS OF PARK TOURISM, and WORKSHEET #1: ECONOMIC BENEFITS RESULTING FROM PARK VISITOR EXPENDITURES. The economic contributions to the local area economy that are attributable to expenditures by the Federal Government or to expenditures by other outside parties can be calculated later utilizing the step-by-step procedures outlined in SECTIONS II and III respectively.

As you proceed to apply the Money Generation Model, two points are noted:

First, the MGM is applicable to local areas near the park. The MGM cannot be used for large areas such as Statewide areas without considering very carefully additional factors such as travel time and enroute expenditures.

Secondly, as you use the Money Generation Model, you will be asked to make assumptions about certain economic functions such as tax rates or levels of indirect sales, which will be explained later. If you are uncertain as to what number to select, or if you feel that the average number suggested in the step-by-step calculation process may not be applicable for your park, you may find it helpful to choose reasonably high and low values, and then calculate a range for the variable in question.

I. THE ECONOMIC BENEFITS OF PARK TOURISM

A. SALES BENEFITS RESULTING FROM TOURISM EXPENDITURES.

Sales benefits are calculated in two stages. First, DIRECT SALES are calculated. Second, TOTAL SALES are calculated by adding INDIRECT AND INDUCED SALES to DIRECT SALES.

DIRECT SALES include visitor expenditures for accommodations, food, transportation, recreation services, and any other expenditures made in conjunction with a park visit. This is the general formula:

(4)	(1)	(2)	(3)
DIRECT SALES	Estimated	Annual	Average daily
=	NON-LOCAL	RECREATION	EXPENDITURES
	X	X	per person
	PERCENT	VISITOR DAY	
	of park use	volume	

1. Estimate the NON-LOCAL PERCENT of park use. The DIRECT SALES calculated is based only on spending by non-local park users rather than spending by people who live around the park. The park attracts non-local people to the area, and their spending is income for local businesses that supply a wide variety of goods and services. The “non-local” area may vary depending on the intended audience, but it must be clearly defined. For example, one might choose an area based on political boundaries such as townships or counties. Time and/or distance zones may be used, e.g., “non-local” may be defined as a one-hour drive or 50 miles from the park. The local Chamber of Commerce, travel and tourism agencies, or other large businesses can help define the non-local area. With the non-local area in mind, the percentage of park recreational visitation from that area is

estimated or measured. The basis for measurement may be a license plate observation survey if plates are coded by county of residence. Non-local residence data often are collected as part of visitor interview surveys conducted for verification of visitor statistics or other purposes. Local travel and tourism groups also may have information about non-local visitation within an area.

2. Look up the annual volume of RECREATION VISITOR DAYS. RECREATION VISITOR DAYS are reported monthly by all parks, and the annual figures are published in the latest National Park Statistical Abstract. Bear in mind the conservative nature of this procedure. The visitor day represents time visitors spend in the park rather than the total time they spend in the local area during their visit to the park.
3. Estimate the average daily dollar EXPENDITURES per person. Actual expenditures usually come from visitor surveys. In the absence of a recent visitor survey, American Automobile Association cost estimates can be used (see the Appendix for lodging and meal averages per person by state). In addition to lodging and meal costs, visitors spend money on a variety of things such as local driving while visiting the park and miscellaneous items, e.g., clothes, admissions and tolls, snacks, souvenirs, gifts, film, bug spray, sun screen, etc.. If the park is high in recreation participation (birding, biking, camping, climbing, fishing, hiking, kayaking, rafting, etc.), associated rentals or retail sales would seem an appropriate addition. Frequently, Chambers of Commerce or state business and tourism groups have compiled relevant expenditure data. If other sources are used, be careful that the information used is reduced to a per person rather than a group figure.
4. Calculate the DIRECT SALES by multiplying the estimated NON-LOCAL PERCENT by the RECREATION VISITOR DAYS and average daily dollar EXPENDITURES. The DIRECT SALES figure will be used again in the next step.

Up to this point we have accounted for the direct benefits of the park visitor who gives money to the clerk, waiter, guide, etc., who then turn it over to the business owner. These moneys then circulate within the local economy. Business owners use tourism money to pay utility bills, employee wages, bills of suppliers, leases of equipment, space rental, and other costs of doing business necessary to support park visitors. These dollar exchanges are called INDIRECT AND INDUCED SALES. When INDIRECT AND INDUCED SALES are added to DIRECT SALES they produce TOTAL SALES which account for the entire sales benefits of park tourism. This is the general formula:

$$\begin{array}{rcl}
 \text{(6)} & & \text{(4)} & & \text{(5)} \\
 \text{TOTAL SALES} & & \text{DIRECT SALES} & \times & \text{INDIRECT \& INDUCED} \\
 \text{BENEFITS} & = & & & \text{SALES MULTIPLIER} \\
 \text{FROM PARK TOURISM} & & & & \text{(Range is 1.2 - 2.8, AVG. -} \\
 & & & & \text{2.0)}
 \end{array}$$

5. Estimate the multiplier for INDIRECT AND INDUCED sales. The INDIRECT AND INDUCED SALES multiplier varies with the complexity of the local economy. Smaller and more isolated areas, generally, have lower multipliers because support spending for goods and services usually will be made outside the local trading area, e.g., vendors and suppliers will be non-locals. The more diverse the activities for visitors and the greater their volume, generally, the higher the multiplier since more people and businesses will be involved. Because of such involvement, people who work in supporting businesses will tend to live locally, making the gateway population a good indicator of how big or small the multiplier will be. The INDIRECT AND INDUCED multiplier ranges from 1.2 to 2.8 and averages 2.0.
6. Calculate the TOTAL SALES by multiplying DIRECT SALES by the INDIRECT AND INDUCED SALES Multiplier. The TOTAL SALES figure is the direct, indirect and induced economic benefits of park tourism.

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