

15 PUBLIC HEALTH AND SAFETY

15.1 INTRODUCTION

This chapter describes the existing conditions within the shorezone and lakezone with respect to public health and safety. Topics addressed include boating safety, hazardous materials, seismic hazards, and emergency access to Lake Tahoe. Public health and safety are not environmental factors, but it is important for public decision makers to consider how features of the project alternatives may affect health and safety issues. This chapter also describes the capacity of existing public services and evaluates how implementation of the Shoreline Plan could affect demand for public services, which may result in environmental impacts if new or altered facilities are required. Public services include law enforcement, fire protection, and emergency response within the project area. The primary issues raised during scoping that pertain to public health and safety included:

- ▲ impacts to nonmotorized recreation;
- ▲ conflicts between motorized and nonmotorized recreation (e.g., enforcement of a no-wake zone, speed, watercraft traffic, need for larger no-wake zones in high traffic areas);
- ▲ increase in navigational hazards such as buoys and longer piers;
- ▲ health hazards due to potential contamination of the lake from nearshore development and from human-water contact; and
- ▲ public lake access issues and the potential for increased trespassing and vandalism on private property.

Analysis provided in this chapter is based on a review of agency documents, publicly available hazardous waste site databases, and consultation with local public service providers.

A dam constructed at Tahoe City in the early 1900s regulates water flow to the Truckee River from the natural rim of Lake Tahoe (6,223 feet above sea level) to the maximum legal lake level of 6,229.1 feet. Because the Shoreline Plan project area is confined to the shorezone and lake levels are regulated by the dam, flooding hazards are not a concern within the shorezone and are not addressed further in this chapter. The Shoreline Plan project area does not include lands designated as high fire hazard severity zones. Thus, wildland fire risk is not discussed further in this chapter. The Shoreline Plan would not create mosquito habitat or increase exposure of people to existing mosquito habitat. Thus, vector-borne disease is not discussed further. The relationship of individual projects to schools, airstrips, and hazardous waste sites would be evaluated on an individual basis at the project level. The Shoreline Plan does not involve alterations to or increased need for schools or for utilities such as power, natural gas, communication systems, water, or wastewater disposal. These issues are also not discussed further.

15.2 REGULATORY SETTING

Numerous federal, state, and local laws, regulations, and programs have been enacted to protect public health and safety. Key laws and regulations applicable to the Shoreline Plan are discussed below.

15.2.1 Federal

BOATING SAFETY

Section 10 of the Rivers and Harbors Act of 1899 requires that regulated activities conducted below the ordinary high-water elevation of navigable waters of the United States be approved/permitted by the U.S. Army Corps of Engineers (USACE). Regulated activities include the placement/removal of structures, work involving dredging, disposal of dredged material, filling, excavation, or any other disturbance of soils/sediments or modification of a navigable waterway. Lake Tahoe is considered a navigable waterway.

The Federal Boat Safety Act was enacted by Congress in August 1971 and provides authority for the U.S. Coast Guard to establish comprehensive boating safety programs, authorizes the establishment of national construction and performance standards for boats and associated equipment and creates a more flexible regulatory authority concerning the use of boats and associated equipment.

The U.S. Code of Federal Regulations (CFR) contains regulations governing the safe operation of boats in Title 33: Navigation and Navigable Waters. This includes regulations about the carriage and use of personal flotation devices (33 CFR 175.11 et seq.), visual distress signals (33 CFR 175.101 et seq.), and proper ventilation systems (33 CFR 175.201).

WATER QUALITY

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Federal Water Pollution Control Act of 1977 (33 U.S. Code [USC] 1251 et seq.), commonly referred to as the Clean Water Act (CWA), is the primary federal law that governs and authorizes water quality control activities by EPA, as well as the states. The CWA employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff:

- ▲ Title 40 of the CFR contains water quality regulations. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States.
- ▲ In accordance with Section 404 of the CWA, USACE regulates discharge of dredged or fill material into waters of the United States. Waters of the United States and their lateral limits are defined in Title 33, Part 328.3(a) of the CFR to include navigable waters of the United States, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. "Fill" is defined as any material that replaces any portion of a water of the United States with dry land or that changes the bottom elevation of any portion of a water of the United States. Any activity resulting in the placement of dredged or fill material within waters of the United States requires a permit from USACE. In accordance with Section 401 of the CWA, projects that apply for a USACE permit for discharge of dredged or fill material must obtain water quality certification from the appropriate regional water quality control board (RWQCB) indicating that the project will uphold state water quality standards.
- ▲ Section 402 of the CWA creates the National Pollutant Discharge Elimination System (NPDES) regulatory program. Point sources must obtain a discharge permit from the proper authority (usually a state, sometimes EPA, a tribe, or a territory). NPDES permits cover various industrial and municipal discharges, including industrial activity, and runoff from construction sites disturbing more than 1 acre.
- ▲ Specific requirements for Spill Prevention, Control, and Countermeasure (SPCC) plans were developed as one of the regulations under the CWA. SPCC plans are described in CFR Title 40, Part 112 (Oil Spill Prevention) and are intended to reduce the threat of oil spills to navigable waters of the United States. The site-specific plan must identify the design, control, training, and response requirements of a facility.

A SPCC plan is required for facilities that have an aggregate aboveground storage capacity (counting only total volumes of containers 55 gallons or larger) of oil of more than 1,320 gallons.

MANAGEMENT OF HAZARDOUS MATERIALS

The U.S. Department of Transportation (USDOT), Office of Hazardous Material Safety, defines “hazard” as a condition, activity, or inherent characteristic of a material that has the potential to cause harm to people, property, or the environment. Exposure to hazardous materials can cause death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property. Federal laws require planning to ensure that hazardous materials are properly handled, used, transported, stored, and disposed of, and if such materials are accidentally released, to prevent or mitigate injury to health or the environment. EPA is the agency primarily responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are primarily contained in CFR Titles 29, 40, and 49. Management of hazardous materials is governed by the following laws:

- ▲ The Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.) is the law under which EPA regulates hazardous waste from the time the waste is generated until its final disposal (“cradle to grave”).
- ▲ The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also called the Superfund Act or CERCLA) (42 USC 9601 et seq.) gives EPA authority to seek out parties responsible for releases of hazardous substances and ensure their cooperation in site remediation.
- ▲ The Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499; 42 USC 116), also known as SARA Title III or the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.
- ▲ The CFR contains regulations regarding the discharge of fuel, oil, oily wastes, and hazardous substances into navigable waters of the United States (40 CFR 110.3).
- ▲ USDOT regulates transport of hazardous materials between states and is responsible for protecting the public from dangers associated with such transport. The federal hazardous materials transportation law (49 USC Section 5101 et seq.; formerly the Hazardous Materials Transportation Act, 49 USC Section 1801 et seq.) is the basic statute regulating transport of hazardous materials in the United States. Hazardous materials regulations are enforced by the Federal Highway Administration, the U.S. Coast Guard, the Federal Railroad Administration, and the Federal Aviation Administration.

WORKER SAFETY

The Occupational Safety and Health Administration (OSHA) is the federal agency responsible for assuring worker health and safety standards. OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards relating to the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 9 USC 651 et seq.) and for personal protective and life-saving equipment required when working over or near water (29 CFR 1926.106).

15.2.2 Tahoe Regional Planning Agency

THRESHOLDS

TRPA has not established any environmental threshold carrying capacities related to public safety, hazardous materials, seismic hazards, or public services.

GOALS AND POLICIES

The TRPA Regional Plan contains goals and policies intended to help the region achieve and maintain adopted environmental threshold carrying capacities while providing for orderly growth and development consistent with such capacities. There are a variety of goals and policies related to public health and safety within the TRPA Regional Plan. Chapter 2, “Land Use Element,” of the Goals and Policies document sets forth fundamental land use philosophies which include the maintenance of the environmental, economic, social, and physical well-being of the Region. The Natural Hazards Subelement aims to minimize risks from natural hazards such as earthquakes, and seiches. The Water Quality Subelement aims to maintain thresholds for water quality by addressing point and non-point sources of pollution. Relevant policies include the following:

- ▲ **Policy NH-1.4.** TRPA will encourage public safety agencies to prepare disaster plans.
- ▲ **Policy WQ-2.3.** Underground storage tanks for sewage, fuel, or other potentially harmful substances shall meet standards set forth in TRPA ordinances, and shall be installed, maintained, and monitored in accordance with the Best Management Practices Handbook.
- ▲ **Policy WQ-2.5.** TRPA shall cooperate with other agencies with jurisdiction in the Lake Tahoe region in the preparation, evaluation, and implementation of toxic and hazardous spill control plans.
- ▲ **Policy WQ-2.6.** Liquid or solid wastes from recreational vehicles and boats shall be discharged at approved pump-out facilities. Pump-out facilities will be provided by public utility districts, marinas, campgrounds, and other relevant facilities in accordance with standards set forth in the Best Management Practices Handbook.

Chapter 4, “Conservation Element,” plans for the preservation, development, utilization, and management of the scenic and other natural resources within the region. The Shorezone Subelement contains goals and policies that govern development in the shorezone area of Lake Tahoe. Relevant policies include the following:

- ▲ **Policy SZ-1.9.** The Agency shall regulate the placement of new piers, buoys, and other structures in the foreshore and nearshore to avoid degradation of fish habitats, creation of navigation hazards, interference with littoral drift, interference with the attainment of scenic thresholds, and other relevant concerns.
- ▲ **Policy SZ-1.11.** The Agency shall regulate the maintenance, repair, and modification of piers and other structures in the nearshore and foreshore.

Chapter 6, “Public Services and Facilities Element,” includes goals and policies related to the provision of adequate public services to meet the needs of existing and new development. Relevant policies include the following:

- ▲ **Policy PS-1.1.** Public services and facilities should be allowed to upgrade and expand consistent with the land use element of the Regional Plan and federal, state, and local standards.
- ▲ **Policy PS-4.1.** The impact on educational and public safety services shall be considered when reviewing projects and plan amendments proposed within the region. To the extent feasible, adverse impacts should be mitigated as part of the review process.
- ▲ **Policy PS-4.2.** Educational and emergency service organizations should anticipate and plan for projected demands and needs consistent with the regional plan and are encouraged to advise the agency when development potentials exceed current or anticipated service capabilities or capacities.

CODE OF ORDINANCES

The TRPA Code of Ordinances compiles all the laws and ordinances needed to implement the TRPA Regional Plan goals and policies. The Shoreline Plan, once an alternative is approved and implemented, would amend parts of the TRPA Code, including portions of Chapters 80 through 86. As described in Chapter 2, “Description of Proposed Project and Alternatives,” some provisions of the TRPA Regional Plan and other shoreline-related policy issues would remain unchanged under all alternatives. TRPA Code Section 84.10.2 establishes a framework to provide essential emergency access to and egress from Lake Tahoe to protect public health and safety. TRPA allows for the designation of up to one essential public safety facility within each county jurisdiction plus the U.S. Coast Guard Lake Tahoe Station, which is a second existing essential public health and safety facility in Placer County. In drought years, TRPA allows first responder organizations to designate locations for temporary moorings for regional public safety purposes, such as a marina, pier, or buoy, or a site where a new pier could be constructed pursuant to TRPA Code. The shoreline alternatives would not modify the existing essential public health and safety provisions.

Chapter 33, “Grading and Construction,” applies to grading, excavation, filling, clearing of vegetation, and disturbance of the soil, and protection of vegetation during construction. In accordance with TRPA Code Section 33.3.4, the methods of disposal of solid or liquid materials, including soil, silt, clay, sand, or other organic or earthen materials, shall be reviewed and approved by TRPA. These methods of disposal shall include, but are not limited to:

- ▲ temporary stockpiling of all or some of the topsoil on the site for use on areas to be revegetated,
- ▲ disposal of the material at a location approved by TRPA, and
- ▲ export of the materials outside the Region.

Chapter 60, “Water Quality,” implements the Water Quality Subelement of the TRPA Regional Plan goals and policies to attain and maintain federal, state, and local water quality standards. It prohibits the discharge of toxic or hazardous wastes to Lake Tahoe and states that all persons handling, transporting, using, or storing toxic or hazardous substances shall comply with the applicable requirements of state and federal law regarding spill prevention, reporting, recovery, and clean-up.

15.2.3 California

BOATING SAFETY

Senate Bill (SB) 941, which was signed into law September 18, 2014, mandates boater safety education for anyone who intends to operate a motor-powered vessel on California waterways. On January 1, 2018, the legislation took effect for boaters under 20 years old. The new law requirements will gradually expand to apply to all boaters by 2025. The California Code, Harbors and Navigation Code regulates navigable waters, navigation, and boating safety.

WATER QUALITY

California’s primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Resources Control Board (SWRCB) and each of the nine RWQCBs power to protect water quality and is the primary vehicle for implementation of California’s responsibilities under the CWA. The applicable RWQCB for the project area is the Lahontan RWQCB (Lahontan Water Board). SWRCB and the Lahontan Water Board have the authority and responsibility to adopt plans and policies, regulate discharges to surface water and groundwater, regulate waste disposal sites, and require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substances, sewage, or oil or petroleum products.

Through the Porter-Cologne Water Quality Act and the NPDES program, Lahontan Water Board has authority to require proper management of hazardous materials during project construction.

The proposed Shoreline Plan falls within the jurisdiction of the state Construction General Permit (Order No. 2009-009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ). The Construction General Permit covers areas that drain to the Truckee River and establishes a risk-based approach with monitoring. The NPDES Permit and Construction General Permit require that construction projects with greater than 1 acre of disturbance file permit registration documents, including a Notice of Intent and a storm water pollution prevention plan (SWPPP) that includes proposed best management practices and a site-specific Construction Site Monitoring and Reporting Plan developed by a Qualified SWPPP Developer. Although a major focus of the SWPPP is management of stormwater on the construction site, it must also address proper use and storage of hazardous materials, spill prevention and containment, and cleanup and reporting of any hazardous materials releases, if they occur.

MANAGEMENT OF HAZARDOUS MATERIALS

The term “hazardous material” is defined by California Health and Safety Code as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment (6.95 Health and Safety Code [HSC] 25501). In this section, the term “hazardous materials” is used to denote hazardous products and hazardous commodities that are transported or used in commerce. The term “hazardous waste” is used for waste materials that are destined for treatment or disposal and have been defined in state or federal regulations as being hazardous waste.

The California Department of Toxic Substances Control (DTSC), a department of the California Environmental Protection Agency (CalEPA), has primary regulatory responsibility over hazardous materials in California. DTSC works in conjunction with EPA to enforce and implement hazardous materials laws and regulations. As required by Section 65962.5 of the California Government Code, DTSC maintains a hazardous waste and substances site list for the state, known as the Cortese List. Management of hazardous materials is governed by the following laws:

- ▲ Chapter 6.7 of the Health and Safety Code outlines the requirements for underground storage tanks (USTs). The code identifies requirements for corrective actions, cleanup funds, liability, and the responsibilities of owners and operators of USTs.
- ▲ The California Aboveground Petroleum Storage Act (APSA) applies to facilities that are subject to the oil pollution prevention regulations specified in CFR 40, Part 112 or that have a storage capacity of at least 1,320 gallons of petroleum in the state of California. The California APSA only regulates tank facilities that store petroleum, whereas the federal SPCC requirement includes other oils. The California APSA requires preparation of an SPCC plan in accordance with CFR 40, Part 112.
- ▲ California has adopted USDOT regulations for the movement of hazardous materials originating within the state and passing through the state; state regulations are contained in Title 26 of the CCR. State agencies with primary responsibility for enforcing state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers to transport hazardous waste on public roads.
- ▲ California has developed an emergency response plan, managed by the Governor’s Office of Emergency Services, to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous materials incidents is one part of the plan.
- ▲ Section 25150.7 of the California Health and Safety Code outlines procedures and regulations for the management and disposal of treated wood waste (TWW). Wood treated with preservatives and other

chemicals to protect the wood may have been used in constructing piers and pilings on Lake Tahoe. These preservatives and other chemicals could leach into water supplies if the wood waste is disposed of improperly. The Eastern Regional Landfill, Carson City Landfill, and Western Regional Landfill accept TWW.

WORKER SAFETY

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the state. Cal/OSHA standards are typically more stringent than federal OSHA regulations and are presented in Title 8 of the CCR. Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices.

BUILDING CODES

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, egress facilities, and general building stability. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California. The earthquake design requirements consider the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a Seismic Design Category for a project.

EMERGENCY RESPONSE

Under the Emergency Services Act (California Government Code, Sections 8550 through 8551), the State of California developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous material or hazardous waste is an important segment of the plan administered by the California Emergency Management Agency (CalEMA). The CalEMA coordinates the response of agencies, including CalEPA, Caltrans, California Highway Patrol, RWQCBs, Air Quality Management Districts, and county disaster response offices.

15.2.4 Nevada

BOATING SAFETY

The Nevada Boat Act of 1999 promotes safety for persons and property in and connected with the use, operation, and equipment of vessels (488 Nevada Revised Statutes 015 et seq.). The Act specifies required safety equipment such as adequate lights, personal flotation devices, and fire extinguishers. The Act also regulates the safe operation of vessels.

MANAGEMENT OF HAZARDOUS MATERIALS

The Nevada Division of Environmental Protection, Bureau of Waste Management manages a Hazardous Waste Program that is responsible for enforcing state hazardous waste statutes and regulations in lieu of the EPA. With some modifications, Nevada adopts the federal hazardous waste regulations. The Hazardous Waste Program is responsible for permitting and inspecting hazardous waste generators and disposal, transfer, storage, and recycling facilities.

The Nevada Department of Public Safety Hazmat Permitting Office is responsible for the permitting and regulating of hazardous materials within the state of Nevada. Section 312 of the SARA requires covered facilities to submit hazardous chemical inventory forms annually. Information required for the substances at

the facility include the quantity and location of hazardous chemicals stored or used onsite above the threshold planning quantity. Also required are the categories of each chemical's physical and health hazards.

Transportation of hazardous materials on roadways is regulated by the Nevada Department of Motor Vehicles and the Nevada Highway Patrol (Nevada Revised Statutes 459.250).

WORKER SAFETY

The Nevada Occupational Safety and Health Act promotes safe and healthful working conditions to provide job safety and health protection for workers in the State of Nevada. This act provides the Nevada Occupational Safety and Health Administration the power to issue citations for conditions inspected and found to be unsafe.

EMERGENCY RESPONSE

In compliance with EPCRA, the Nevada State Emergency Response Commission (SERC) was established in 1987. SERC coordinates and supervises the activities of the Local Emergency Planning Committees to ensure that each committee has an approved Hazardous Materials Emergency Response Plan. SERC also collects chemical inventory reports, provides funds through grants, and processes information requests from the public.

15.2.5 Local

LAKE TAHOE GEOGRAPHIC RESPONSE PLAN

The Lake Tahoe Geographic Response Plan (LTGRP) (Lake Tahoe Response Plan Area Committee 2014) is the principal guide for agencies within the Lake Tahoe watershed, its incorporated cities, and other local government entities in mitigating hazardous materials emergencies. The LTGRP establishes the policies, responsibilities, and procedures required to protect life, environment, and property from the effects of hazardous materials incidents. The LTGRP establishes the emergency response organization for hazardous materials incidents occurring within the Lake Tahoe watershed. The LTGRP is generally intended to be used for oil spills or chemical releases that impact or could potentially impact drainages entering Lake Tahoe and the Truckee River.

LOCAL HAZARD MITIGATION PLANS

The El Dorado County Multi-Jurisdiction Hazard Mitigation Plan (El Dorado County 2004) protects life, safety, and property by identifying risks and recommending localized solutions to reduce vulnerabilities. It includes an assessment of how existing regulations and policies reduce impacts related to seiches.

The Placer County Local Hazard Mitigation Plan Update (Placer County 2016) reduces or eliminates long-term risk to people and property from hazards, provides protection for critical infrastructure, improves public awareness and preparedness, and improves communities' capabilities to respond and recover from disaster. While the plan identifies seiches as unlikely occurrences, vulnerability of existing infrastructure to a seiche is high, should one occur. A seiche wave warning system, signs, and public education is recommended.

The Douglas County Local Hazard Mitigation Plan Comprehensive Update (Douglas County 2015) reduces impacts and damages from hazard events, increases public awareness, strengthens communication and coordination, and integrates hazard mitigation activities with local land development planning.

The Washoe County Regional Hazard Mitigation Plan (Washoe County 2015) identifies hazard mitigation actions intended to eliminate or reduce the effects of future disasters throughout the county. The plan cites

computer models of seiche activity at Lake Tahoe prepared by the University of Nevada research team, which estimate that waves as high as 30 feet could strike the shore. These projections suggest the largest waves might hit Sugar Pine Point, Rubicon Point, and the casinos in South Lake Tahoe. Given the low likelihood of seiche occurrence, the plan recommends eventual evaluation of seiche warning systems.

The Carson City Hazard Mitigation Plan (Carson City 2016) identifies on-going and new hazard mitigation actions intended to eliminate or reduce the effects of future disasters in Carson City. While seiches are profiled in the plan, given the low risk of seiches, the plan does not identify specific actions to address seiches beyond greater public awareness.

15.3 AFFECTED ENVIRONMENT

The affected environment extends beyond Lake Tahoe's shorezone to include the lakezone, where water-dependent recreation may be present, and to include areas near the lake where hazardous materials may be transported, used, and disposed.

15.3.1 Boating

EXISTING USES

Water sports are a primary activity in the Lake Tahoe region in the summer. Nonmotorized uses include swimming, kayaking, paddle boarding, kiteboarding, and wind surfing. Motorized uses include power boats, towing sports, sail boats, and personal watercraft (PWC).

BOATING SAFETY AND ACCIDENT STATISTICS

Boating safety is a function of vessel preparedness, operator skill, weather, and navigational hazards. In 2016, there were approximately 11,862,000 registered boats in the United States and 701 reported fatalities, which equates to approximately 5.9 deaths per 100,000 registered boats. Compared to 2015, the number of accidents increased just over 7 percent, the number of deaths increased 12 percent, and the number of injuries increased 11 percent. The most common types of accidents are "collision with recreational vehicle" and "collision with fixed object." Operator inattention, operator inexperience, improper lookout, excessive speed, and machinery failure rank as the top five primary contributing factors in accidents (U.S. Coast Guard 2016).

The California State Parks Division of Boating and Waterways (DBW) tracks annual boating accident statistics in California waterways. In 2016, there were nine accidents, eight injuries, and four fatalities on the California side of Lake Tahoe. The largest percentages of accidents involved PWC (44 percent), operator inexperience (44 percent), towing sport accidents (33 percent), and collision with another vessel (11 percent) (DBW 2016a).

The Nevada Department of Wildlife (NDOW) tracks annual boating accident statistics in Nevada waterways. In 2016, there were two accidents, three injuries, and no fatalities on the Nevada side of Lake Tahoe. Contributing factors were operator inexperience and collision with another vessel (NDOW 2016).

Boating safety courses are offered by the U.S. Coast Guard as well as many state boating agencies. California and Nevada have online Boating Safety Courses, which are required to obtain boating cards in compliance with SB 941 in California and with the Nevada boating education requirements. The U.S. Coast Guard Auxiliary offers a variety of public educational classes including Boating Skills and Seamanship for powerboats and Sailing and Seamanship for sailors. Both classes generally last 13 weeks and cover legal requirements, rules of the road, aids to navigation marlinspike seamanship, charts and compasses and boat handling. Some auxiliary flotillas also offer classes in basic coastal navigation, boating safely, advanced

coastal piloting, advanced coastal navigation, personal watercraft, sailing fundamentals, boat and kids, and water and kids.

Operator Factors

The majority of accidents, injuries, and fatalities occur due to operator factors. Approximately 40 percent of fatalities in 2016 were due to operator factors such as alcohol use, operator inexperience, operator inattention, and excessive speed (DBW 2016b). Boating accidents occur most often when the number of boats on the water has peaked, and the greatest danger to boaters is other boaters. In response, the U. S. Coast Guard's Boating Safety Manual primarily addresses the type and use of safety devices that are located on vessels, not on shore. The manual requires boaters to operate their vessels at safe speeds, which is based on factors such as visibility; traffic density; the maneuverability of the vessel; the presence of background light at night from shore lights or back scatter of the vessel's own lights; the state of wind, sea, and current; the proximity of navigational hazards; and the draft in relation to the available depth of water.

Weather Factors

High winds and cold-water temperatures may pose the greatest natural threat to the safety of boaters on Lake Tahoe. Persons operating small craft on the west shore, after losing control of their vessel or becoming separated from their vessel, have been blown across the lake by west winds, and have landed on the east shore. Persons separated from their vessel in deeper, colder waters are subject to hypothermia in a matter of minutes and may lose consciousness if not rescued promptly.

Structures and Navigational Hazards

In addition to natural environmental hazards such as rocks and shoals, there are several types of structures within and around Lake Tahoe that may be navigational hazards. These structures include piers, buoys, and fences. Navigational hazards increase boating accidents in two ways; watercraft can collide with the hazard itself or the hazard can decrease maneuvering room and cause two watercrafts to collide. In daylight hours, these hazards pose the greatest concern during adverse weather conditions when wind or waves can reduce a boater's control, resulting in no-fault accidents. Improper watercraft operation also increases the chance of collision with navigational hazards. During the evening and nighttime hours, hazards associated with physical obstructions increase as few of them are lit. Nighttime watercraft operation risks collision with navigational hazards in adverse weather conditions and when they are not operated safely (e.g., excessive speed or inadequate lighting). Furthermore, rising lake levels have resulted in some buoy floats becoming submerged, because they were installed at a length appropriate for low lake levels and not adjusted as the lake level rises. Similarly, fences installed around the lake during times of drought may be inundated as the water levels have risen and may not be visible to watercraft at all times.

Spatial Conflicts

Accidents are caused not only by increased boating use but may also be a result of conflicting recreational uses on the lake. Spatial conflicts occur where different types and sizes of vessels encounter one another. This is of particular concern related to use of PWC and conflicts between motorized and nonmotorized uses.

Special Events

There are many events that take place at Lake Tahoe year-round. In addition to events that draw visitors to the region, there are several holidays and annual events where increased boating is likely such as the Fourth of July Fireworks show on the lake, Labor Day, the Concours d'Elegance Wooden Boat Show, and the American Century Championship Celebrity Golf Tournament, where spectators often watch the tournament from their boats.

EMERGENCY LAKE ACCESS

Emergency lake access is provided primarily from marinas and boat ramps. The access points are spatially well distributed, with the noted exceptions of the East Shore between Sand Harbor and Deadman's Point, just north of Glenbrook Bay, and the area around Emerald Bay. Because most of the emergency responders'

watercraft are located on the water, lake access is generally not an issue for first responders. Due to the proximity of local hospitals and factors of emergency transportation, Medivac helicopter transports are the preferred ambulatory method for patients in serious condition. Helicopter operations require a large, unobstructed area for the safety of the crew and the public. This factor along, with boating access, is a key consideration for using marinas and boat ramps as the preferred emergency access sites.

Lake geography determines, to some extent, where lake access points may be located. Backshore slope must be gentle enough to allow vehicular access. Ideal access points are protected from prevailing winds and oriented to avoid negative impacts created by littoral drift. Lake bottom slope should drop off sufficiently to allow marina channels or boat ramps to function during low water conditions.

Low Water Conditions

The climate of the Lake Tahoe region is characterized by cycles of flood and drought, with precipitation and runoff varying widely from year to year, leading to years where some existing lake access points are unavailable during low water conditions. Lake access is hindered in areas where piers, buoys, and boat ramps do not provide adequate access or moorage depths during low water conditions. Shallow water conditions have also constrained boat use and navigation at existing marinas. Low lake levels have limited emergency response access because boating facilities are unavailable due to low water levels. The *Truckee Basin Study: Basin Study Report* (Reclamation 2015) identifies and describes future risks to Tahoe basin water resources under multiple projected climate scenarios. Due to warming temperatures and less precipitation in the coming years, low lake levels may persist.

15.3.2 Hazardous Materials

Hazards in the region are both human made and naturally occurring. Human-made hazards are generally associated with the potential risk of accidents from the transport of hazardous materials and waste to support various commercial and industrial land uses. Many chemicals used for household cleaning, construction, dry cleaning, film processing, landscaping, and automotive maintenance and repair are considered to generate hazardous materials and waste.

Boat repair and maintenance activities at marinas create wastes that are considered hazardous and require proper handling. Typical wastes which are classified as hazardous include: oil, grease, diesel fuel, and oily bilge water; contaminated soil; gasoline and water; solvents, such as acetone, kerosene, mineral spirits; strong acids and alkalines; and paint chips or leftover paint.

Two recognized environmental conditions (RECs) whose cleanup status is open have been identified within or immediately adjacent to the shoreline the Tahoe Boat Company UST cleanup site, located at 700 North Lake Boulevard in Tahoe City; and the Sierra Boat Company UST cleanup site, located at 5146 North Lake Boulevard in Carnelian Bay. There are no open cases on the Nevada side of the lake (SWRCB 2015, NDEP 2018).

In addition to human-made hazardous materials, there are numerous naturally-occurring hazards in the region. These include: radon gas, which is a naturally radioactive gas commonly found in all soil types and often concentrated in granite rock and granite soils; and limited access for fire prevention personnel due to the topography of the region.

LEAD-BASED PAINT

Lead is a potentially hazardous material that can result in cardiovascular effects, increased blood pressure and incidence of hypertension; decreased kidney function; reproductive problems; and nervous system damage. Lead can be found in old water pipes, solder, paint, and in soils around structures painted with lead-based paints. Lead-based paints are likely present on buildings constructed before the late 1970s, when the quantity of lead in paints became regulated. Potentially hazardous exposure to lead can occur when lead-based paint is improperly removed from surfaces by dry scraping, sanding, or open-flame burning.

Lead-based paints and coatings used on the exterior of buildings may have also flaked or oxidized and deposited into the surrounding soils.

POLYCHLORINATED BIPHENYLS

Polychlorinated biphenyls (PCBs) belong to a broad family of man-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. PCBs are highly persistent in the environment, and exposure can cause serious liver, dermal, and reproductive system damage. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications. Products that may contain PCBs include: transformers, capacitors, and other electrical equipment; oil used in motors and hydraulic systems; and thermal insulation material.

TREATED WOOD WASTE

Wood treated with a chemical preservative for protection against pests and environmental conditions is called treated wood. Examples include fence posts, sill plates, landscape timbers, pilings, guardrails and decking. The intended use of a particular treated wood product is a key factor in determining the type of chemical preservatives to be used for wood treatment. The preservative can include one or more of the following constituents: arsenic, chromium, copper, pentachlorophenol, or creosote. If TWW is not properly disposed of, the chemicals it contains can contaminate surface water and groundwater. This poses a risk to human health and the environment (DTSC 2011).

15.3.3 Seismicity

The potential for seismic activity is related to the proximity of faults, which are fractures or zones of closely associated fractures along which rocks on one side have been displaced with respect to those on the other side. Most faults are the result of repeated displacement that may have taken place suddenly and/or by slow creep (Bryant and Hart 2007:3).

The Tahoe basin is in a seismically-active region of the United States. The California-Nevada boundary is second only to the California coast in earthquake activity. The basin lies within a tectonically active, asymmetric half-graben, a depressed block of land bordered by a major fault. Evidence shows that Tahoe basin faults have had pre-historic earthquakes of a magnitude of 7.0 within the past 10,000 years. However, scientists believe that large quakes are “rare events” in the basin, meaning quakes of magnitude 6.5 or greater occur on individual faults about every 3,000 to 4,000 years (Segale and Cobourn 2005:1).

East of the basin, the Carson Range fault system is one of the largest fault systems and runs for 60 miles along the east face of the Carson Range from Reno to Markleeville. The probability of at least one magnitude ≥ 6.0 event occurring in the Reno-Carson City urban corridor over a 50-year period is estimated to be between 34 and 98 percent, the probability of a magnitude ≥ 6.6 event between 9 and 64 percent, and the probability of a magnitude ≥ 7.0 event between 4 and 50 percent. These probabilities are relatively high and are commensurate with many parts of California (dePolo et al. 1997:3).

According to the Earthquake Potential Map for Portions of Eastern California and Western Nevada (CGS 2005), the Tahoe basin is considered to have relatively low to moderate potential for shaking caused by seismic-related activity. However, earthquakes occurring nearby, such as the Reno-Carson urban corridor, have the potential to trigger secondary hazards in the basin.

FAULTS AND FAULT RUPTURE

Earthquake Fault Zones are delineated around active faults and are used for planning and construction purposes. Under the Alquist-Priolo Act Earthquake Fault Zoning Act of California, an active fault is one that has ruptured in the last 11,000 years (within Holocene time). An early Quaternary fault has had surface displacement during the last 1.6 million years (Quaternary time) and a pre-Quaternary fault has had surface displacement before the Quaternary period. None of the Tahoe basin counties include Earthquake Fault Zones under Alquist-Priolo; the closest mapped fault zone is located within 2 miles of the basin in Alpine County (Bryant and Hart 2007:19).

Table 15-1 lists faults that are found within the basin that have been sources of magnitude > 6 earthquakes during the Quaternary period (past 1.6 million years) (USGS and CGS 2006).

Table 15-1 Lake Tahoe Basin Faults

Name	Age (years)
Agate Bay Fault	<1,600,000
East Tahoe Fault	<1,600,000
Incline Village Fault	<15,000
Little Valley Fault	<1,600,000
North Tahoe Fault	<15,000
Tahoe-Sierra Frontal Fault Zone	<1,600,000
Tahoe Valley Fault zone	<1,600,000
Unnamed	<1,600,000
Wes Tahoe-Dollar Point Fault Zone	<15,000 <130,000 <1,600,000

Source: USGS and CGS 2006

SEICHE

A tsunami is a wave or series of waves that may result from a major seismic event that involves the displacement of a large volume of water and can occur in any large body of water. A seiche is a periodic oscillation of an enclosed or restricted water body, typically a lake or reservoir, produced by seismic shaking. A seiche results in a potentially damaging wave, similar to a tsunami, which may result from seismic activity near a large lake. A seiche may occur in periods that differ from a tsunami; however, should the period of wave propagation occur simultaneously with a tsunami, it could result in cumulative seismic-related wave effects. Modeling of potential earthquakes occurring beneath Lake Tahoe indicate that a fault rupturing seismic event of magnitude 7.0 could trigger a tsunami, followed by seiche with waves of up to 30 feet high along the shoreline of Lake Tahoe (Ichinose et al. 2000).

15.3.4 Public Services

FIRE PROTECTION

Six local fire protection districts provide emergency services to the project area. These fire protection districts operate under a mutual aid agreement. Although the California Department of Forestry and Fire Protection, and other local fire protection districts such as Meeks Bay Fire Protection District, respond to emergencies near Lake Tahoe, they are not the primary response, nor are they equipped to respond to emergencies on Lake Tahoe (Placke, pers. comm., 2018).

- ▲ City of South Lake Tahoe Fire Department: The City of South Lake Tahoe Fire Department has one boat that primarily patrols the lake during holidays such as the Fourth of July and Labor Day (Drennan and Meston, pers. comm., 2018).
- ▲ Lake Valley Fire Protection District: While the Lake Valley Fire Protection District does not currently have a marine unit, they provide medical aid on the shoreline via ambulances. They are involved in less than a dozen lake-related accidents per year, which are a small percentage of the total number of accidents they respond to on a yearly basis. They do not have water response capability, nor are there plans to develop one (Hekhuis, pers. comm., 2018).
- ▲ Fallen Leaf Lake Fire District: The Fallen Leaf Lake Fire District does not have boats on Lake Tahoe. It would take them roughly 1.5 hours to transport their boat from Fallen Leaf Lake to Lake Tahoe, which would only occur during major emergencies (Gerren, pers. comm., 2018).
- ▲ North Tahoe Fire Protection District: While the North Tahoe Fire Protection District does not currently have a watercraft program, it participates in nearshore rescue on the lake. They are in the process of setting up a marine unit and locating a slip or pier to rent (Simons, pers. comm., 2018).
- ▲ North Lake Tahoe Fire Protection District: The North Lake Tahoe Fire Protection District participates in roughly 80 water-related calls per year, which range from vessels in distress to drownings. Rescue equipment consists of a boat, which is housed at a boat lift during summer months, and jet skis with rescue boards (Green, pers. comm., 2018).
- ▲ Tahoe-Douglas Fire Protection District: The Tahoe-Douglas Fire Protection District has a fire boat on Lake Tahoe and operates out of the Zephyr Cove public pier. They operate 24 hours per day, seven days a week (Baker, pers. comm., 2018).

LAW ENFORCEMENT

Law enforcement within the project area is provided at the federal, state, county, and city levels. At the community level, law enforcement and protection services are provided by the Placer, El Dorado, Washoe, and Douglas County Sheriff's Offices in each respective county, and South Lake Tahoe Police Department. In addition to local law enforcement agencies, Lake Tahoe is also served by a variety of federal agencies such as the California Department of Fish and Wildlife (CDFW), NDOW, and the U.S. Coast Guard.

Waterborne Safety and Law Enforcement

Eight government agencies share law enforcement and emergency response duties on Lake Tahoe. In addition to the U.S. Coast Guard, which has jurisdiction over Lake Tahoe, local agencies that patrol the lake include:

- ▲ South Lake Tahoe Police Department: The South Lake Tahoe Police Department provides law enforcement services in the City of South Lake Tahoe, from Stateline on the east to Emerald Bay on the west. They have one boat for use during lake-related emergencies (Dougherty, pers. comm., 2018).
- ▲ Douglas County Sheriff: The Douglas County Sheriff provides law enforcement services in Douglas County, from Stateline on the south to Glenbrook on the north. They operate one boat out of a slip in the Tahoe Keys during the months of May through October. In the offseason, the boat is stored in a warehouse off of the water (Skibinski, pers. comm., 2018).
- ▲ El Dorado County Sheriff: The El Dorado County Sheriff provides law enforcement services within the El Dorado County portion of the region, from the California-Nevada state line to Tahoma. Rescue equipment consists of jet skis and boats, which are housed at the Tahoe Keys Marina. They are one of the only operations on the south shore that operate 24 hours per day (Almos, pers. comm., 2018).

- ▲ Placer County Sheriff: The Placer County Sheriff provides law enforcement services on the northwest corner of the lake, from Stateline Point south to Tahoma. They have a patrol boat on the lake that is staffed full time from mid-May through mid-September (Th-Sun). The boat operates out of the Sierra Boat Company (Baxter, pers. comm., 2018).
- ▲ Washoe County Sheriff: The Washoe County Sheriff provides law enforcement services in Washoe County, from Stateline Point south to Glenbrook. They have one boat for use during lake-related emergencies, which is manned on weekends from Memorial Day through October 1. The boat operates out of the Thunderbird Lodge (Bello, pers. comm., 2018).
- ▲ CDFW: CDFW is responsible for investigating polluting and oil spills on the California side of Lake Tahoe.
- ▲ NDOW: NDOW is responsible for investigating poaching or polluting on the Nevada side of Lake Tahoe. NDOW regulates boating safety pursuant to the Nevada Boat Act. Patterned after U.S. Coast Guard regulations, the Nevada Boat Act provides for the investigation of boating accidents on and the regulation of watercraft equipment and operation, and anchoring and mooring of watercraft to buoys.
- ▲ Nevada State Parks: Rangers from Nevada State Parks generally patrol Cave Rock and Sand Harbor. In emergency situations they can respond to assist local agencies. Rescue equipment and personnel consists of a boat, jet skis, and lifeguards (Wooldridge, pers. comm., 2018).

These law enforcement agencies implement either DBW regulations, known as the California Boating Law, or the Nevada Boat Act for their respective jurisdictions. The Sheriff's Offices also have other resources to respond to emergencies such as County Search and Rescue Teams and Air Search and Rescue.

EMERGENCY RESPONSE

U.S. Coast Guard

The U.S. Coast Guard is the overall search and rescue lead on Lake Tahoe. The marine units described below report to the U.S. Coast Guard Station Lake Tahoe, located at 2500 Lake Forest Road, when on patrol. The U.S. Coast Guard also has resources from Sacramento and the Bay Area to respond to any and all emergencies and large environmental spills. The U.S. Coast Guard is operational year-round and has two 29-foot patrol boats that regularly conduct patrols and respond to emergencies. They operate 24 hours per day, seven days a week. The mission of the Tahoe station is search and rescue only. All environmental spill responses would be coordinated through the U.S. Coast Guard's National Response Center (Bieber, pers. comm., 2018).

U.S. Navy

The U.S. Navy, located at Naval Air Station Fallon in Fallon, NV, provides additional air search and rescue capabilities. The U.S. Navy has three SH-60-S rescue helicopters, whose primary function is military search and rescue. Their secondary function is civilian search and rescue. While the U.S. Navy does perform search and rescue in the Lake Tahoe region, the majority of incidents are mountain rescue operations. They are rarely involved with incidents in Lake Tahoe (Upham, pers. comm., 2018).

15.4 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

15.4.1 Methods and Assumptions

The area of assessment extends beyond the shorezone to include the lakezone, where water-dependent recreation occurs, and generally includes upland areas where, in relation to potential future projects, hazardous materials may be transported, used, and disposed.

Methods for the impact analysis included a review of applicable laws and regulations pertaining to public safety, hazards, and hazardous materials generally, and as applicable to the project alternatives and the project area. Within this framework, potential for boating accidents, emergency response capacity, known locations of hazardous materials, and the potential for other safety or hazardous conditions were reviewed based on TRPA planning documents, goals, and policies, and through consultation with representatives of public service providers. The impact analysis considered potential for changes in the nature, extent, or presence of hazardous conditions to occur as a result of construction and operation of potential future projects, including increased potential for exposure to hazardous materials and conditions and increased boating accidents due to increased boating activity and navigation hazards. Compliance with applicable federal, state, and local health and safety laws and regulations would generally protect the health and safety of the public.

Potential effects associated with the project would be temporary or permanent. Temporary impacts generally include effects associated with construction activities, including the transport, storage, and use of potentially hazardous chemicals and the potential to encounter hazardous wastes during construction. Permanent impacts generally include effects associated with increased navigational hazards in the lake and increased boating use, which could lead to increased boating accidents and a corresponding need for emergency services and access to the lake.

15.4.2 Significance Criteria

Significance criteria relevant to public health and safety are summarized below. The “Human Health,” “Risk of Upset,” “Land,” “Water Quality,” and “Public Services” criteria from the TRPA Initial Environmental Checklist were reviewed to develop criteria pertaining to the hazards, public safety, and public services impacts of the alternatives. There are no TRPA environmental thresholds that relate to public health and safety. An impact would be significant if it:

- ▲ results in a substantial increase in the risk for watercraft accidents;
- ▲ involves a risk of the accidental release of hazardous substances;
- ▲ impairs or result in a decrease in emergency access to the Shoreline;
- ▲ exposes people or property to risk of injury or loss of life due to seismic hazards, including seiche; and/or
- ▲ creates a substantial need within the region for new or altered public services related to fire protection, law enforcement and protection, or other emergency response services.

15.4.3 Environmental Effects of the Project Alternatives

Impact 15-1: Increase in watercraft accidents due to increased boating and navigational hazards

Alternatives 1, 2, and 3 would increase the number of annual and peak day boat trips on the lake, whereas Alternative 4 would retain boating levels consistent with existing conditions. Increased levels of boating activity would add to the factors that contribute to boating accidents, such as more watercraft, higher boating density at popular shoreline areas and lake access points, and greater potential for conflicts between motorized and nonmotorized recreation. While the additional boating activity resulting from Alternatives 1, 2, and 3 would aggravate the factors that contribute to boating accidents, the 600-foot no-wake zone, improved public boating safety education programs, and compliance with California and Nevada boating safety laws would reduce the risks and associated impacts. Alternative 4 would not contribute to such factors.

Implementation of any of the four alternatives could lead to public piers extending beyond the 600-foot no-wake zone, which could create navigational hazards and conflicts between motorized and nonmotorized watercraft and swimmers. Additionally, Alternative 2 does not include location standards limiting the length of private multiple-use piers to within the no-wake zone. Given the increase in boating activity associated with Alternatives 1, 2, and 3 and the increase in navigational hazards associated with all four alternatives, there would be a **potentially significant** impact related to boating accidents with all four alternatives.

Implementation of Mitigation Measure 15-1a would reduce the impacts associated with Alternatives 1, 2, and 3 to **less-than-significant** levels. Implementation of both Mitigation Measure 15-1a and Mitigation Measure 15-1b would reduce the impact of Alternative 2 to a **less-than-significant** level.

Alternative 1: Proposed Shoreline Plan

The goal of Alternative 1 is to enhance the recreational experience at Lake Tahoe while protecting the environment and responsibly planning for the future. At buildout, it would allow for up to 10 new public piers and 128 new private piers (including private multi-use piers) for a total of 900 piers, two new public boat ramps for a total of 24 public boat ramps, and up to 2,116 new moorings for a total of 10,847 moorings. New and existing buoys could be converted to slips and vice versa at facilities open to the public (e.g., marinas). Littoral parcels would be eligible for up to two or three moorings, based on lot width.

Increased Boating

New moorings and boat ramps would increase the capacity for boating on the lake compared to baseline conditions. Increased boating would be expected during peak summer days at popular recreation areas including Baldwin Beach, east shore beaches, and many of the state parks such as Emerald Bay State Park, Lake Tahoe Nevada State Park at Sand Harbor, and Kings Beach State Recreation Area (see Chapter 8, "Recreation," for a detailed description of the pattern of recreation in the region). Buildout conditions would create an approximately 13 percent increase in peak day boat trips and an approximately 16 percent increase in annual boat trips over baseline conditions (Table 2-4). Boating activity would increase from approximately 5,900 to 6,700 boat trips on a peak day and from approximately 234,100 to 272,400 boat trips annually (Table 2-4). On a peak day, Alternative 1 would result in one boat for every 18 acres on the lake, compared to baseline conditions of approximately one boat for every 21 acres.

Increased boating use would result in a greater number of watercraft, increased boating density at popular shoreline locations and lake access points, and a higher potential for conflicts between motorized and nonmotorized recreators. Assuming the increase in boating use is commensurate with an increase in boating accidents, a 16 percent increase in annual boat trips over baseline conditions would result in 1.8 more accidents per year, based on the 11 accidents that occurred in 2016 (see Section 15.3.1, "Boating," above). However, other factors beyond the number of boats on the lake contribute to boating accidents, and there may be a nonlinear relationship between increased boating activity and number of accidents.

Alternative 1 would maintain the existing 600-foot no-wake zone and 5 mph speed limit. Within Emerald Bay, the no-wake zone would be expanded to include all areas within the bay. Speed would be limited to 5 mph generally, and up to 7 mph for tour boats. In addition, priority areas for enforcement of the no-wake zone would be created in areas that receive heavy nonmotorized watercraft use. TRPA would provide increased lake-wide no-wake zone education and increased patrols and enforcement in front of state park lands along the shoreline, including at DL Bliss State Park, Sugar Pine Point State Park, and Lake Tahoe Nevada State Park. Navigational buoys demarcating the no-wake zone near state parks, marinas, and other areas may be established to improve compliance. The establishment of the 600-foot no-wake zone is believed to have resulted in an overall decrease in the number of spatial conflicts with different types of marine craft (e.g., kayaks and canoes versus power boats) (TRPA 2004). Compliance with this standard relies on public education and the TRPA Watercraft Team, who are tasked with enforcing the no-wake zone. With implementation of the new launch fee, TRPA would have additional funds to increase patrols, resulting in better compliance with the no-wake zone regulations. As discussed above in Section 15.3.1, "Boating," California, Nevada, and the U. S. Coast Guard are engaged in public boating safety education programs and anticipate that these efforts are effective in reducing overall accident rates. In addition, SB 941 mandates

boater safety education for anyone who intends to operate a motor-powered vessel on California waterways and Nevada boating laws require safe boating operation and specific safety equipment. Given the 600-foot no-wake zone and expanded no-wake zone in Emerald Bay, improved public boating safety education programs, increased safety/enforcement patrols, and compliance with California and Nevada boating safety laws, impacts associated with increased boating would be **less than significant**.

Increased Navigational Hazards

Alternative 1 would result in an increase in potential navigational hazards within the lake such as new buoys, new piers (particularly in areas currently without piers), and extensions of existing piers. Due to their relatively smaller size and lower visibility compared to other structures, buoys installed in open waters, with few or no existing structures in the immediate area, create hazards for watercraft operators, particularly at night. If buoys are not maintained during fluctuating lake levels, they may become submerged. Submerged buoys in any location may be struck by a vessel underway, causing injury to boaters. Mooring buoys would comply with the construction specifications set forth in the California Waterway Marking System or as otherwise recommended by USACE or the U. S. Coast Guard. The U. S. Coast Guard requires that all mooring buoy fields be lit at the lakeward corners. This requirement would be enforced as buoy fields expand through permitting, thus reducing the navigational hazard.

New buoys could also present a navigational hazard to nonmotorized watercraft and swimmers forced to travel outside the no-wake zone to navigate around buoys. However, as described in Chapter 8, "Recreation," Impact 8-1, new buoys would be required to comply with location standards included in the Shoreline Plan, which would provide for adequate spacing between buoys and between a buoy or buoy field and the shoreline.

As shown in Section 4, "Land Use," Exhibits 4-1 through 4-5, 4-7, and 4-8, the majority of parcels eligible for new private piers are clustered in areas where there are already existing private piers and structures that drive navigational patterns (TRPA 2004). New private piers would also be required to comply with design standards for length of the pier and would terminate within the no-wake zone. This would allow nonmotorized recreation users and swimmers to move around the end of a pier while remaining within the no-wake zone. Therefore, new private piers constructed within the required setbacks and within the pierhead line rarely constitute a navigational hazard.

However, new or modified facilities that extend beyond the pierhead line represent new navigational hazards. Public piers could deviate from design standards that apply to private piers to the extent necessary to provide a public service. Thus, a public pier could be designed such that it extends beyond the 600-foot no-wake zone, which could cause nonmotorized watercraft and swimmers traveling laterally along the shoreline to move outside of the no-wake zone as they pass the pier if the pier does not provide sufficient space for recreationists to pass underneath. This could result in nonmotorized watercraft and swimmers recreating in an area where motorized watercraft speeds regularly exceed 5 miles per hour, creating large wakes. Motorized watercraft traveling at higher speeds may also have more trouble seeing nonmotorized watercraft and swimmers, creating a greater potential for accidents. Thus, public piers allowed to extend beyond the 600-foot no-wake zone could result in a **potentially significant** impact related to navigational hazards and public safety.

Alternative 2: Maintain Existing TRPA Shorezone Regulations (No Project)

Alternative 2 would retain the existing TRPA Shorezone Code prohibiting new structures within TRPA-designated prime fish habitat and there would be no cap on new moorings. The number of buoys, slips, and boat lifts would be limited by the number of eligible parcels that could place moorings consistent with locations standards. These standards would allow for an estimated 4,871 new buoys, 1,897 boat slips, and 168 boat lifts, for a total of 6,936 new moorings. Under Alternative 2, up to 476 new piers could be constructed, that could include any number of public, multiple-use, or private single-use piers. This is the only alternative that would allow new marinas (up to two). New shorezone structures would be excluded from fish habitat and from within 200 feet of stream or river inlets.

Alternative 2 would result in similar impacts as described above for Alternative 1, but greater in degree due to the larger number of structures projected at buildout and lack of the expanded no-wake zone. As described in Chapter 8, "Recreation," Impact 8-1, increased boating would be expected during peak summer days at popular recreation areas. Alternative 2 at buildout would result in an approximately 45 percent increase in peak day boat trips and an approximately 53 percent increase in annual boat trips over baseline conditions (Table 2-4). Boating activity would increase from approximately 5,900 to 8,500 boat trips on a peak day and from approximately 234,100 to 358,900 boat trips annually. On a peak day at buildout, there would be one boat for every 14 acres on the lake, compared to baseline conditions of approximately one boat for every 21 acres (Table 8-3). Assuming the increase in boating use is commensurate with an increase in boating accidents, a 53 percent increase in annual boat trips over baseline conditions would result in 5.8 more accidents per year. There are other factors that contribute to boating accidents besides the numbers of boats on the lake, and thus, there may be a nonlinear relationship with increased boating activity and accidents. Given the substantial increase in boating under Alternative 2, this impact would be **potentially significant**.

As described in Alternative 1, new or modified facilities that extend beyond the pierhead line represent a new navigational hazard. In addition to public piers which could extend beyond the 600-foot no-wake zone, Alternative 2 does not limit the length of private multiple-use piers to within the no-wake zone. Thus, new private multiple-use piers associated with Alternative 2 could result in a **potentially significant** impact related to conflicts between nonmotorized recreationists and motorized recreationists.

Alternative 3: Limit New Development

The goal of Alternative 3 is to reduce the risk of environmental impacts by limiting new shoreline development, while still providing enhanced public access. Motorized watercraft access would be concentrated at marinas and public facilities. This alternative would allow for a total of 365 new public buoys or slips, five new public piers, and one new public boat ramp. This alternative would also authorize 86 new private multiple-use piers.

Alternative 3 would result in similar impacts as described above for Alternative 1, but to a lesser degree due to fewer structures at buildout. Increased boating would be expected during peak summer days at popular recreation areas. Alternative 3 at buildout would result in an approximately four percent increase in peak day boat trips and an approximately four percent increase in annual boat trips over baseline conditions (Table 2-4). Based on the number of new shorezone structures for Alternative 3, boating activity would increase from approximately 5,900 to 6,100 boat trips on a peak day and from approximately 234,100 to 242,900 boat trips annually (Table 2-4). On a peak day at buildout, there would be one boat for every 20 acres on the lake, which represents an incremental increase in the density of boats on the lake on a peak day over baseline conditions of approximately 21 acres per boat (Table 8-3). It is not likely that this increase in boating density would be noticeable to recreation users. Assuming the increase in boating use is commensurate with an increase in boating accidents, a four percent increase in annual boat trips over baseline conditions would result in 0.4 more accidents per year. For the same reasons discussed under Alternative 1, public safety impacts due to increased boating would be **less than significant**.

Public piers with Alternative 3 could deviate from design standards that apply to private piers to the extent necessary to provide a public service. For the same reasons discussed under Alternative 1, public piers that extend outside of the no-wake zone could create new conflicts between nonmotorized watercraft and swimmers and motorized watercraft. Thus, Alternative 3 would result in a **potentially significant** impact related to public safety.

Alternative 4: Expand Public Access and Reduce Existing Development

The goal of Alternative 4 is to expand public access, reduce existing shoreline development, and increase restoration to minimize the risk of environmental harm. Alternative 4 would include transfer ratios that would allow some private shorezone structures to be removed and rebuilt in different locations if the project resulted in a 2:1 reduction in the number of structures. At buildout, this alternative would allow 15 new public piers and no other new shorezone structures.

With implementation of Alternative 4, there would be no change in peak day or annual boat trips from baseline conditions, and no change in the density of boats on the lake (i.e., there would still be one boat for every 21 acres of lake). Therefore, **no impact** to public safety would occur due to increased boating.

However, public piers allowed under Alternative 4 would be subject to the same design and location standards as identified for Alternatives 1 and 3, in that they could extend outside of the no-wake zone, creating conflicts between nonmotorized watercraft and swimmers and motorized watercraft. As a result, Alternative 4 would result in a **potentially significant** impact on public safety.

Mitigation Measures

Mitigation Measure 15-1a: Maintain nonmotorized navigation within the no-wake zone

This mitigation measure would be required for public piers in Alternatives 1, 3, and 4 and multiple-use and public piers in Alternative 2.

TRPA will implement Mitigation Measures 8-1a and 8-1c as described in Chapter 8, "Recreation." These mitigation measures require that TRPA revise the pier design standards for piers that extend 600 feet or more from the highwater elevation to provide lateral nonmotorized recreation access within the 600-foot no-wake zone and provide for a 200-foot buffer between motorized watercraft in motion and nonmotorized recreationists in areas outside of no-wake zones.

Mitigation Measure 15-1b: Implement Mitigation Measure 10-1 to limit the number of moorings and boat ramps

This mitigation measure would be required for Alternative 2.

TRPA will implement Mitigation Measure 10-1, as described in Chapter 10, "Air Quality," which would revise the Code of Ordinances to limit the total number of new moorings (i.e., buoys, slips, and lifts) and boat ramps to the number authorized under Alternative 1. This would allow a total of 2,116 new moorings and two new boat ramps.

Significance after Mitigation

With implementation of Mitigation Measure 15-1a, new public piers for Alternatives 1, 3, and 4 and multiple-use piers for Alternative 2 would be required to demonstrate that safe lateral access for nonmotorized watercraft and swimmers would be provided within the no-wake zone either through reducing pier length or by constructing a pier that would allow for passage of these recreation users underneath the pier. A 200-foot buffer area between motorized watercraft in motion and nonmotorized recreationists outside of no-wake zones would also reduce conflict between motorized and nonmotorized uses. After implementation of this mitigation measure, public safety issues created by piers extending into the no-wake zone would be reduced to a **less-than-significant** level.

With implementation of Mitigation Measure 15-1b, TRPA would revise the standards for approval of new shorezone structures that would increase motorized boats on the lake so that the rate in which new moorings or boat ramps are approved is metered. This would allow for TRPA to monitor the number of boating accidents as the number of boats on the lake increases over time. If the monitoring results indicate a substantial increase in boating accidents, then no additional moorings or boat ramps would be approved. Because the number of boat ramps and moorings would be allocated over a longer period of time and could be capped in the event that there is a substantial increase in boating accidents, public safety impacts would be reduced to a **less-than-significant** level.

Impact 15-2: Accidental release of hazardous substances

Each of the Shoreline Plan alternatives would temporarily increase the regional transportation, use, storage and disposal of hazardous materials and petroleum products commonly used at construction sites (such as diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals), which could result in accidents or upset conditions that could create hazards to people and the environment. The replacement of older piers may require the disposal of wood treated with preservatives, which could contaminate surface water and groundwater if not properly handled and disposed. Temporary impacts could occur if construction were to affect sites of known contamination or inadvertently disturb hazardous materials or wastes in a manner that could release these materials into the environment, exposing construction workers or nearby sensitive receptors to hazardous conditions. Compliance with all local, state, and federal regulations is sufficient to ensure that any hazardous materials used during construction of future projects would not result in adverse effects. Specific projects implemented in accordance to the adopted Shoreline Plan would be subject to permit processes and conditions pursuant to TRPA regulations and, depending upon location and whether or not there is federal discretion, CEQA and NEPA statutes and implementing regulations. Such review could include site-specific impact analysis and adoption of feasible mitigation measures that must be implemented to assure that standards of the region are met.

With the addition of access points to the lake and the increase in navigational hazards in the form of longer piers and additional structures in the water, the Shoreline Plan alternatives could result in a long-term increase in the risk of accidental discharge of fuel and other hazardous materials into the lake. Alternative 1 would require that TRPA consult with water purveyors when evaluating applications and development of permit conditions for any proposed shoreline structure within one quarter mile of a drinking water intake, while Alternatives 2, 3 and 4 would require consultation within 600 feet. Furthermore, as described in Chapter 6, "Hydrology and Water Quality," Impact 6-4, given the rapid rate of biodegradation of hydrocarbon compounds, the non-toxic levels monitored on the lake, and current TRPA regulations pertaining to control of discharges of contaminants from boating facilities using best management practices (BMPs), impacts associated with direct discharge of contaminants from boating activities and facilities were found to be less than significant. Therefore, impacts related to accidental release of hazardous substances would be **less than significant** for each alternative.

Alternative 1: Proposed Shoreline Plan

Alternative 1 would allow for new piers, boat ramps, and moorings, which could pose a risk for accidental release of hazardous materials during construction and operation of these structures.

Construction

Construction of moorings, piers, and public boat ramps would temporarily increase the regional transportation, use, storage, and disposal of hazardous materials and petroleum products commonly used at construction sites (such as diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals), which could result in accidents or upset conditions that could create hazards to people and the environment. Accidental spills and leakage from construction equipment may involve fuel, lubricants, hydraulic fluids and coolants. These types of routine uses are carefully regulated, and subsequent projects would be required to handle hazardous materials in accordance with applicable federal, state, and local laws. Projects would be required to conform to permit conditions and spill prevention plans prepared under SWRCB Construction General Permit to avoid spills and releases of hazardous materials and wastes. Pursuant to 40 CFR 112, a SPCC plan that identifies BMPs for spill and release prevention and provides procedures and responsibilities for rapidly, effectively, and safely cleaning up and disposing of any spills or releases would be established. BMPs include, for example, the designation of special storage areas and labeling, containment berms, coverage from rain, and concrete washout areas. As required pursuant to state and federal law, plans for notification and evacuation of site workers and local residents in the event of a hazardous materials release would be in place throughout construction.

The replacement of older piers may require the disposal of wood treated with preservatives, such as arsenic, chromium, copper, pentachlorophenol, or creosote. If TWW is not properly disposed of, the chemicals it

contains can contaminate surface water and groundwater. Existing piles would be pulled from the lakebed using a crane or jack mechanism mounted to a barge. If piles need to be cut prior to transport, plastic sheeting would be placed under the saw equipment area to gather all shavings, where feasible. Shavings would also be placed in bins for transport to an appropriate disposal facility. In accordance with Section 25150.7 of the California Health and Safety Code, TWW would be managed and transported to an appropriate disposal facility. This would minimize any impact related to the disposal of TWW.

Temporary impacts could occur if construction were to affect sites of known contamination or inadvertently disturb other hazardous materials or wastes in a manner that could release hazardous materials into the environment, exposing construction workers or nearby sensitive receptors to hazardous conditions. Two RECs have been identified within or immediately adjacent to the project area: the Tahoe Boat Company UST cleanup site and the Sierra Boat Company UST cleanup site. Other hazardous materials potentially encountered during demolition of existing structures and project construction could include asbestos, lead-based paint and other coatings, aerially deposited lead, heavy metals, polychlorinated biphenyls, and vapor encroachment conditions. Surveys for and removal of these substances are regulated. The project area could also be affected by undocumented contamination that has not been characterized or remediated and could, therefore, create a hazard to people or the environment.

Future projects would be required to comply with all local, state, and federal regulations pertaining to construction and operation, including TRPA's Standard Conditions of Approval for Shorezone Projects, that control the transport, use, and storage of hazardous materials and minimize the potential for an accidental release of hazardous materials. Development and implementation of a Spill Prevention and Response Plan also would be required prior to commencing construction activities. Additionally, all amphibious barges used for in-lake construction would be fueled on dry land. Floating barges would be fueled from appropriate containers that minimize the likelihood of spilling. All construction personnel, vehicles, or other heavy equipment would have spill containment kits readily accessible, and construction personnel would be trained to contain and clean up spills of routine chemicals (e.g., fuel, lubricants). With implementation of these measures, the probability for a chemical spill to enter the lake in volumes that would result in concentrations of contaminants that would pose a risk to public safety is low. Furthermore, specific projects implemented subsequent to the Shoreline Plan would be subject to TRPA permit processes, conditions, and regulations and, depending upon location and whether or not there is federal discretion, CEQA and NEPA statutes and implementing regulations. Such review would include site-specific impact analysis and adoption of feasible mitigation measures that must be implemented to assure that standards of the region are met. Therefore, this impact would be **less than significant**.

Operations and Maintenance

With the addition of access points to the lake and the increase in navigational hazards in the form of longer piers and additional structures in the water, Alternative 1 could result in a long-term increase in the risk of accidental discharge of fuel and other hazardous materials into the lake. The Shoreline Plan would require that TRPA consult with water purveyors when evaluating applications and development of permit conditions for any proposed shoreline structure within one quarter mile of a drinking water intake. Furthermore, as described in Chapter 6, "Hydrology and Water Quality," Impact 6-4, impacts associated with direct discharge of contaminants from boating activities and facilities, such as fueling spills or accidental leaks, were found to be less than significant. Given the rapid rate of biodegradation of hydrocarbon compounds, the non-toxic levels monitored on the lake, and current TRPA regulations pertaining to control of discharges of contaminants from boating facilities using BMPs, this impact would be **less than significant**.

Alternative 2: Maintain Existing TRPA Shorezone Regulations (No Project)

Alternative 2 would allow for new piers, boat ramps, and moorings, which could pose a risk for accidental release of hazardous materials during construction and operation of these structures. This is the only alternative that would allow new marinas (up to two).

Alternative 2 would consist of the same types of construction activities as Alternative 1 but, given the greater number of new structures allowed under Alternative 2, would result in a larger increase in the temporary transportation, use, storage, and disposal of hazardous materials and petroleum products commonly used

at construction sites. For the same reasons discussed under Alternative 1, construction impacts would be **less than significant**.

Alternative 2 would allow for up to two new marinas which would involve the regular transport of fuel to storage tanks. If USTs are improperly installed or maintained, fuel may leak into waterways, degrading water quality and public health. Future projects under Alternative 2 would be required to be constructed and implemented in compliance with all local, state, and federal regulations. Under the CWA, marinas with an aggregate aboveground oil storage capacity greater than 1,320 U.S. gallons or a completely buried storage capacity greater than 42,000 U.S. gallons are required to prepare a SPCC plan to reduce the threat of oil spills to navigable waters of the United States. The site-specific plan must identify the design, control, training, and response requirements of a facility. This would reduce impacts associated with new marinas.

Alternative 2 would not identify new shoreline protection areas. Existing requirements that address water intakes would remain. TRPA Code Section 60.3.3 would continue to require that water purveyors be consulted in the evaluation of applications and development of permit conditions for any proposed shoreline structure within 600 feet of a drinking water intake, which is a shorter distance than under Alternative 1. However, as described in Chapter 6, "Hydrology and Water Quality," Impact 6-4, given the rapid rate of biodegradation of hydrocarbon compounds, the non-toxic levels monitored on the lake, and current TRPA regulations pertaining to control of discharges of contaminants from boating facilities using BMPs, impacts associated with direct discharge of contaminants from boating activities and facilities were found to be less than significant. Therefore, this impact would be **less than significant**.

Alternative 3: Limit New Development

Alternative 3 would allow for new piers, boat ramps, and moorings, which could pose a risk for accidental release of hazardous materials during construction and operation of these structures.

Alternative 3 consists of the same types of construction activities as Alternative 1 but, given the fewer number of new structures allowed under Alternative 3, would result in a smaller increase in the temporary transportation, use, storage, and disposal of hazardous materials and petroleum products commonly used at construction sites. For the same reasons discussed under Alternative 1, construction impacts would be **less than significant**.

Alternative 3 would not identify new shoreline protection areas. Existing requirements that address water intakes would remain. TRPA Code Section 60.3.3 would continue to require that water purveyors be consulted with in the evaluation of applications and development of permit conditions for any proposed shoreline structure within 600 feet of a drinking water intake, which is a shorter distance than under Alternative 1. However, as described in Chapter 6, "Hydrology and Water Quality," Impact 6-4, given the rapid rate of biodegradation of hydrocarbon compounds, the non-toxic levels monitored on the lake, and current TRPA regulations pertaining to control of discharges of contaminants from boating facilities using BMPs, impacts associated with direct discharge of contaminants from boating activities and facilities were found to be less than significant. Therefore, this impact would be **less than significant**.

Alternative 4: Expand Public Access and Reduce Existing Development

Alternative 4 would allow for new public piers and would include transfer ratios that would allow some private shorezone structures to be removed and rebuilt in different locations. Construction and operation of these structures could pose a risk for accidental release of hazardous materials.

Alternative 4 consists of the same types of construction activities as Alternative 1 but, given the limited number of new structures allowed under Alternative 4, would result in a smaller increase in the temporary transportation, use, storage, and disposal of hazardous materials and petroleum products commonly used at construction sites. For the same reasons discussed under Alternative 1, construction impacts would be **less than significant**.

Alternative 4 would not identify new shoreline protection areas. Existing requirements that address water intakes would remain. TRPA Code Section 60.3.3 would continue to require that water purveyors be

consulted with in the evaluation of applications and development of permit conditions for any proposed shoreline structure within 600 feet of a drinking water intake, which is a shorter distance than under Alternative 1. However, as described in Chapter 6, “Hydrology and Water Quality,” Impact 6-4, given the rapid rate of biodegradation of hydrocarbon compounds, the non-toxic levels monitored on the lake, and current TRPA regulations pertaining to control of discharges of contaminants from boating facilities using BMPs, impacts associated with direct discharge of contaminants from boating activities and facilities were found to be less than significant. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 15-3: Shoreline emergency access

Implementation of the Shoreline Plan Alternatives 1, 2, or 3 would increase boating activity. Increased boat use would aggravate many of the factors that contribute to boating accidents, leading to an increased need for emergency response services. Emergency responders’ ability to access boaters and swimmers in the water could be hindered by the increase in activity in the nearshore, foreshore, and backshore. Furthermore, low water conditions during drought years and under future projected climate scenarios would present a challenge for emergency responders, as some existing lake access points are unavailable during low water conditions. Because most of the emergency responders’ watercraft are located on the water, lake access is not an issue for a majority of first responders.

Alternative 1 would incorporate low lake level adaptation strategies along with the provisions of TRPA Code Section 84.10.2, which establishes a framework to provide essential emergency access and egress to Lake Tahoe. Alternative 2 would allow for substantially greater levels of boating activity than Alternative 1. Alternative 2 would maintain existing development standards, focusing development around the natural lake rim elevation of 6,223 feet Lake Tahoe Datum (LTD). Buoy floats and anchors within buoy fields would be allowed to move farther lakeward during periods of low lake levels. Furthermore, TRPA Code Section 84.15.4 allows for temporary structures that extend beyond lake bottom elevation 6,219 feet or the pier headline during low water conditions. Given incorporation of these respective measures, the increase in lake access points, and compliance with applicable federal, state, and local permits, impacts related to shoreline emergency access would be **less than significant** for Alternatives 1 and 2.

Alternatives 3 and 4 would result in different levels of boating activity—a small increase with Alternative 3, and no projected increase from existing levels with Alternative 4. Alternatives 3 and 4 would maintain existing development standards, focusing development around the natural lake rim elevation of 6,223 feet LTD. Buoy floats and anchors within buoy fields would be allowed to move farther lakeward during periods of low lake levels, but the alternatives contain no other provisions to allow modifications to facilities or structures to be useable during such conditions. Thus, shoreline emergency access could be hindered during low water conditions. This impact would be **potentially significant** for Alternatives 3 and 4. With implementation of Mitigation Measure 15-3, this impact would be reduced to a **less-than-significant** level.

Alternative 1: Proposed Shoreline Plan

Alternative 1 would allow for new piers, boat ramps, and moorings. As described in Impact 15-1, these structures would result in greater shoreline accessibility, increasing boating compared to baseline conditions. This would aggravate many of the factors that contribute to boating accidents, leading to an increased need for emergency response services. Emergency responders’ ability to access boaters and swimmers in the water could be hindered by the increase in activity in the nearshore, foreshore, and backshore. Furthermore, some emergency response providers such as the North Tahoe Fire Protection District are currently establishing a marine unit and have cited difficulties in securing a slip for housing their watercraft on the lake (Simons, pers. comm., 2018).

Existing emergency access to the lake is provided primarily by marinas and boat ramps. Because most of the emergency responders’ watercraft are located on the water, lake access is not an issue for a majority of first

responders. Alternative 1 would increase the number of lake access points, which could enhance emergency access to the lake. Furthermore, TRPA Code Section 84.10.2 establishes a framework to provide essential emergency access and egress to Lake Tahoe to protect public health and safety. TRPA allows for the designation of up to one essential public safety facility within each county or jurisdiction plus the U.S. Coast Guard Lake Tahoe Station, which is a second existing essential public health and safety facility in Placer County. These measures and the increase in lake access points would ensure sufficient shoreline emergency access for emergency responders.

Low water conditions during drought years and under future projected climate scenarios would present a challenge for emergency responders, as some existing lake access points are unavailable during low water conditions. For example, an assessment of marina and public boat ramp access in 2015 (a drought year) found that several marinas and four of the six boat ramps evaluated closed early due to water levels (TRPA 2016). A study by the U.S. Bureau of Reclamation concluded that Lake Tahoe would likely experience more frequent low lake level conditions (Reclamation 2015). Generally, emergency response agencies are aware of which emergency access points are available in a given year. In drought years, TRPA allows first responder organizations to designate locations for temporary moorings for regional public safety purposes, such as a marina, pier, or buoy, or a site where a new pier could be constructed pursuant to TRPA Code. Additionally, TRPA would allow for “new” dredging (where dredging has not historically occurred) at marinas, five essential public health and safety facilities, and public boat ramps where previously approved uses exist. New dredging would only be approved upon environmental review and mitigation of significant impacts and compliance with applicable federal, state, and local permits. Alternative 1 would, to the extent feasible and based on site-specific considerations, allow for the reconfiguration of some structures such that they would be operational during low lake levels. Boats would be directed to marinas and public ramps that are operational at such elevations, clustering access near areas with infrastructure and transportation options. Specific low lake level adaptation strategies are detailed in Chapter 2, “Description of Proposed Project and Alternatives,” and include relocating buoy floats to additional rows of lakeward anchors, temporary floating pier extensions at marinas, and relocation of existing boat ramps to new sites that are better suited to low lake levels or extension of boat ramps. These measures and the low lake level adaptation strategies would ensure sufficient shoreline emergency access during low water conditions.

Lastly, Alternative 1 would not interfere with implementation of existing regulations or plans pertaining to emergency response or evacuation. Given the provisions for public health and safety within the existing TRPA Code, the increase in lake access points, and the incorporation of low lake level adaptation strategies, impacts to shoreline emergency access from implementation of Alternative 1 would be **less than significant**.

Alternative 2: Maintain Existing TRPA Shorezone Regulations (No Project)

Alternative 2 would allow for new marinas, piers, boat ramps, and moorings. Alternative 2 would result in similar impacts to shoreline emergency access as Alternative 1, but to a greater extent, due to the additional structures and greater levels of boating activity. Alternative 2 would maintain existing development standards, focusing development around the natural lake rim elevation of 6,223 feet LTD. Buoy floats and anchors within buoy fields would be allowed to move farther lakeward during periods of low lake levels. Furthermore, TRPA Code Section 84.15.4 allows for temporary structures that extend beyond lake bottom elevation 6,219 feet or the pier headline during periods when low lake levels prevent or significantly reduce access. Given the provisions for public health and safety within the existing TRPA Code and the overall increase in lake access points, impacts to shoreline emergency access from implementation of Alternative 2 would be **less than significant**.

Alternative 3: Limit New Development

Alternative 3 would allow for new piers, boat ramps, and moorings. Alternative 3 would result in similar impacts to shoreline emergency access as Alternative 1, but to a lesser extent, due to the fewer structures it would allow than Alternative 1. Alternative 3 would maintain existing development standards, focusing development around the natural lake rim elevation of 6,223 feet LTD. Under Alternative 3, up to one new public boat ramp would be allowed. Applications for a new public boat ramp would be considered by TRPA based on the merits of the proposed site selected. This review would consider the existing geographic

distribution of boat ramp access, the relationship of the proposed ramp to clusters of upland development and transportation hubs, and the suitability of the site in terms of depth and bathymetry to accommodate access during periods of low lake levels of 6,220 feet. TRPA would allow relocation of existing boat ramps to new sites that are better suited to low lake levels. Buoy floats and anchors within buoy fields would be allowed to move farther lakeward during periods of low lake levels, but there are no other provisions to allow modifications to facilities or structures to be useable during such conditions. This impact would be **potentially significant**.

Alternative 4: Expand Public Access and Reduce Existing Development

Alternative 4 would allow for new public piers but would reduce existing development such that boating activity would not increase as compared to existing conditions. Alternative 4 would maintain existing development standards, focusing development around the natural lake rim elevation of 6,223 feet LTD. Buoy floats and anchors within buoy fields would be allowed to move farther lakeward during periods of low lake conditions, but there are no other provisions to allow modifications to facilities or structures to be useable during low lake conditions. Thus, shoreline emergency access could be hindered during low water conditions. This impact would be **potentially significant**.

Mitigation Measures

Mitigation 15-3: Implement low lake level adaptation strategies

This mitigation measure would be required for Alternatives 3 and 4.

TRPA will incorporate the following low lake level adaptation strategies to provide shoreline emergency access during low water conditions:

- ▲ Marina buoy fields would be able to include additional rows of lakeward anchors to accommodate low lake levels. Buoy floats could be relocated to the lakeward anchors during low lake levels without increasing the total number of buoys.
- ▲ Marinas would be allowed to use temporary floating pier extensions to provide access for boats when lake levels fall below 6,225 feet LTD.
- ▲ Public boat ramps could be expanded to extend farther into the lake, subject to permit conditions.
- ▲ New dredging could be allowed at marinas and public boat ramps, subject to permit conditions.

Significance after Mitigation

Implementation of Mitigation Measure 15-3 would reduce potentially significant impacts to shoreline emergency access because the low lake level implementation strategies would provide sufficient lake access points that could be available to emergency response providers during low water conditions. Impacts of Alternatives 3 and 4 would be reduced to **less-than-significant** levels.

Impact 15-4: Increase demand for on-lake emergency response facilities

Implementation of each alternative would result in new shorezone structures, creating potential for an increase in boating accidents and the accidental release of hazardous materials. This would increase the demand for emergency response services. As discussed in Impact 15-1, the 600-foot no-wake zone, improved public boating safety education programs, expanded safety/enforcement patrols, and compliance with California and Nevada boating safety laws would reduce the risk of boating accidents due to increased boating. Impacts associated with increased navigational hazards would be reduced with implementation of Mitigation Measure 15-1a. As described in Impact 15-2, compliance with all local, state, and federal regulations is sufficient to ensure that any hazardous materials used throughout the project area during construction would not result in adverse effects. Thus, the increased demand for emergency services would likely be minor.

Emergency response providers that act on lake-related emergencies indicate that they have adequate capacity to handle additional project-generated demand for emergency services. Furthermore, TRPA Code Section 84.10.2, which allows for the designation of up to one Essential Public Safety Facility within each county-jurisdiction plus the U.S. Coast Guard Lake Tahoe Station, would remain unchanged. In drought years, TRPA allows first responder organizations to designate locations for temporary moorings for regional public safety purposes. This would ensure that emergency providers have adequate access points to the lake and reduce the need for construction of new lake-access facilities, the construction of which could result in adverse effects to the environment. Thus, this impact would be **less than significant** for all alternatives.

Alternative 1: Proposed Shoreline Plan

Alternative 1 would allow for new piers, boat ramps, and moorings. As discussed in Chapter 2, “Description of Proposed Project and Alternatives,” the Regional Plan and TRPA Code provisions that govern upland development, including the development of structures along the shoreline but outside of the shorezone, would not be altered by Alternative 1. Thus, Alternative 1 is not considered to be growth-inducing. However, while the project would not increase population growth, it would lead to increased boating activity and could lead to an increase in boating accidents and the accidental release of hazardous materials, as described in Impacts 15-1 and 15-2. This would increase the demand for emergency response services which, in turn, could require new or improved facilities, the construction of which could result in adverse effects to the environment.

As discussed in Impact 15-1, the 600-foot no-wake zone, improved public boating safety education programs, and compliance with California and Nevada boating safety laws would reduce risk of boating accidents due to increased boating. Impacts associated with increased navigational hazards would be reduced with implementation of Mitigation Measure 15-1a, which establishes a 200-foot buffer between motorized watercraft in motion and nonmotorized recreationists outside of no-wake zones and requires new public piers to demonstrate that safe lateral access for nonmotorized watercraft and swimmers would be provided within the no-wake zone. As described in Impact 15-2, compliance with all local, state, and federal regulations is sufficient to ensure that any hazardous materials used throughout the project area during construction would not result in adverse effects. Thus, the increased demand for emergency services would likely be minor.

While any individual fire protection district or law enforcement department has limited capacity, emergency response providers with jurisdiction over the lake operate under mutual aid agreements and coordinate closely so that sufficient patrol boats are on the water each day (Almos, pers. comm., 2018; Dougherty, pers. comm., 2018). Through consultation with the various emergency response providers, it was determined that while increased staffing may be required, there would be adequate capacity to handle additional project-generated demand for emergency services and there would be no need for additional facilities (Baxter, pers. comm., 2018; Bello, pers. comm., 2018; Bieber, pers. comm., 2018; Dougherty, pers. comm., 2018; Drennan and Meston, pers. comm., 2018; Green, pers. comm., 2018; Hekhuis, pers. comm., 2018; Simons, pers. comm., 2018; Skibinski, pers. comm., 2018; Upham, pers. comm., 2018; Wooldridge, pers. comm., 2018). Changes in staffing and fundraising for future improvements is already underway at the Tahoe-Douglas Fire Protection District and the North Tahoe Fire Protection District is establishing a Marine Unit to accommodate future need (Baker, pers. comm., 2018; Simons, pers. comm., 2018). Furthermore, TRPA Code Section 84.10.2, which allows for the designation of up to one Essential Public Safety Facility within each county-jurisdiction plus the U.S. Coast Guard Lake Tahoe Station, would remain unchanged. In drought years, TRPA allows first responder organizations to designate locations for temporary moorings for regional public safety purposes. This would ensure that emergency providers have adequate access points to the lake and reduce the need for construction of new lake-access facilities. Therefore, Alternative 1 would not increase demand for emergency services such that new or improved facilities are required, the construction of which could result in adverse effects to the environment. Therefore, this impact would be **less than significant**.

Alternative 2: Maintain Existing TRPA Shorezone Regulations (No Project)

Alternative 2 would allow for new marinas, piers, boat ramps, and moorings. While Alternative 2 would not be growth-inducing, it would result in an increase in boating activity and could lead to an increase in boating

accidents and accidental release of hazardous materials, as described in Impacts 15-1 and 15-2. This would increase the demand for emergency response services. However, for the same reasons discussed under Alternative 1, this impact would be **less than significant**.

Alternative 3: Limit New Development

Alternative 3 would allow for new piers, boat ramps, and moorings. While Alternative 3 would not be growth-inducing, it could lead to an increase in boating accidents and accidental release of hazardous materials, as described in Impacts 15-1 and 15-2. This would increase the demand for emergency response services. However, for the same reasons discussed under Alternative 1, this impact would be **less than significant**.

Alternative 4: Expand Public Access and Reduce Existing Development

Alternative 4 would allow for new public piers. While Alternative 4 would not be growth-inducing and would not generate additional boating activity relative to baseline conditions, it could lead to an increase in boating accidents related to public piers extending beyond the 600-foot no-wake zone and associated accidental release of hazardous materials, as described in Impacts 15-1 and 15-2. Though unlikely because of the limited number of new structures accommodated by this alternative, this could increase the demand for emergency response services. However, for the same reasons discussed under Alternative 1, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.