

## **3.13 PUBLIC SERVICES AND UTILITIES**

This section describes existing public services and utilities, presents analysis of potential impacts resulting from Regional Plan Update alternatives, and identifies any mitigation measures for those impacts determined to be significant. In particular, it addresses impacts on water supply, wastewater treatment and disposal, electricity, natural gas, solid waste, schools, fire protection, and law enforcement services. TRPA, federal, state, and local regulations related to public services and utilities are summarized.

Although no changes to the Public Services and Facilities Element of the Goals and Policies are proposed as part of this Regional Plan Update, all alternatives would establish allocations for residential, commercial, and tourist accommodations, which result in some level of new development or redevelopment requiring service. This analysis does not attempt to predict the specific type, size, or location of new development, but assesses impacts at a policy level based on the relative development potential of each alternative.

### **3.13.1 REGULATORY BACKGROUND**

The following provides an overview of laws and regulations related to public services and utilities that are applicable to the Regional Plan Update alternatives.

#### **TAHOE REGIONAL PLANNING AGENCY**

##### **REGIONAL PLAN**

###### **Goals and Policies**

The Public Services Element of the TRPA Goals and Policies document includes goals and policies related to public services and utilities. Chapter 32, “Basic Services,” of the TRPA Code establishes standards for water, wastewater treatment, and electrical services.

###### **WATER SERVICE**

Section 32.4 of the Code contains a basic water service requirement for projects proposing construction of a new structure or reconstruction or expansion of an existing structure designed or intended for human occupancy. This section specifically directs that such projects shall have adequate water rights and water supply systems.

###### **WASTEWATER CONVEYANCE AND TREATMENT**

Section 32.5 of the Code contains wastewater service requirements for projects proposing construction of a new structure or reconstruction or expansion of an existing structure designed or intended for human occupancy. Section 32.5 specifically directs that such projects that would generate wastewater shall be served by facilities for the treatment and export of wastewater from the Lake Tahoe Region. To be considered served, a service connection shall be required to transport wastewater from the parcel to a treatment plant.

###### **ELECTRICAL SERVICE**

Although TRPA does not specifically regulate the provision of electrical services in the Lake Tahoe Region, Section 32.6 of the Code directs that projects proposing construction of a new structure or reconstruction or expansion of an existing structure designed or intended for human occupancy shall be served by facilities to

provide adequate electrical supply. Such facilities must include lines to supply electrical power to the parcel and must be lacking only a service connection to institute service.

## FEDERAL

### TRUCKEE RIVER OPERATING AGREEMENT

The Truckee River Operating Agreement (TROA), which was approved on September 6, 2008, was developed to formalize, regulate, and monitor water rights and water use within the Tahoe Region, the Truckee River Watershed, and the final outflow areas of Pyramid Lake and the Carson River. This agreement was designed to improve the operational flexibility of Truckee River reservoirs and represents the culmination of 18 years of negotiation. Under the TROA, Tahoe Region water rights for surface water and groundwater are capped at 34,000 acre-feet (af) annually, with 11,000 acre-feet per year (afy) designated for use in Nevada and 23,000 afy for use in California.

## LOCAL

Local jurisdictional plans and local agency plans, including general and master plans, contain goals and policies that relate to public services and utilities. Local agencies—including counties, cities, public utility districts, and general improvement districts—have a review and approval role in the implementation of projects that would affect the service within their jurisdiction.

### 3.13.2 AFFECTED ENVIRONMENT

#### PUBLIC UTILITY DISTRICTS AND GENERAL IMPROVEMENT DISTRICTS

Water and wastewater treatment in the Tahoe Region are provided by public utility districts (PUDs) and general improvement districts (GIDs). On the California side of the Region, PUDs may acquire, construct, own, complete, use, and operate a variety of services, including water, electricity, recreational facilities, drainage facilities, street lighting, and fire protection. Similarly, Nevada GIDs oversee the development, maintenance, and use of public facilities such as water and sewer systems, streets and sidewalks, and parks and open space. Since 1968, all wastewater in the Tahoe Region is pumped from treatment plants out of the Region to avoid discharge into the Lake (Sierra Watershed Education Partnerships 2004). Districts are bound by service areas and directed through boards created by local governments.

The following PUDs and GIDs operate within the Tahoe Region:

- ▲ Tahoe City PUD
- ▲ North Tahoe PUD
- ▲ South Tahoe PUD
- ▲ Cave Rock Estates GID
- ▲ Kingsbury GID
- ▲ Incline Village GID
- ▲ Round Hill GID
- ▲ Lakeridge GID
- ▲ Logan Creek Estates GID
- ▲ Zephyr Heights GID
- ▲ Marla Bay GID
- ▲ Oliver Park GID
- ▲ Zephyr Cove GID
- ▲ Zephyr Knolls GID

## WATER SUPPLY

Surface water demand from Lake Tahoe is approximately 18,700 afy of water in California and 11,000 afy in Nevada (U.S. Bureau of Reclamation and DWR 2008). The Tahoe Region has numerous public water systems,

including large-scale and small-scale (i.e., less than 200 households) systems. In addition, there are many single-use intake lines along Lake Tahoe's shoreline and wells within the Region. The following provides an overview of the major water suppliers in the Tahoe Region.

### Surface Water Suppliers

The Tahoe Water Suppliers Association (TWSA) consists of public water suppliers in the Lake Tahoe Region that use Lake Tahoe as their source of drinking water. TWSA consists of:

- ▲ Cave Rock Water System
- ▲ Edgewood Water Company
- ▲ Glenbrook Water Company
- ▲ Incline Village GID
- ▲ Kingsbury GID
- ▲ North Tahoe PUD
- ▲ Round Hill GID
- ▲ Skyland Water Company
- ▲ Tahoe City PUD
- ▲ Zephyr Water Utility
- ▲ Lakeside Park Association
- ▲ South Tahoe PUD (water supplies are entirely from groundwater, not Lake Tahoe)

In 2010, TWSA suppliers served approximately 20,180 service hookups, supplying water to approximately 38,900 residents. The average daily water flow for TWSA suppliers ranges from 101,600 gallons per day (gpd) to 2,520,830 gpd. Peak daily water flow ranges from 290,000 gpd to 6,580,000 gpd. In general, average annual water use has been decreasing since 2005 (TWSA 2011). Table 3.13-1 provides the average daily flow and peak daily flow from Lake Tahoe surface water suppliers in the Region during 2010–2011.

Water Agency	Average Daily Flow (gpd)	Peak Daily Flow (gpd)
Cave Rock/Skyland Water System	339,384	970,500
Edgewood Water Company	788,900	1,298,400
Glenbrook Water Company	149,480	600,000
Incline Village GID	2,520,830	6,580,000
Kingsbury GID	908,719	2,409,281
North Tahoe PUD—Lake withdrawals / full system	1,180,000 / 1,325,000	2,078,000 / 2,136,000
Round Hill GID	202,440	578,500
McKinney/Quail — Lake withdrawals / Tahoe City PUD full system	128,515 / 1,259,218	365,000 / 4,000,000
Zephyr Water Utility Company	211,704	498,000
Lakeside Park Association	101,600	290,000

Notes: GID = General Improvement District; gpd = gallons per day; PUD = Public Utility District  
Source: TWSA 2011

### Groundwater Suppliers

Numerous water purveyors distribute water from groundwater sources throughout the Region. The following discussion details major groundwater suppliers within the Region.

**South Tahoe Public Utility District.** The South Tahoe Public Utility District (STPUD) was created in 1950 as a California Special District. The STPUD service area covers 27,000 acres in the South Shore area of Lake Tahoe, bounded by Emerald Bay on the west, Christmas Valley on the south, the California-Nevada state line on the east, and Lake Tahoe on the north. This service area includes residents in South Lake Tahoe and the

Montgomery Estates, Tahoe Paradise, Meyers, Angora Highlands, Fallen Leaf Lake, and Christmas Valley parts of eastern El Dorado County. Water supplied by STPUD comes entirely from 14 active municipal wells that pump groundwater from the Tahoe Region; STUPD does not draw water from Lake Tahoe. The wells have a total nominal pumping capacity of 15,833 gallons per minute (gpm) and 22.8 million gpd (City of South Lake Tahoe 2011).

**Lukins Brothers Water.** Lukins Brothers Water (Lukins) is a private water purveyor established in 1952 (incorporated in 1973) that owns and operates approximately 950 service connections on 320 acres in the northwest portion of the City of South Lake Tahoe. Lukins provides drinking water to businesses (5 percent), single-family dwellings (75 percent), and multi-family dwellings (20 percent). The company operates three groundwater wells; two additional wells were closed in the 1990s as a result of contamination with methyl tertiary-butyl ether (MTBE), a now-prohibited additive in fuel. Lukins' total production in 2006 was 102 million gallons (approximately 313 af). In 2007, Lukins had a pumping capacity of 119 million gallons (City of South Lake Tahoe 2011).

**Tahoe Keys Water Company.** The Tahoe Keys Water Company is a private water purveyor that supplies drinking water to the 700-acre Tahoe Keys neighborhood of South Lake Tahoe. Tahoe Keys Water Company serves approximately 1,529 service connections, primarily residential, with a few commercial connections. Tahoe Keys Water Company pumps from three groundwater wells within its property using one pressure zone (Morrow, pers. comm., 2011). Drinking water is not treated and meets all state drinking water standards. A standby chlorination system is in place if treatment is necessary. Water quality is monitored under a permit from the California Department of Health Services, Drinking Water Division. Tahoe Keys Water Company pumped 322 million gallons of water in 2005 (approximately 988 af) and has a practical pumping capacity of 353 million gallons (City of South Lake Tahoe 2011).

## WASTEWATER TREATMENT SERVICE

Wastewater treatment and disposal have been major areas of concern for water quality in the Lake Tahoe Basin, and have been the focus of major policy shifts in the past. In 1966, a significant control action took place to protect the pristine quality of Lake Tahoe when Nevada and California acted to prohibit the discharge of treated wastewater (effluent) into the Lake. Treatment plants were retrofitted with export pipelines and pump stations to transport the effluent out of the basin. Sewage systems were expanded to export untreated wastewater to the Town of Truckee, California, for treatment and disposal. In 1971, both states prohibited septic tanks and required that all sewage generators be connected to an existing sewage system. These programs are administered by the Lahontan LRWQCB in California, and NDEP in Nevada.

Sewage collection and treatment on the Nevada side of the Lake Tahoe Basin is provided by Douglas County Sewer Improvement District #1 (DCSID) and Incline Village General Improvement District (IVGID). Round Hill GID and Kingsbury GID operate a collection system and discharge into DCSID. North Tahoe PUD and Tahoe City PUD, located in California, provide sewage collection for its customers and convey raw wastewater to the Truckee Tahoe Sanitation Agency (TTSA) for treatment at the Truckee Water Reclamation Plant. South Tahoe PUD provides sewage collection, treatment, and export from the portion of El Dorado County within the Tahoe Region.

In 2007, the Lake Tahoe Wastewater Infrastructure Partnership (LTWIP) was formed to develop, implement and maintain effective operation, maintenance and capital replacement programs to meet state-of-the-art industry standards, satisfy State and Federal requirements, and advocate for the protection of Lake Tahoe as an Outstanding National Resource Water (ONRW). Members include DCSID, IVGID, Kingsbury GID, North Tahoe PUD, Round Hill GID, South Tahoe PUD, Tahoe Douglas District (TDD), and Tahoe City PUD.

Each of the entities owns and operates a public sewer collection and/or treatment system within the Lake Tahoe Basin. These sewer systems could adversely affect surface waters of Lake Tahoe in the event of failure or spillage. However, the partner districts recognize the environmental sensitivity of the Lake Tahoe Basin, and the extraordinary responsibilities placed on their organizations as a result of their operation and maintenance of these sewage systems. Common standards and practices, and project prioritization are key steps to meeting those responsibilities. The US Army Corps of Engineers (USACE) has executed a Project Management Plan for Technical Assistance – Lake Tahoe Watershed Restoration with LTWIP, which includes technical assistance related to the identification of sewer system defects, project identification, project prioritization, and application of consistent engineering standards for the execution of a wastewater capital replacement program within the Lake Tahoe Basin.

USACE has been working with the eight wastewater infrastructure districts to better integrate infrastructure capital replacement and rehabilitation into the EIP. This work continues with unified project identification, project prioritization, and common technical standards, and a GIS system for asset location and to speed repair and lessen the probability of overflows.

To assure reliable sewer operations and avoid significant economic and environmental costs associated with inadequate operation and maintenance of these systems, the LTWIP members desire to improve their practices and standards, implement state of the art asset management concepts, and comply with additional requirements (TWSA 2011).

All wastewater must be collected and pumped out of the Region, as required by the Porter-Cologne Water Control Quality Act (see Section 3.8, Hydrology and Water Quality, for more information). Four local districts export wastewater from the Region: Tahoe-Truckee Sanitation Agency, Incline Village GID (or IVGID), Douglas County Sewer Improvement District #1, and STPUD. Table 3.13-2 provides average flow rates and total capacity levels for the export districts.

<b>Export District</b>	<b>Average Flow (MGD)</b>	<b>Total Capacity (MGD)</b>
DCSID	3.75	4.2
IVGID	1.3	3.0
STPUD	4.0	7.0
TTSA	3.6	9.6

Notes: DCSID=Douglas County Sewer Improvement District; IVGID=Incline Village General Improvement District; MGD=million gallons per day; STPUD=South Tahoe Public Utility District; TTSD=Tahoe Truckee Sanitation Agency  
Source: NDEP 2010, IVGID 2012a, IVGID 2012b, STPUD 2012, Nevada County LAFCO 2011

## **ELECTRICITY AND NATURAL GAS**

Electrical service for the Region is provided by NV Energy and Liberty Utilities. NV Energy provides electrical service on the Nevada side of Lake Tahoe and throughout more than 50,000 square miles of Nevada, serving 2.4 million customers. Although its last planning study in 1996 anticipated 3 percent growth per year, economic factors have slowed growth to around 1 percent per year since 1996 (Walden, pers. comm. 2012). In 2011, the parent company of NV Energy, Sierra Pacific Electric, divested itself of its California holdings, which became a separate entity called Liberty Utilities. Liberty has one major transmission line rebuild on the north shore in the planning phases and a variety of smaller projects underway to ensure systemwide reliability for its planning horizon. Liberty also claims that demand is increasing approximately 1 percent per year (Matthews, pers. comm. 2012). Liberty Utilities and NV Energy both claim to have enough excess capacity to accommodate any future

development in alternatives proposed in the Regional Plan Update in the Tahoe Basin (Matthews and Walden, pers. comms. 2012).

NV Energy offers a broad set of energy efficiency programs for residential and business customers. Future demands are developed from a set of monthly econometric models estimated for each of the primary revenue classes—residential, small commercial and industrial, large commercial and industrial, and public street and highway lighting. The process entails first constructing the underlying databases, which include historical billed sales, number of customers, population and economic data, prices, weather conditions, and historical end-use saturation and efficiency trends. Customer-class sales forecasts are combined with customer-class hourly profiles and aggregated to a system hourly load forecast. Initial energy and peak forecasts are derived from the system hourly load forecasts. The energy and peak forecasts are then adjusted to account for the impact of efficiency and load control programs not already captured by the forecast model. The resulting projections are used to determine the quantities of electricity that NV Energy needs to obtain from suppliers (NV Energy 2012).

Natural gas service in the Region is provided by Southwest Gas Corporation, which purchases, transports, and distributes natural gas to more than 1.8 million residential, commercial, and industrial customers in Arizona, Nevada, and portions of northeastern and southeastern California (Southwest Gas Corporation 2011). Southwest Gas has experienced around 1 percent growth per year in the Lake Tahoe area (Anderson, pers. comm. 2012). Although it has a number of projects underway to replace old polyvinyl chloride (PVC) main lines, it has no plans for substantial expansion of the existing system, which it believes can accommodate growth under all proposed alternatives in the Regional Plan Update (Anderson, pers. comm. 2012).

Southwest Gas uses a regression-based methodology to forecast both monthly sales volumes under normal weather conditions and extreme peak-day deliveries. Regression equations relating historical daily city-gate sales deliveries per customer to heating degree-days are estimated for each operating district. The estimated regression equations are used in conjunction with customer forecasts and heating degree-day assumptions to produce both the monthly normal sales forecasts and extreme peak-day forecasts. The company utilizes the coldest weather occurrence in 30 years for the extreme peak heating degree-day assumption. The customer growth forecasts are developed based on recent customer growth trends and information provided by division-level personnel. The customer growth forecasts are verified by reviewing economic and demographic information and forecasts produced by various local, state, and federal agencies (e.g., Nevada State Demographer) (Southwest Gas 2011).

## **SOLID WASTE SERVICE**

The Tahoe-Truckee Sierra Disposal Company, Inc. (TTSD) provides waste removal services for the Lake Tahoe Region from Emerald Bay to Crystal Bay. The company handles approximately 63,000 tons of solid waste per year. All materials collected by TTSD, including garbage and recyclables, are hauled to the Eastern Regional Materials Recovery Facility (MRF), located between Truckee and Squaw Valley in Placer County, where they are sorted in an effort to meet California's mandatory solid waste diversion requirements. The MRF, which was built in 1994–1995, handles household recyclables, including plastics, aluminum, tin, glass, cardboard, newspaper, carpet, and computers. Also, the facility recycles “white goods,” such as refrigerators and freezers, and waste wood, which includes dimensional wood (e.g., construction remnants) and lot clearing debris. Material that is not recyclable is treated as solid waste and brought to the Western Regional Sanitary Landfill in Roseville or to the Lockwood landfill in Nevada.

Waste collected by STR and IVGID is delivered to Lockwood Regional Landfill. The Lockwood Regional Landfill is a 1,535-acre municipal solid waste facility located in Storey County, Nevada, that handles organic material but does not accept hazardous waste. Based on projected volumes, Lockwood Regional Landfill has a remaining capacity of 32 million cubic yards (approximately 22 million tons). In December 2011, a modification request was

submitted to increase the capacity of the landfill. This expansion proposes an increase of the total capacity from 64.8 million cubic yards to 302.5 million cubic yards (approximately 204 million tons) (NDEP 2012).

South Tahoe Refuse (STR) provides waste removal services for the South Lake Tahoe area, including Douglas County. STR collects more than 100,000 tons of waste each year. This waste is collected and sorted for recycling at the South Tahoe Refuse MRF located at STR's transfer station in South Lake Tahoe, California. The MRF initiates or improves separation of aluminum cans, glass, plastics, cardboard, different grades of paper, tin, metals, appliances, milled wood, green waste, stumps, construction debris (concrete, asphalt), and tires (STR 2011). Solid waste and recycling collection services for Incline Village and Crystal Bay are provided by Waste Management.

## FIRE PROTECTION

Nine local fire protection districts are charged with providing fire protection, rescue, emergency medical treatment, hazardous materials control and response services to the Tahoe Region:

- ▲ City of South Lake Tahoe Fire Department
- ▲ Lake Valley Fire Protection District
- ▲ Fallen Leaf Lake Fire District
- ▲ Meeks Bay Fire Protection District
- ▲ North Tahoe Fire Protection District
- ▲ North Lake Tahoe Fire Protection District
- ▲ Sierra Fire Protection District
- ▲ Carson City Fire Department
- ▲ Tahoe-Douglas Fire Protection District

In addition, portions of the Lake Tahoe Region are considered to be State Responsibility Areas, which are identified by the State Board of Forestry as areas for which CAL FIRE has the primary duty for wildland fire prevention and suppression. Areas on national forest land are under the jurisdiction of the U.S. Forest Service (USFS), Lake Tahoe Basin Management Unit (LTBMU).

The Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy for the Lake Tahoe Region (Fuel Reduction Strategy) provides land management, fire, and regulatory agencies with strategies to reduce the probability of a catastrophic fire in the Region.

LTBMU is the agency with primary responsibility over implementation of the Fuel Reduction Strategy; however, individual land owners and various agencies are responsible for aspects of its implementation. The Fuel Reduction Strategy is a comprehensive plan that combines projects from a variety of sources, as follows:

- ▲ Fuel Reduction and Forest Restoration Plan for the Lake Tahoe Basin Wildland Urban Interface – Tahoe Regional Planning Agency (Holl 2007)
- ▲ USFS Stewardship and Fireshed Assessment (SFA)
- ▲ CAL FIRE Annual Plans for El Dorado and Placer Counties
- ▲ California State Parks
- ▲ California Tahoe Conservancy
- ▲ Nevada Tahoe Resource Team representing Nevada Division of State Lands, Nevada Division of Forestry, and Nevada State Parks

Under the Fuel Reduction Strategy, fire prevention, fire protection, and emergency services in the Tahoe Region are provided by various agencies and fall under federal, state, and local jurisdiction, as indicated in Table 3.13-3.

Agency/Entity	Land Management	Regulatory	Lead Agency for Environmental Compliance	Funding	Programmatic Oversight
Individual Landowners	X			X	
Tahoe Regional Planning Agency		X	X	X	X
Nevada Fire Safe Council, Tahoe Chapter				X	X
U.S. Forest Service, Lake Tahoe Basin Management Unit	X	X	X	X	X
Fire Protection Districts	X		X		X
California Tahoe Conservancy	X		X	X	
California Department of Forestry and Fire Protection	X	X	X	X	
California State Parks	X		X	X	
Lahontan Regional Water Quality Control Board		X	X	X	
Nevada Division of Forestry	X	X		X	
Nevada Division of State Parks	X			X	
Nevada Division of Environmental Protection		X			
Nevada Division of State Lands	X			X	

Source: USFS et al. 2007

## LAW ENFORCEMENT

Law enforcement within the Tahoe Region is provided at the federal, state, county, and city levels. At the community level, police protection services are provided by the Placer, El Dorado, Washoe, and Douglas County Sheriff Departments in each respective county, and the Carson City Sheriff's office and South Lake Tahoe Police Department. In addition to local law enforcement agencies, the Tahoe Region is also served by a variety of federal agencies (e.g., Federal Bureau of Investigation, U.S. Coast Guard), State Highway Patrols, and state and federal Rangers.

### Waterborne Safety and Law Enforcement

Eight government agencies share law enforcement and emergency response responsibilities on Lake Tahoe. In addition to the U.S. Coast Guard, which has jurisdiction over the entire Lake, local agencies that patrol the Lake are as follows:

- ▲ South Lake Tahoe Police Department: law enforcement services in the City of South Lake Tahoe, from Stateline on the east to Emerald Bay on the west;
- ▲ Douglas County Sheriff: law enforcement services in Douglas County, from Stateline on the south to Glenbrook on the north;
- ▲ El Dorado County Sheriff: law enforcement services within the El Dorado County portion of the Region, from the California-Nevada state line to Tahoma;
- ▲ Placer County Sheriff: law enforcement services on the northwest corner of the Lake, from Stateline Point south to Tahoma;
- ▲ Washoe County Sheriff: law enforcement services in Washoe County, from Stateline Point south to Glenbrook;



- ▲ California Department of Fish and Game: poaching or polluting on the California side of lake; and
- ▲ Nevada Department of Wildlife: poaching or polluting on the Nevada side of lake.

## PUBLIC SCHOOL FACILITIES

Four kindergarten through grade 12 (K–12) public school districts serve the Tahoe Region: Tahoe Truckee Unified School District and Lake Tahoe School District in California, and Washoe County School District and Douglas County School District in Nevada. From 2005 to 2010, enrollment at most schools in the Region has decreased, resulting in an overall reduction in enrollment of 11 percent. Table 3.13-4 provides information on enrollment levels at schools within the Region from 2005 to 2010.

Table 3.13-4. Tahoe Region School Districts' Enrollment 2005-2010							
Year	2005	2006	2007	2008	2009	2010	Change in Enrollment 2005-2010
<b>CALIFORNIA</b>							
<b>Tahoe Truckee Unified School District</b>							
North Tahoe High	449	405	375	373	354	334	(115)
North Tahoe Middle	335	286	256	275	479	508	173
Tahoe Lake Elementary	281	247	273	291	295	251	(30)
Kings Beach Elementary	403	439	460	451	244	261	(142)
<b>Lake Tahoe School District</b>							
Bijou Community	556	519	494	524	493	492	(64)
Lake Tahoe Environmental Science Magnet	285	348	354	367	363	369	84
Mt. Tallac High	86	99	91	109	96	82	(4)
Sierra House Elementary	506	476	458	458	458	450	(56)
South Tahoe High	1,480	1,384	1,363	1,209	1,143	1,139	(341)
South Tahoe Middle	1,043	982	963	921	882	859	(184)
Tahoe Valley Elementary	539	451	412	422	445	446	(93)
Transitional Learning Center (Continuation)	25	32	47	65	85	41	16
<b>NEVADA</b>							
<b>Washoe County School District</b>							
Incline Elementary	411	426	423	421	398	432	21
Incline Middle	274	245	225	211	215	230	(44)
Incline High	394	407	383	368	337	343	(51)
<b>Douglas County School District</b>							
Zephyr Cove Elementary	235	192	180	199	225	199	(36)
Whittell High	232	221	204	263	229	232	0
<b>Total Tahoe Region</b>							
	<b>7,534</b>	<b>7,159</b>	<b>6,961</b>	<b>6,927</b>	<b>6,741</b>	<b>6,668</b>	<b>-866</b>
<b>Percent Change (2005–2010)</b>							<b>-11%</b>

Source: California Department of Education and Nevada Department of Education 2012

### 3.13.3 ENVIRONMENTAL CONSEQUENCES AND RECOMMENDED MITIGATION MEASURES

The following analysis evaluates utilities and public services that are most likely to be affected by implementation of the projects, programs, and policies identified in the Regional Plan Update. The methodology for determining the significance of these impacts applies to the significance criteria below and the expected future demand for public services and utilities compared to the existing capacities.

#### METHODS AND ASSUMPTIONS

The following analysis considers how implementation of the Regional Plan Update alternatives would affect the above-referenced public services and utilities. IVGID water use data are used to estimate future demand. This is considered to be a conservative approach because water usage is reported to be lower in other parts of the Region compared to IVGID water usage (e.g., 0.24 afy for residential uses in the STPUD jurisdiction versus 0.30 afy in IVGID).

Wastewater flow rate projections for each alternative were developed from quantities reported in *Environmental Engineers Handbook*, which compiled typical flow rates from a variety of user types (Liu and Liptak 1999).

Solid waste projections for population increases under each alternative were determined using waste tons reported per estimated population from the El Dorado County Solid Waste Management Plan (El Dorado County 2012), which provided an estimate of 1.39 tons per person per year. Projections for commercial facilities generation factors were compiled by CalRecycle, based on quantities used for the analysis of projects throughout California. Waste generation rates for commercial uses were calculated using values for retail and service uses on a “per employee” basis (CalRecycle 2012).

Refer to the Methods and Assumptions portion of Section 3.12, Population, Employment, and Housing, for an explanation of job projections used to determine commercial generation rates.

#### SIGNIFICANCE CRITERIA

Implementation of the Regional Plan Update would have a significant effect on public services and utilities if it would:

- ▲ result in the need for substantial demand or require new facilities, the construction of which would result in environmental impacts, to support:
  - additional water, the amount of which would exceed the maximum permitted capacity of the service provider;
  - additional sewage treatment capacity, the amount of which would exceed the maximum permitted capacity of the sewage treatment provider;
  - additional solid waste disposal, the amount of which would exceed the capacity permitted at the disposal facility; or
  - electricity or natural gas facilities;
- ▲ create a substantial need within the region for additional public facilities, including fire stations, police stations, and schools, the construction of which could cause significant environmental impacts.

## IMPACT ANALYSIS AND MITIGATION MEASURES

**Impact 3.13-1 Demand for Water Supply.** Implementation of any of the Regional Plan Update alternatives would result in some increased demand for water supply for new residential units, tourist accommodation units (TAUs), and commercial and public service facilities. Although the precise location of new development and redevelopment in the Basin cannot be known, on a Region-wide basis, surface water allocation to the Tahoe Region pursuant to the TROA is 34,000 afy, and current Region-wide water demand is approximately 28,079 afy (USBR and DWR 2008). Additional demand generated by the Regional Plan Update alternatives would range from a low of 637 afy for Alternative 1, to 2,308 afy for Alternative 5, at build-out of remaining and newly authorized allocations. Therefore, sufficient water supplies would be available for any of the alternatives. In addition, TRPA Code Section 32.4 requires demonstration of adequate water supply with an existing water right prior to project approval. Because sufficient water supply exists on a Region-wide basis, and new development projects would be required to demonstrate sufficient supply, treatment capacity (as applicable), and conveyance capacity by the water purveyor serving a given project, this impact would be **less than significant** for all alternatives.

According to IVGID, residential uses in the Incline Village service area are estimated to use approximately 0.30 afy per account while commercial uses are estimated to use approximately 1.28 afy per account (Todd, pers. comm., 2012). Water usage for TAUs is not calculated separately by IVGID. Because TAUs have similar types of water needs (e.g., drinking water, appliances, toilets, showers), it is assumed for purposes of analysis that TAUs use the same volume of water as residential accounts. To reach an estimated number of commercial accounts, the average annual usage of 2,000 square feet per commercial account was used. This approach is considered conservative because many TAUs in the Region consist of units with one bedroom, with or without cooking facilities, which have fewer water-using facilities and appliances than a typical multi-bedroom residence. Based on the proposed amount of commercial and residential land use and the average water demand estimates provided by IVGID, the projected water demand associated with implementation of each of the Regional Plan Update alternatives was calculated and is shown in Table 3.13-5.

Table 3.13-5. Projected Additional Water Demand				
Land Use <sup>1</sup>	Units/ Square Feet	Equivalent Number of Accounts <sup>2</sup>	Average Demand per Account (afy) <sup>3</sup>	Additional Water Demand (afy)
<b>Alternative 1</b>				
Commercial (CFA)	383,600 square feet	192	1.28	246
Tourist (TAUs)	342 units	342	0.3	103
Residential (bonus units)	874 units	874	0.3	262
Residential	86 units	86	0.3	26
<b>Additional Demand</b>				<b>637</b>
<b>Alternative 2</b>				
Commercial (CFA)	200,000 square feet	100	1.28	128
Residential	2,600 units	2,600	0.3	780
Remaining from 1987 Regional Plan <sup>4</sup>				637
<b>Additional Demand</b>				<b>1,545</b>
<b>Alternative 3</b>				
Commercial (CFA)	200,000 square feet	100	1.28	128
Residential	2,600 units	2,600	0.3	780

<b>Table 3.13-5. Projected Additional Water Demand</b>				
<b>Land Use<sup>1</sup></b>	<b>Units/ Square Feet</b>	<b>Equivalent Number of Accounts<sup>2</sup></b>	<b>Average Demand per Account (afy)<sup>3</sup></b>	<b>Additional Water Demand (afy)</b>
Residential (bonus units)	600 units	600	0.3	180
Remaining from 1987 Regional Plan <sup>4</sup>				637
<b>Additional Demand</b>				<b>1,725</b>
<b>Alternative 4</b>				
Commercial (CFA)	400,000 square feet	200	1.28	256
Tourist (TAUs)	200 units	200	0.3	60
Residential	4,000 units	4,000	0.3	1,200
Remaining from 1987 Regional Plan <sup>4</sup>				637
<b>Additional Demand</b>				<b>2,153</b>
<b>Alternative 5</b>				
Commercial (CFA)	600,000 square feet	300	1.28	384
Tourist (TAUs)	400 units	200	0.3	60
Residential	5,200 units	4,091 <sup>5</sup>	0.3	1,227
Remaining from 1987 Regional Plan <sup>4</sup>				637
<b>Additional Demand</b>				<b>2,308</b>
<p>Notes: Water usage in the STPUD district is reported to be lower than in IVGID (i.e., 0.24 afy for residential uses). This analysis takes a more conservative approach, using the higher daily usage numbers.</p> <p>afy = acre feet per year; CFA = commercial floor area; TAU = tourist accommodation unit</p> <p><sup>1</sup> Water demand for TAUs is not tracked separately, so factors for single-family residential units were applied for purposes of analysis.</p> <p><sup>2</sup> For commercial accounts, it was assumed that on average each account would equal 2,000 square feet.</p> <p><sup>3</sup> IVGID reports average annual water use of 416,084 gallons/year or 1.28 afy per commercial account and 100,030 gallons/year or 0.3 afy per single-family residential account (Todt, pers. comm., 2012).</p> <p><sup>4</sup> Water demand resulting from allocations remaining from the 1987 Regional Plan is equal to the amount of development analyzed for Alternative 1, No Project.</p> <p><sup>5</sup> Because 4,091 development rights remain in the Region, the number of potential accounts is limited to this number.</p> <p>Source: Data compiled by Ascent Environmental, Inc. in 2012 based on data provided by Todt, pers. comm., 2012</p>				

## ALTERNATIVE 1: NO PROJECT

Alternative 1 would include only the allocations remaining from the 1987 Regional Plan. These include 383,600 square feet of unused CFA, 342 TAUs, 874 residential bonus units, and 86 residential allocations. In addition to the unused allocations remaining from the 1987 Plan, all legally existing allocations, including approximately 6.5 million square feet of CFA and 12,399 TAUs, would be available for transfer subject to existing transfer requirements.

According to the EIS/EIR for the TROA (U.S. Bureau of Reclamation [USBR] and California Department of Water Resources [DWR] 2008), annual consumptive demand for water in the Lake Tahoe Basin is approximately 28,079 afy, with approximately 18,700 afy of the demand in California and 9,379 afy in Nevada. The new development associated with Alternative 1 is projected to have an ultimate water demand of approximately 637 afy (Table 3.13-5), which would not be substantial in comparison to existing demand or exceed the total capacity of 34,000 afy stipulated in TROA. This estimate is based on the average per-account demand rates in the IVGID service area. Because the new development would be distributed throughout the Lake Tahoe Region, the resulting increases in water demand would also be distributed among the many water purveyors in the Region.

Although the nature, location, size, and timing of future projects cannot be known at this time, and it is therefore not possible to project with any certainty where new water supplies and infrastructure would be required to serve new development, it is expected that existing land use policies would focus new development and redevelopment projects within existing urbanized areas, close to existing water infrastructure. In addition,

Section 32.4 of the Code does not allow project approval unless adequate water quantity and quality for domestic consumption and fire protection is available. This would need to be demonstrated on a project-by-project basis through the acquisition of a Will Serve letter from the applicable water purveyor.

Because new development projects would be required to demonstrate sufficient supply, treatment capacity (as applicable), and conveyance capacity by the water purveyor serving the given project area, impacts associated with new water demand for Alternative 1 would be **less than significant**.

## **ALTERNATIVE 2: LOW DEVELOPMENT, INCREASED REGULATION**

In addition to allocations remaining from the 1987 Regional Plan, Alternative 2 would include 2,600 new residential allocations and an additional 200,000 square feet of CFA. The new CFA would be available to Community Plans under the existing allocation system, but only after the 1987 Regional Plan remainder is used and 70 percent commercial occupancy is achieved. No new TAU allocations would be included. Remaining unassigned residential bonus units would be distributed in accordance with existing procedures, and no additional residential bonus units would be available.

As described above, annual water demand in the Lake Tahoe Basin is 28,079 afy, with 18,700 afy of that demand in California and 9,379 afy in Nevada. The potential new development associated with Alternative 2 is projected to result in an additional water demand of approximately 1,545 afy (Table 3.13-5) which, given remaining water supply availability, could be accommodated with existing supplies. As with Alternative 1, the new development associated with Alternative 2 would be distributed throughout the Lake Tahoe Region, and the resulting increases in water demand would also be distributed among the many water purveyors in the Region. It cannot be known at this time where new water supplies and infrastructure would be required to serve new development under Alternative 2. However, based on existing and proposed land use policies of Alternative 2 (aimed at concentrating development within Community Plan areas and DTZs), new development and redevelopment projects would be expected within existing urbanized areas, close to existing water infrastructure. In addition, Section 32.4 of the Code does not allow project approval unless adequate water quantity and quality for domestic consumption and fire protection is available, which would need to be demonstrated on a project-by-project basis through the acquisition of a Will Serve letter from the applicable water purveyor. Thus, this impact would be **less than significant**.

## **ALTERNATIVE 3: LOW DEVELOPMENT, HIGHLY INCENTIVIZED REDEVELOPMENT**

In addition to allocations remaining from the 1987 Regional Plan, Alternative 3 would include 2,600 new residential allocations, an additional 200,000 square feet of CFA, and an additional 600 residential bonus units. No new TAUs would be included. Implementation of Alternative 2 would result in more development over the planning period of the Regional Plan requiring water service than under Alternative 1 but less than under Alternatives 3, 4, and 5.

As described above, annual water demand in the Lake Tahoe Basin is 28,079 afy, with 18,700 afy of that demand in California and 9,379 afy in Nevada. The potential new development associated with Alternative 3 is projected to result in an additional water demand of approximately 1,725 afy (Table 3.13-5) which, given remaining water supply availability, could be accommodated with existing supplies. As with Alternative 1, the new development associated with Alternative 3 would be distributed throughout the Lake Tahoe Region, and the resulting increases in water demand would also be distributed among the many water purveyors in the Region. It cannot be known at this time where new water supplies and infrastructure would be required to serve new development under Alternative 3. However, based on existing and proposed land use policies of Alternative 3 (aimed at concentrating development within Town Centers, Regional Centers, and the High Density Tourist District), new development and redevelopment projects would be expected within existing urbanized areas, close to existing water infrastructure. In addition, Section 32.4 of the Code does not allow project approval

unless adequate water quantity and quality for domestic consumption and fire protection is available, which would need to be demonstrated on a project-by-project basis through the acquisition of a Will Serve letter from the applicable water purveyor. Thus, this impact would be **less than significant**.

#### **ALTERNATIVE 4: REDUCED DEVELOPMENT, INCENTIVIZED REDEVELOPMENT**

In addition to allocations remaining from the 1987 Regional Plan, Alternative 4 would include 4,000 new residential allocations, an additional 400,000 square feet of CFA, and an additional 200 TAUs. No new residential bonus units would be added. Alternative 4 would result in the highest level of new development and would result in greater water demand than Alternatives 1, 2, and 3 but less than Alternative 5.

As described above, annual water demand in the Lake Tahoe Basin is 28,079 afy, with 18,700 afy of that demand in California and 9,379 afy in Nevada. The potential new development associated with Alternative 4 is projected to result in an additional water demand of approximately 2,153 afy (Table 3.13-5), which, given remaining water supply availability, could be accommodated with existing supplies. As with Alternative 1, the new development associated with Alternative 4 would be distributed throughout the Lake Tahoe Region, and the resulting increases in water demand would also be distributed among the many water purveyors in the Region. It cannot be known at this time where new water supplies and infrastructure would be required to serve new development under Alternative 4. However, based on existing and proposed land use policies of Alternative 4 (aimed at concentrating development within PTOD areas), new development and redevelopment projects would be expected within existing urbanized areas, close to existing water infrastructure. In addition, Section 32.4 of the Code does not allow project approval unless there is adequate water quantity and supply for domestic consumption and fire protection is available, which would need to be demonstrated on a project-by-project basis through the acquisition of a Will Serve letter from the applicable water purveyor. Thus, this impact would be **less than significant**.

#### **ALTERNATIVE 5: SIMILAR RATE OF DEVELOPMENT AND REGULATORY STRUCTURE TO THE 1987 REGIONAL PLAN**

In addition to allocations remaining from the 1987 Regional Plan, Alternative 5 would include 5,200 new residential allocations (limited to 4,091 units because of limited remaining development rights), an additional 600,000 square feet of CFA, and an additional 400 TAUs. Alternative 5 would allow for the greatest level of new development over the planning period of the Regional Plan. Implementation of Alternative 5 would result in more construction projects requiring water services than under Alternatives 2, 3, 4, and 5.

As described above, annual water demand in the Lake Tahoe Basin is 28,079 afy, with 18,700 afy of that demand in California and 9,379 afy in Nevada. The potential new development associated with Alternative 5 is projected to result in an additional water demand of approximately 2,308 afy (Table 3.13-5), which, given remaining water supply availability, could be accommodated with existing supplies. As with Alternative 1, the new development associated with Alternative 5 would be distributed throughout the Lake Tahoe Region, and the resulting increases in water demand would also be distributed among the many water purveyors in the Region. It cannot be known at this time where new water supplies and infrastructure would be required to serve new development under Alternative 5. However, based on land use policies, that would generally remain the same as under current conditions, new development and redevelopment projects would be expected within existing urbanized areas, close to existing water infrastructure. In addition, Section 32.4 of the Code does not allow project approval unless there is adequate water quantity and quality for domestic consumption and fire protection is available, which would need to be demonstrated on a project-by-project basis through the acquisition of a Will Serve letter from the applicable water purveyor.

Because new development projects would be required to demonstrate sufficient supply, treatment capacity (as applicable), and conveyance capacity by the water purveyor serving the given project area, impacts associated with new water demand for Alternative 5 would be **less than significant**.

**MITIGATION MEASURES**

*No mitigation is required for any of the alternatives.*

**Impact 3.13-2 Demand for Wastewater Conveyance and Treatment Facilities.** Implementation of any of the Regional Plan Update alternatives would require some additional wastewater conveyance and treatment capacity. TRPA Code Section 32.5 requires that all projects be served by facilities that provide treatment and export of wastewater from the Tahoe Region; Code Section 50.4.1(C) prohibits distribution of allocations to jurisdictions with insufficient wastewater capacity to support residential development; and TRPA Code Section 13.10.7 requires demonstration of adequate sewer capacity prior to occupancy of a transferred unit. Because new development and redevelopment projects would be required to demonstrate sufficient wastewater conveyance and treatment capacity from the district serving the given project area, this impact would be **less than significant** for all alternatives.

As discussed above in Section 3.13.2, Affected Environment, there are four districts in the Region that export wastewater: DCSID, IVGID, STPUD, and TTSA. Table 3.13-6 contains average remaining capacity levels for each district (i.e., total capacity minus the average flow rate).

**Table 3.13-6. Average Flow Rates and Total Capacity of Export Districts in the Tahoe Region**

Export District	Average Flow (MGD)	Total Capacity (MGD)	Average Remaining Capacity (MGD)
DCSID	3.75	4.2	0.55
IVGID	1.3	3.0	1.7
STPUD	4.0	7.0	3.0
TTSA	3.6	9.6	6.0
<b>Total</b>	<b>12.65</b>	<b>23.8</b>	<b>11.15</b>

Notes: DCSID=Douglas County Sewer Improvement District; IVGID=Incline Village General Improvement District; STPUD=South Tahoe Public Utility District; TTSD=Tahoe Truckee Sanitation Agency  
 Source: NDEP 2010, IVGID 2012a, IVGID 2012b, STPUD 2012, Nevada County LAFCO 2011

**ALTERNATIVE 1: NO PROJECT**

As described above, Alternative 1 would include only the allocations remaining from the 1987 Regional Plan. These allocations would allow for a 1.8 percent residential unit increase, a 6.0 percent increase in commercial floor area, and a 2.8 increase in new tourist accommodations over the 20-year planning period. These new allocations would require wastewater treatment and/or export capacity. TRPA Code Section 32.5 requires that all projects be served by facilities that provide treatment and export of wastewater from the Tahoe Region; Code Section 50.4.1(C) prohibits distribution of allocations to jurisdictions with insufficient wastewater capacity to support residential development; and TRPA Code Section 13.10.7 requires demonstration of adequate sewer capacity prior to occupancy of a transferred unit. It is not possible to speculate as to the location of future development that may occur over the planning period of the Regional Plan, and thus which districts would be affected by such projects. However, on a Region-wide basis, existing average wastewater flow rates are approximately half of the total export capacity (Table 3.13-6). Because Alternative 1 would result in very low levels of growth over the planning period, development under this alternative would not double wastewater flow rates; thus, it is reasonable to assume that sufficient capacity would be available to accommodate the

anticipated population increase and levels of the new commercial facilities and tourist accommodation units. In addition, because new development and redevelopment projects would be required to demonstrate sufficient conveyance and treatment capacity from the district serving the given project area, this impact would be **less than significant**.

## **ALTERNATIVE 2: LOW DEVELOPMENT, INCREASED REGULATION**

In addition to allocations remaining from the 1987 Regional Plan, Alternative 2 would include 2,600 new residential allocations and an additional 200,000 square feet of CFA. These allocations would allow for a 7.3 percent residential unit increase, a 9.1 percent increase in commercial floor area, and a 2.8 increase in new tourist accommodations over the 20-year planning period. These new allocations would require wastewater treatment and/or export capacity.

TRPA Code Section 32.5 requires that all projects be served by facilities that provide treatment and export of wastewater from the Tahoe Region; Code Section 50.4.1(C) prohibits distribution of allocations to jurisdictions with insufficient wastewater to support residential development; and TRPA Code Section 13.10.7 requires demonstration of adequate sewer capacity prior to occupancy of a transferred unit. It is not possible to speculate as to the location of future development that may occur over the planning period of the Regional Plan, and thus which districts would be affected by such projects. However, on a Region-wide basis, existing average wastewater flow rates are approximately half of the total export capacity (Table 3.13-6). Because Alternative 2 would result in very low levels of growth over the planning period, development under this alternative would not double wastewater flow rates; thus, it is reasonable to assume that sufficient capacity would be available to accommodate the anticipated population increase and levels of the new commercial facilities and tourist accommodation units. In addition, because new development and redevelopment projects would be required to demonstrate sufficient conveyance and treatment capacity from the district serving the given project area, this impact would be **less than significant**.

## **ALTERNATIVE 3: LOW DEVELOPMENT, HIGHLY INCENTIVIZED REDEVELOPMENT**

In addition to allocations remaining from the 1987 Regional Plan, Alternative 3 would include 2,600 new residential allocations, an additional 200,000 square feet of CFA, and an additional 600 residential bonus units. These allocations would allow for a 8.6 percent residential unit increase, a 9.1 percent increase in commercial floor area, and a 2.8 percent increase in new tourist accommodations over the 20-year planning period. These new allocations would require wastewater treatment and/or export capacity.

TRPA Code Section 32.5 requires that all projects be served by facilities that provide treatment and export of wastewater from the Tahoe Region; Code Section 50.4.1(C) prohibits distribution of allocations to jurisdictions with insufficient wastewater to support residential development; and TRPA Code Section 13.10.7 requires demonstration of adequate sewer capacity prior to occupancy of a transferred unit. It is not possible to speculate as to the location of future development that may occur over the planning period of the Regional Plan, and thus which districts would be affected by such projects. However, on a Region-wide basis, existing average wastewater flow rates are approximately half of the total export capacity (Table 3.13-6). Because Alternative 3 would result in very low levels of growth over the planning period, development under this alternative would not double wastewater flow rates; thus, it is reasonable to assume that sufficient capacity would be available to accommodate the anticipated population increase and levels of the new commercial facilities and tourist accommodation units. In addition, because new development and redevelopment projects would be required to demonstrate sufficient conveyance and treatment capacity from the district serving the given project area, this impact would be **less than significant**.



## ALTERNATIVE 4: REDUCED DEVELOPMENT, INCENTIVIZED REDEVELOPMENT

In addition to allocations remaining from the 1987 Regional Plan, Alternative 4 would include 4,000 new residential allocations, an additional 400,000 square feet of CFA, and an additional 200 TAUs. These allocations would allow for a 10.3 percent residential unit increase, a 12.2 percent increase in commercial floor area, and a 4.4 percent increase in new tourist accommodations over the 20-year planning period. These new allocations would require wastewater treatment and/or export capacity.

TRPA Code Section 32.5 requires that all projects be served by facilities that provide treatment and export of wastewater from the Tahoe Region; Code Section 50.4.1(C) prohibits distribution of allocations to jurisdictions with insufficient wastewater to support residential development; and TRPA Code Section 13.10.7 requires demonstration of adequate sewer capacity prior to occupancy of a transferred unit. It is not possible to speculate as to the location of future development that may occur over the planning period of the Regional Plan, and thus which districts would be affected by such projects. However, on a Region-wide basis, existing average wastewater flow rates are approximately half of the total export capacity (Table 3.13-6). Because Alternative 4 would result in very low levels of growth over the planning period, development under this alternative would not double wastewater flow rates; thus, it is reasonable to assume that sufficient capacity would be available to accommodate the anticipated population increase and levels of the new commercial facilities and tourist accommodation units. In addition, because new development and redevelopment projects would be required to demonstrate sufficient conveyance and treatment capacity from the district serving the given project area, this impact would be **less than significant**.

## ALTERNATIVE 5: SIMILAR RATE OF DEVELOPMENT AND REGULATORY STRUCTURE TO THE 1987 REGIONAL PLAN

In addition to allocations remaining from the 1987 Regional Plan, Alternative 5 would include 5,200 new residential allocations (limited to 4,091 units because of limited remaining development rights), an additional 600,000 square feet of CFA, and an additional 400 TAUs. These allocations would allow for a 9.7 percent residential unit increase, a 15.3 percent increase in commercial floor area, and a 6.0 increase in new tourist accommodations over the 20-year planning period. These new allocations would require wastewater treatment and/or export capacity.

TRPA Code Section 32.5 requires that all projects be served by facilities that provide treatment and export of wastewater from the Tahoe Region; Code Section 50.4.1(C) prohibits distribution of allocations to jurisdictions with insufficient wastewater to support residential development; and TRPA Code Section 13.10.7 requires demonstration of adequate sewer capacity prior to occupancy of a transferred unit. It is not possible to speculate as to the location of future development that may occur over the planning period of the Regional Plan, and thus which districts would be affected by such projects. However, on a Region-wide basis, existing average wastewater flow rates are approximately half of the total export capacity (Table 3.13-6). Because Alternative 5 would result in very low levels of growth over the planning period, development under this alternative would not double wastewater flow rates; thus, it is reasonable to assume that sufficient capacity would be available to accommodate the anticipated population increase and levels of the new commercial facilities and tourist accommodation units. In addition, because new development and redevelopment projects would be required to demonstrate sufficient conveyance and treatment capacity from the district serving the given project area, this impact would be **less than significant**.

## MITIGATION MEASURES

*No mitigation is required for any of the alternatives.*

**Impact 3.13-3** **Generation of Solid Waste.** Implementation of any of the Regional Plan Update alternatives would result in some new development within the Region. Such development would increase the Region's overall solid waste generation. However, the projections and planned facility expansions at Lockwood Regional Landfill and proposed strategies to reduce solid waste production in the Region would allow for sufficient capacity over the next 20 years. Thus, this impact would be **less than significant** for all alternatives.

Information on solid waste generation and capacity in the Tahoe Region was obtained and/or derived from a variety of sources. Solid waste generation rates were compiled from the CalRecycle website and the El Dorado County Solid Waste Management Plan, which contain information related to waste generation. Typical waste generation estimates for new employees associated with additional CFA under each alternative are 1.9 tons per year for retail uses, 1.20 tons per year for service uses, and 0.9 ton per year for recreation and other uses (CalRecycle 2012). The number of employees under each alternative was calculated on calculations of CFA (described in more detail in Section 3.12, Population, Employment, and Housing.) The *El Dorado County Solid Waste Management Plan* reported that the Tahoe Region produced a ratio of 1.39 tons of waste per resident per year, which was used to determine future waste generation from projected population increases under each alternative. This approach is conservative and represents maximum build-out for each alternative over the planning period. In addition, two MRF in the Region, owned by STR and TTSD, substantially reduce the amount of solid waste that is disposed of in Lockwood Regional Landfill through recycling programs. As of March 2012, the STR MRF recycled approximately 54 percent of the waste handled at its facility (STR 2012). Diversion and recycling considerations are not included in the projected waste generation rates.

**Table 3.13-7. Region-Wide Solid Waste Generation Projected for Maximum Development Potential under Each Alternative (Tons per Year)**

	2010	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Residential Waste <sup>1</sup>	75,700	77,400	80,400	83,900	83,100	83,100
Employee Waste <sup>2</sup>	29,800	30,800	31,300	31,300	31,800	32,300
Total Solid Waste Generation per Year	105,500	108,200	111,600	115,200	114,900	115,400

Notes: Numbers displayed in this table are rounded to the nearest 100.  
<sup>1</sup>For the purposes of this analysis, it was assumed that residential solid waste would be of similar density to those reported for hotels/lodging.  
<sup>2</sup>CFA was used to determine employee levels, of which generation rates were based upon for new employees. See Section 3.12, Population, Employment, and Housing for projection assumptions  
Source: Calculations based on data compiled from CalRecycle 2012, NDEP 2012, and El Dorado County 2012.

## ALTERNATIVE 1: NO PROJECT

As described above, Alternative 1 would include only the allocations remaining from the 1987 Regional Plan. Assuming growth in accordance with those remaining allocations, waste generation under Alternative 1 is anticipated to be approximately 108,200 tons per year (Table 3.13-7). Alternative 1 would constitute a relatively small annual solid waste generation rate increase, compared to the existing rate of the estimated 52,700 tons per year Region-wide. Based on projected volumes, Lockwood Regional Landfill has a remaining capacity of 22 million tons. As discussed above, under Section 3.13.2, Affected Environment, the Lockwood Regional Landfill is planning to expand to a capacity of 302.5 million cubic yards, from the existing capacity of 64.8 million cubic yards. This would be anticipated to allow for approximately 204 million tons of waste. Because increased growth in the Region would result in a relatively small increase in solid waste generation, and expansion of Lockwood Regional Landfill would substantially increase capacity, this impact would be **less than significant**.

## **ALTERNATIVE 2: LOW DEVELOPMENT, INCREASED REGULATION**

As described above, in addition to allocations remaining from the 1987 Regional Plan, Alternative 2 would include 2,600 new residential allocations and an additional 200,000 square feet of CFA. Generation rates under Alternative 2 are anticipated to increase to 111,600 tons per year under the maximum allowable growth that would be permitted in this alternative (Table 3.13-7). Given the substantial existing capacity of 22 million tons, and planned expansion that would allow for a total capacity of 204 million tons at the Lockwood Regional Landfill, waste disposal needs for development under Alternative 2 could be adequately served in the future. Thus, this impact would be **less than significant**.

## **ALTERNATIVE 3: LOW DEVELOPMENT, HIGHLY INCENTIVIZED REDEVELOPMENT**

As described above, in addition to allocations remaining from the 1987 Regional Plan, Alternative 2 would include 2,600 new residential allocations and an additional 200,000 square feet of CFA. Generation rates under Alternative 3 are anticipated to increase to 115,200 tons per year under the maximum allowable growth that would be permitted in this alternative (Table 3.13-7). Given the substantial existing capacity of 22 million tons, and planned expansion that would allow for a total capacity of 204 million tons at the Lockwood Regional Landfill, waste disposal needs for development under Alternative 3 could be adequately served in the future. Thus, this impact would be **less than significant**.

## **ALTERNATIVE 4: REDUCED DEVELOPMENT, INCENTIVIZED REDEVELOPMENT**

As described above, in addition to allocations remaining from the 1987 Regional Plan, Alternative 2 would include 2,600 new residential allocations and an additional 200,000 square feet of CFA. Generation rates under Alternative 4 are anticipated to increase to 114,900 tons per year under the maximum allowable growth that would be permitted in this alternative (Table 3.13-7). Given the substantial existing capacity of 22 million tons, and planned expansion that would allow for a total capacity of 204 million tons at the Lockwood Regional Landfill, waste disposal needs for development under Alternative 4 could be adequately served in the future. Thus, this impact would be **less than significant**.

## **ALTERNATIVE 5: SIMILAR RATE OF DEVELOPMENT AND REGULATORY STRUCTURE TO THE 1987 REGIONAL PLAN**

As described above, in addition to allocations remaining from the 1987 Regional Plan, Alternative 2 would include 2,600 new residential allocations and an additional 200,000 square feet of CFA. Although new development associated with Alternative 5 would be low (greater than Alternatives 1, 2, 3, and 4), any new construction would increase solid waste generation in the Region. Generation rates under Alternative 5 are anticipated to increase to 115,400 tons per year under the maximum allowable growth that would be permitted in this alternative (Table 3.13-7). Given the substantial existing capacity of 22 million tons, and planned expansion that would allow for a total capacity of 204 million tons at the Lockwood Regional Landfill, waste disposal needs for development under Alternative 5 could be adequately served in the future. Thus, this impact would be **less than significant**.

## **MITIGATION MEASURES**

*No mitigation is required for any of the alternatives.*

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**Impact 3.13-4 Demand for Electrical and Natural Gas Services and Facilities.** New development under any of the Regional Plan Update alternatives would result in some increased demand for electric and natural gas services to support new residences, TAUs, and commercial uses. Nevada Energy, Liberty Utilities, and Southwest Gas Corporation use future population projections to determine the need for increased supply. Although areas that would be subject to new construction cannot be known with specificity, developable parcels and areas subject to redevelopment in the Tahoe Region are known and are geographically limited. Any new development would be located within close proximity to existing electric and gas infrastructure, and projects requiring new or modified utility installation, connections, and expansion would be subject to the requirements of the applicable utility providers. The utility companies project that, based on their forecasting and recent growth trends in the Region, their existing capacity will substantially exceed the future demand that could be generated by Alternative 5 (the alternative with the greatest potential for development) at build-out (Anderson, Matthews, and Walden, pers. comms. 2012). This impact would be **less than significant** for all alternatives.

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Land use plans, goals, and policies included in the Regional Plan Update alternatives would primarily concentrate growth in or adjacent to areas that are already developed and that have electricity and natural gas infrastructure in place. As described in Section 3.13.2, Affected Environment, NV Energy, Liberty Utilities, and Southwest Gas Corporation forecast future demand for electrical and natural gas services based upon projected population growth in a specific region and other factors to determine the need for future supply well before projects are implemented.

### **ALTERNATIVE 1: NO PROJECT**

As described above, Alternative 1 would include only the allocations remaining from the 1987 Regional Plan. New development would be very limited under Alternative 1, but any new construction would require electric and natural gas service. Although all areas that would be subject to new construction cannot be known with specificity, developable parcels and areas subject to redevelopment in the Tahoe Region are known and are geographically limited. TRPA Code Section 32.6 requires that projects must be served with adequate electrical supply. Any new development would be located within close proximity to existing electric and gas infrastructure, and projects requiring new or modified utility installation, connections, and expansion would be subject to the requirements of the applicable utility providers, NV Energy or Liberty Utilities and Southwest Gas Corporation. The utility companies project that, based on their forecasting and recent growth trends in the Region, their existing capacity will substantially exceed the future demand that could be generated by Alternative 1 (Anderson, Matthews, and Walden, pers. comms. 2012). This impact would be **less than significant**.

### **ALTERNATIVE 2: LOW DEVELOPMENT, INCREASED REGULATION**

As described above, in addition to allocations remaining from the 1987 Regional Plan, Alternative 2 would include 2,600 new residential allocations and an additional 200,000 square feet of CFA. Although new development associated with Alternative 2 would be low (greater than Alternative 1, but less than Alternatives 3, 4, and 5), any new construction would require electric and natural gas service. The utility companies project that, based on their forecasting and recent growth trends in the Region, their existing capacity will substantially exceed the future demand that could be generated by Alternative 2 (Anderson, Matthews, and Walden, pers. comms. 2012). This impact would be **less than significant**.

### ALTERNATIVE 3: LOW DEVELOPMENT, HIGHLY INCENTIVIZED REDEVELOPMENT

In addition to allocations remaining from the 1987 Regional Plan, Alternative 3 would include 2,600 new residential allocations, an additional 200,000 square feet of CFA, and an additional 600 residential bonus units. Although new development under Alternative 3 would be relatively low (greater than Alternatives 1 and 2 but less than Alternatives 4 and 5), any new construction would require electric and natural gas service. The utility companies project that, based on their forecasting and recent growth trends in the Region, their existing capacity will substantially exceed the future demand that could be generated by Alternative 3 (Anderson, Matthews, and Walden, pers. comms. 2012). For the reasons identified above for Alternative 1, this impact would be **less than significant**.

### ALTERNATIVE 4: REDUCED DEVELOPMENT, INCENTIVIZED REDEVELOPMENT

In addition to allocations remaining from the 1987 Regional Plan, Alternative 4 would include 4,000 new residential allocations, an additional 400,000 square feet of CFA, and an additional 200 TAUs. New development would be greater than Alternatives 1, 2, and 3 but less than Alternative 5. Any new construction would require electric and natural gas service. The utility companies project that, based on their forecasting and recent growth trends in the Region, their existing capacity will substantially exceed the future demand that could be generated by Alternative 4 (Anderson, Matthews, and Walden, pers. comms. 2012). For the reasons identified above for Alternative 1, this impact would be **less than significant**.

### ALTERNATIVE 5: SIMILAR RATE OF DEVELOPMENT AND REGULATORY STRUCTURE TO THE 1987 REGIONAL PLAN

In addition to allocations remaining from the 1987 Regional Plan, Alternative 5 would include 5,200 new residential allocations (limited to 4,091 units because of limited remaining development rights), an additional 600,000 square feet of CFA, and an additional 400 TAUs. Alternative 5 would allow for the greatest level of new development over the planning period of the Regional Plan, and any new construction would require electric and natural gas service. The utility companies project that, based on their forecasting and recent growth trends in the Region, their existing capacity will substantially exceed the future demand that could be generated by Alternative 5 (the alternative with the greatest potential for development) at build-out (Anderson, Matthews, and Walden, pers. comms. 2012). For the reasons identified above for Alternative 1, this impact would be **less than significant**.

### MITIGATION MEASURES

*No mitigation is required for any of the alternatives.*

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<b>Impact 3.13-5</b>	<b>Demand for Fire Protection, Law Enforcement, and School Facilities.</b> Implementation of any of the Regional Plan Update alternatives would result in some new development that could increase the demand for fire protection, law enforcement, and school services that, in turn, could require new or improved facilities, the construction of which could result in adverse effects to the environment. However, as with other project development, environmental review of specific public facility projects would be required to ensure that impacts are identified and mitigated. Thus, this impact would be <b>less than significant</b> for all alternatives.
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### ALTERNATIVE 1: NO PROJECT

As described above, Alternative 1 would include only the allocations remaining from the 1987 Regional Plan. New development would likely be very limited under Alternative 1, but any new construction could result in

modest population increases that, depending upon location, could require improved or expanded facilities for law enforcement, fire protection, or schools, the construction of which could result in adverse environmental effects. However, as with other project development, environmental review of specific public facility projects would be required in accordance with TRPA requirements to ensure that impacts are identified and mitigated. This impact would be **less than significant**.

### **ALTERNATIVE 2: LOW DEVELOPMENT, INCREASED REGULATION**

As described above, in addition to allocations remaining from the 1987 Regional Plan, Alternative 2 would include 2,600 new residential allocations and an additional 200,000 square feet of CFA. Although new development associated with Alternative 2 would be low (greater than Alternative 1 but less than Alternatives 3, 4, and 5), any new construction could result in modest population increases that, depending upon location, could require improved or expanded facilities for law enforcement, fire protection, or schools, the construction of which could result in adverse environmental effects. For the reasons identified above for Alternative 1, this impact would be **less than significant**.

### **ALTERNATIVE 3: LOW DEVELOPMENT, HIGHLY INCENTIVIZED REDEVELOPMENT**

In addition to allocations remaining from the 1987 Regional Plan, Alternative 3 would include 2,600 new residential allocations, an additional 200,000 square feet of CFA, and an additional 600 residential bonus units. Although new development under Alternative 3 would be relatively low (greater than Alternatives 1 and 2 but less than Alternatives 4 and 5), any new construction could result in population increases that, depending upon location, could require improved or expanded facilities for law enforcement, fire protection, or schools, the construction of which could result in adverse environmental effects. For the reasons identified above for Alternative 1, this impact would be **less than significant**.

### **ALTERNATIVE 4: REDUCED DEVELOPMENT, INCENTIVIZED REDEVELOPMENT**

In addition to allocations remaining from the 1987 Regional Plan, Alternative 4 would include 4,000 new residential allocations, an additional 400,000 square feet of CFA, and an additional 200 TAUs. New development would be greater than Alternatives 1, 2, and 3 but less than Alternative 5. Any new construction could result in population increases that, depending upon location, could require improved or expanded facilities for law enforcement, fire protection, or schools, the construction of which could result in adverse environmental effects. For the reasons identified above for Alternative 1, this impact would be **less than significant**.

### **ALTERNATIVE 5: SIMILAR RATE OF DEVELOPMENT AND REGULATORY STRUCTURE TO THE 1987 REGIONAL PLAN**

In addition to allocations remaining from the 1987 Regional Plan, Alternative 5 would include 5,200 new residential allocations (limited to 4,091 new units because of limited remaining development rights), an additional 600,000 square feet of CFA, and an additional 400 TAUs. Alternative 5 would allow for the greatest level of new development over the planning period of the Regional Plan, and any new construction could result in population increases that, depending upon location, could require improved or expanded facilities for law enforcement, fire protection, or schools, the construction of which could result in adverse environmental effects. For reasons identified above in Alternative 1, this impact would be **less than significant**.

### **MITIGATION MEASURES**

*No mitigation is required for any of the alternatives.*