
4.6 HYDROLOGY AND WATER QUALITY

This section analyzes potential impacts on existing drainage patterns, surface hydrology and flood control facilities as a result of new development associated with implementation of the Updated Plan. In addition, potential impacts to water quality from the implementation of the Update Plan are also analyzed.

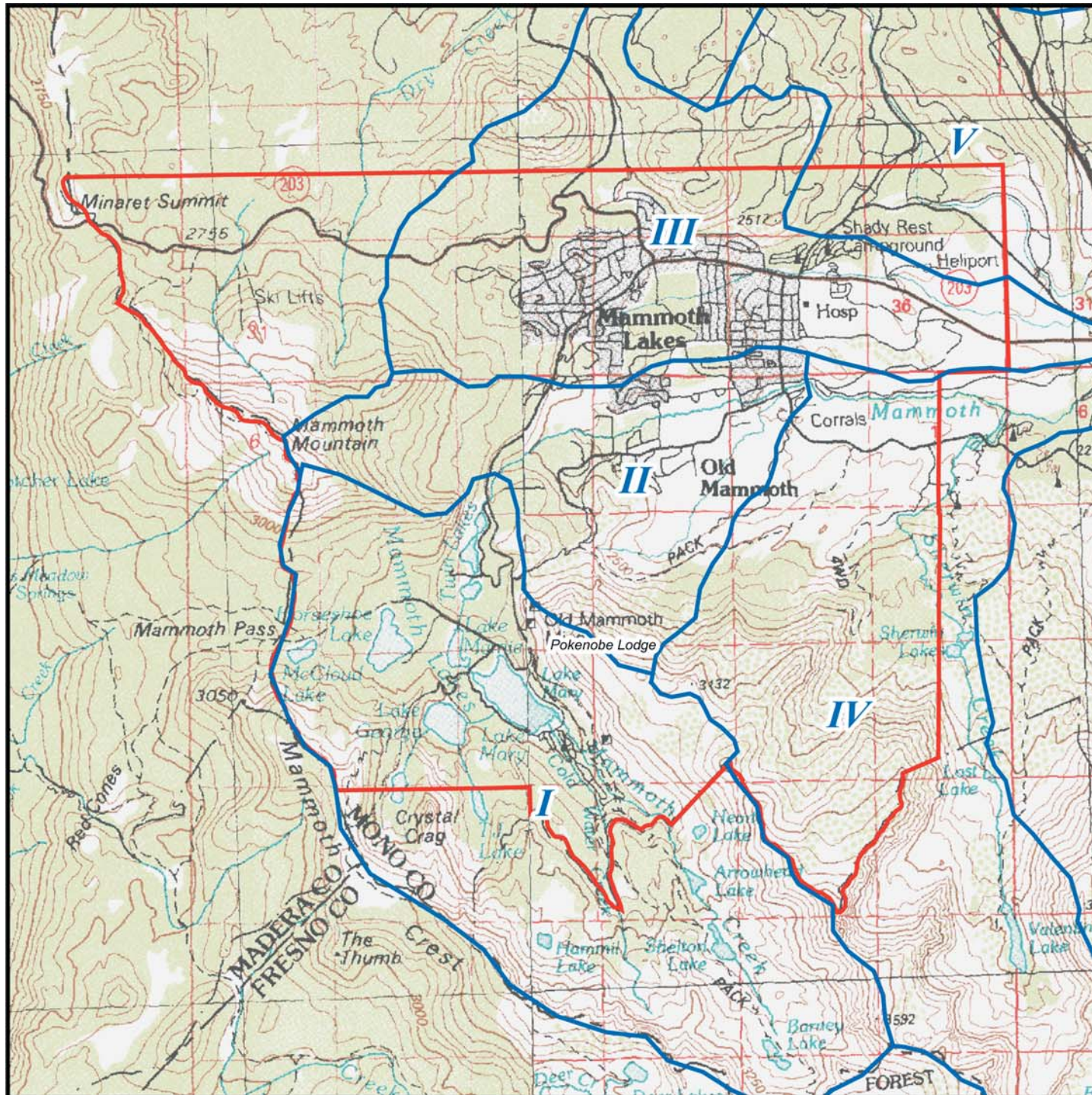
4.6.1 EXISTING CONDITIONS

4.6.1.1 Hydrologic Setting

The Town is located within the 45,000 acre Mammoth Hydrologic Basin. This approximately 71 square mile basin is part of the Long Valley Subunit of the Owens Valley Hydrologic Unit on the Lahontan Drainage Province. The Mammoth Hydrologic Basin includes many alpine lakes, surface streams, and springs, which are all tributary to Mammoth Creek or Hot Creek. Mammoth Creek serves as the principal drainage course through the Town and flows into Hot Creek at a point east of U.S. Highway 395. Hot Creek then flows easterly into the Owens River. The total length of the Mammoth Creek/Hot Creek drainage system is approximately 18 miles.

4.6.1.2 Major Watersheds

The Mammoth Hydrologic Basin contains six distinct major watersheds as shown in Figure 4.6-1 on page 4-147. Watersheds I through V comprise the major tributary area of Mammoth Creek upstream of U.S. Highway 395 (downstream of which the stream name changes to Hot Creek). The remaining Basin area has been combined into Watershed VI, even though minor drainage districts could be designated. Watershed I encompasses the Lakes Basin and contains the largest and most numerous lakes within the Mammoth Hydrologic Basin. The majority of the developed portions of the Mammoth Hydrologic Basin are located in Watersheds II and III. Watershed II, located immediately downstream of Watershed I, includes portions of Mammoth Mountain and the Town, which drain directly into Mammoth Creek. Watershed III drains into Mammoth Creek near U.S. Highway 395.



Town of Mammoth Lakes

Explanation

- Watershed
- Municipal Boundary



0 1,000 2,000 Meters

Base Map: Benton Range and Yosemite Valley
 1:100,000 quadrangle maps
 Source: Town of Mammoth Lakes

Figure 4.6-1 Watersheds Map

4.6.1.3 Drainage and Runoff

Mammoth Creek serves as the primary surface watercourse in the Mammoth Hydrologic Basin. Secondary watercourses in the Basin include Murphy Gulch, Hot Creek, ~~Bodle Ditch~~, Laurel Creek, and Sherwin Creek. Surface water from Lake Mary is diverted on a seasonal basis into a drainage ditch known as Bodle Ditch. Flow rates decrease in summer after peaking in the spring snowmelt.

North of Old Mammoth and Snowcreek, drainage flows to the east, paralleling SR 203. South of SR 203, drainage is by sheet flow through the central portion of the Town to existing roadways or is carried in unimproved channels or ditches to drainage concentration points, eventually draining down SR 203, which acts as a watercourse. North of SR 203, surface flows are carried via Canyon Boulevard in pipelines to SR 203. The Old Mammoth and Snowcreek Districts are in a separate mini watershed, draining directly into one of two tributaries of Mammoth Creek.

Continued buildout of the Mammoth Lakes community has gradually increased the density and extent of the urbanized area within the UGB, resulting in a potential for greater peak flows from snowmelt and rain storms. As this growth occurs, the potential for erosion and flooding continues to increase, as well as water quality degradation in Mammoth and Hot Creeks.

4.6.1.4 Existing Drainage Facilities

Existing drainage facilities are located throughout the town. In 1975, a major storm drainage project established the area's storm drain system from Mammoth Slopes to Mammoth Ranger Station via Canyon Boulevard, Berner Street, Alpine Circle, and Main Street in the North Village Specific Plan area. This system, set forth in the Mammoth Lakes Storm Drainage Master Plan (SDMP) and described below, discharges into Murphy Gulch just east of the Mammoth Ranger Station. A 43,560 square foot (one-acre) siltation basin was constructed at the downstream end of Murphy Gulch channel in conjunction with these drainage improvements. A comparison of the design flow capacities versus the tributary discharge values found that 50 of 445 storm drain pipes did not meet the required capacity for the 20-year event. The 100-year event was analyzed only on pipes that run parallel to the street and found that 16 of 82 pipes are undersized.

4.6.1.5 Floodplain Mapping

Existing flood zone hazards are established by the Federal Emergency Management Agency (FEMA), which provides flood insurance subsidies and federally financed loans for

property owners in flood prone areas. FEMA has been responsible for administration of the National Flood Insurance Program (NFIP) since its inception in 1978. Through this program, analyses are conducted to determine the magnitude of flood risk that exists in communities throughout the U.S. Within these communities, individuals would be eligible to purchase flood insurance for structures and contents exposed to flooding if the community joined the NFIP. High hazard flood zones include property within 100-year floodplains, flash flood washes, and designated floodways. The NFIP is described in detail under the Regulatory Framework section, below.

The Updated Plan and the existing General Plan identify several potential flood hazard areas in the town. As shown in Figure 4.6-2 on page 4-150, the potential flood hazard areas include Murphy Gulch and the Mammoth Creek drainage area, which are located in the south central portion of the community. Murphy Gulch, which is located in the northeast quadrant of the Town, is a seasonal stream and has very little or even no flow during dry months. However, Murphy Gulch carries runoff during the spring snowmelt, as well as during heavy rainfall. The Murphy Gulch area is a designated within a 100- year flood zone by the FEMA. The 100-year estimated flood flow peak within the Murphy Gulch Area is approximately 550 cubic feet per second (cfs). Mammoth Creek has an average annual flow of 20 cfs with peak 100-year flows estimated at about 640 cfs. Flows of these magnitudes create flood conditions and a danger to portions of the town.

The portions of the town that have historically experienced severe drainage problems include Mono Road, Lupin Street, Mono Street, Manzanita Road, and Joaquin Road. Although neither FEMA nor the existing General Plan formally designates these areas as flood hazard zones, these areas are currently subject to minor flooding due to spring runoff or heavy rainfall. During these occurrences, some homes and driveways may become inaccessible.

4.6.1.6 Groundwater

The Town is located on the margin of Long Valley Ground Water Basin. The Basin is bordered to the west and southwest by the Sierra Nevada mountain range, to the north by Bald and Glass Mountains, and to the east by Round Mountain. The groundwater within the Mammoth Hydrologic Basin generally flows northeast and east from Mammoth Crest at an elevation of 11,600 feet above mean sea level (amsl) on the southwest, to the Hot Creek Gorge in the Upper Owens Valley at an elevation of 6,950 feet amsl on the northeast where it may seep through tuffaceous deposits into Owens Valley. Recharge occurs around the Long Valley Caldera rim, within the western portion, and beneath the resurgent area in the northwestern central portion of the Caldera. Groundwater discharge also occurs in springs located around the Caldera rim, and along the south and east sides of the resurgent area.

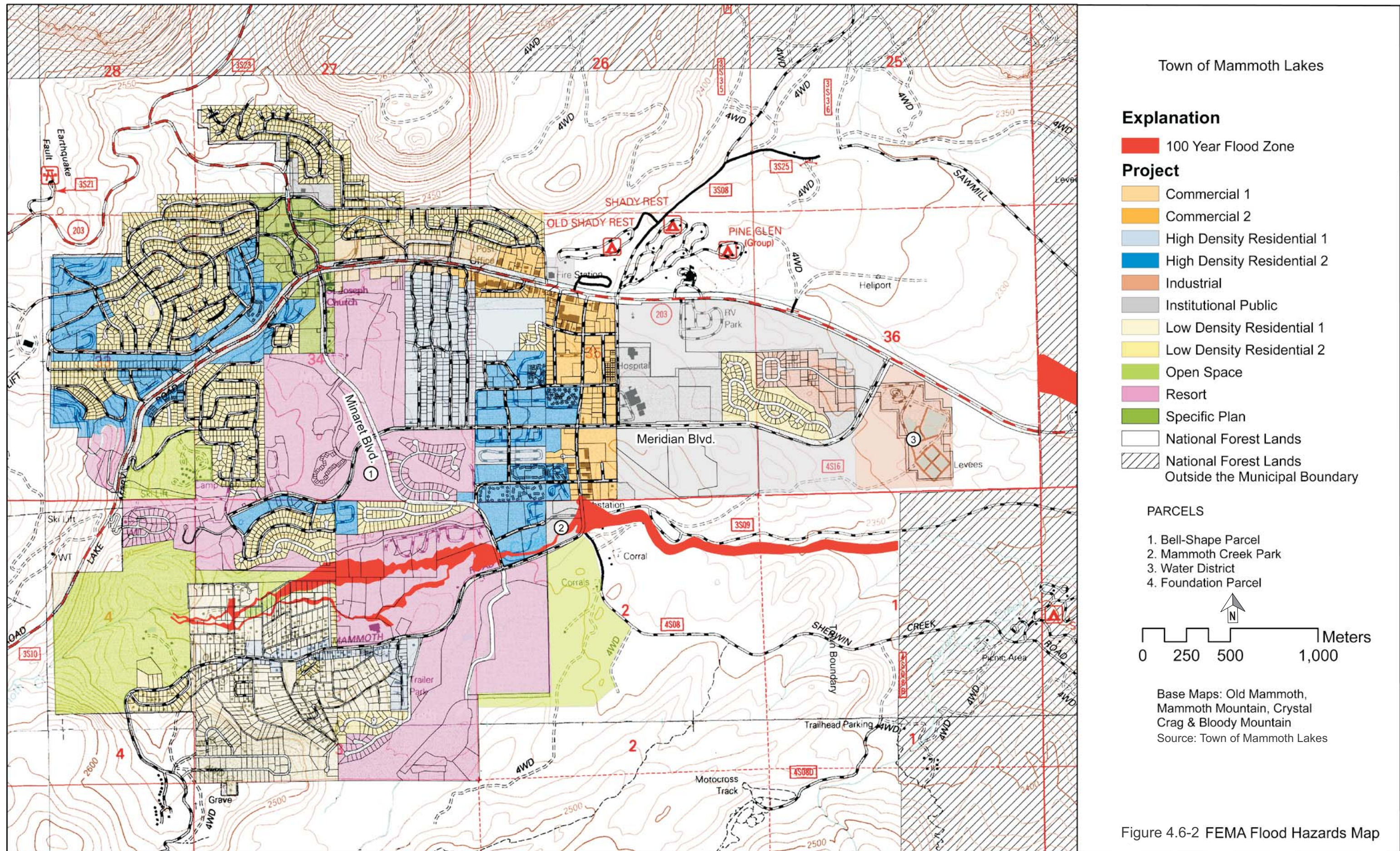


Figure 4.6-2 FEMA Flood Hazards Map

Groundwater hydrology in the Mammoth Hydrologic Basin is complex and has not been fully evaluated to date. Geophysical studies have identified at least two separate aquifers within the Town's Planning Area. Subsurface water in portions of the Mammoth Hydrologic Basin has been measured at less than ten feet beneath the surface. These saturated soils are probably fed by lateral migration of subsurface watercourses and probably do not represent the Mammoth Hydrologic Basin's true subsurface hydrology. The deeper aquifer is estimated to be at least 500 feet deep, but is otherwise poorly defined. ~~The aquifers supply water to Mammoth Creek, Hot Creek, and lakes in the Lakes Basin.~~ The California Department of Water Resources estimates that the subsurface flow in the Mammoth Lakes Basin is roughly equal to the surface flows. In the Hot Springs area, groundwater flows are estimated to be somewhat greater than surface flows.

According to Wildermuth, underlying the Mammoth Hydrologic Basin is a groundwater regime that does not correlate with the boundaries of the surface drainage systems.²⁰ Previous studies in the vicinity have implied that the Mammoth Hydrologic Basin groundwater regime is a part of the Long Valley Caldera groundwater system. It is doubtful, however, that a single system prevails throughout the caldera and/or the Mammoth Hydrologic Basin considering the complex geology, hydrology, and hydrogeology of the area.

The groundwater basin lies largely within the central part of the Mammoth Basin watershed. Boundaries of the groundwater basin have not been specifically defined due to the complex hydrogeologic conditions of the basin. Nevertheless, a general outline of the basin can be made considering surface drainages, ground elevations, surface geology, and earlier subsurface exploration. The Mammoth Basin watershed straddles the southern boundary of the Long Valley Caldera. Approximately one half of the basin lies inside the down dropped caldera feature and one half is south of and outside the caldera. Mammoth Basin is generally formed by elevated areas on the north and west that are comprised largely of Tertiary extrusive igneous rocks; a central trough filled with Quaternary alluvial, glacial, and volcanic deposits; and an abrupt southern flank of Pre Tertiary igneous intrusive and metamorphic rocks. The central trough area opens and drains to the east to the Owens River and Lake Crowley areas.²¹

The southern boundary of the Long Valley Caldera appears to closely parallel the southern groundwater basin boundary. The width of the basin varies from about 1.5 to four miles along its 11 mile east west course. This area is approximately 28 square miles. Both surface water and groundwater enter the groundwater basin area from the north, west, and south.

²⁰ *Source: Hydrologic Impacts of the Snowcreek Golf Course Expansion on the AB and CD Headwater Springs, prepared by M.J. Wildermuth, 1996.*

²¹ *Source: Investigation of Groundwater Production Impacts on Surface Water Discharge and Spring Flow, prepared for the Mammoth Community Water District by Wildermuth Environmental, Inc., November 2003.*

Gradients of surface flows follow stream course elevations, while groundwater gradients are a function of saturated basin cross section, hydraulic conductivity of the rocks, and the rate groundwater is passing through the basin.

4.6.1.7 Surface Water Quality

Surface water in the Mammoth Hydrologic Basin tends to be non-alkaline in character, meaning that it is low in mineral concentrations. This is because surface water in the region comes mostly from snowmelt and rainfall, so there is little opportunity for it to dissolve minerals from rocks and soil. The quality of this surface water is generally excellent. Levels of total dissolved solids (TDS), algae, bacteria, and other quantitative indicators are very good in comparison to federal drinking water standards. Streams fed by melting snow and runoff from the high Sierras have TDS concentrations averaging 20 milligrams per liter (mg/l) (the federal drinking water standard is 1,000 mg/l)²².

The Lahontan Regional Water Quality Control Board (LRWQCB) reports that surface runoff and storm water drainage from development associated with the Town have adversely affected the water quality within Mammoth Creek.²³ Runoff from paved surfaces has increased the concentrations of nutrients, organic compounds, heavy metals, and petroleum products within the creek. Excessive surface drainage from streets and parking lots has also caused premature degradation of asphaltic concrete surface, especially on Canyon Boulevard. Material eroded or leached from these surfaces is eventually washed into the creek. An incomplete existing storm drainage system, largely developed in response to specific development requirements in the Town, tends to add to runoff problems; hence drainage problems are prevalent. In addition to facilities to meet the demands of new development in town, the Mammoth Lakes Storm Drainage Master Plan (SDMP) includes remedial actions to correct existing storm drainage deficiencies and improve water quality as mentioned in the Regulatory Framework discussion, below. Additionally, the Town requires development and redevelopment project contractors to prepare appropriate erosion and runoff control measures to protect adjacent properties, drainage courses, and Mammoth Creek from the potential adverse effects of runoff (Municipal Code Chapter 12.08, Land Clearing, Earthwork and Drainage Facilities).

²² Mammoth Community Water District, 2004 "Water Quality Report"

²³ According to the most recent CWA Section 303(d) List of Water Quality Limited Segments, approved by the USEPA in July 2003, "metals" have been identified as pollutant/stressor in Mammoth Creek. Mammoth Creek was identified with a "Low" TMDL priority on the 303(d) List. According to the Lahontan RWQCB Watershed Management Initiative, a study is needed to verify the need for establishing a TMDL of metals in Mammoth Creek. The TMDL end date for Mammoth Creek is 2008. Thus, currently there is no adopted TMDL plan that addresses metals in Mammoth Creek.

4.6.1.8 Groundwater Quality

Of the eight production wells maintained by Mammoth Community Water District (MCWD), ~~two contain~~ one well contains high quality water with low dissolved mineral content and low calcium carbonate hardness. This well water can be pumped directly into the water distribution system for direct use. The remaining ~~six~~ seven wells contain water with a higher dissolved mineral content and calcium carbonate hardness and also contain iron and manganese at levels that exceed State Health Department standards. Iron and manganese are currently removed from the District groundwater supplies at two MCWD treatment facilities located within the community. The District ~~is currently conducting~~ conducted a pilot project for arsenic removal at both of its groundwater treatment facilities and ~~put will have~~ equipment in place to comply with the new federal Maximum Containment Level (MCL) ~~as of by~~ January 1, 2006.

4.6.2 REGULATORY FRAMEWORK

Hydrology and water quality is regulated at the Federal, State, and local levels. The United States Environmental Protection Agency (USEPA), the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Board (RWQCB), Mono County and the Town of Mammoth Lakes regulate water quality in the Planning Area area.

4.6.2.1 Federal Level

National Flood Insurance Act

With the passage of the National Flood Insurance Act of 1968, the U.S. Congress established the National Flood Insurance Program (NFIP), enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for State and community floodplain management regulations that reduce future flood damages. Participation in the NFIP is based on an agreement between communities and the federal government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains, the federal government will make flood insurance available within the community as a financial protection against flood losses. This insurance is designed to provide an insurance alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods.²⁴

²⁴ *Federal Emergency Management Agency; Federal Insurance and Mitigation Administration, National Flood Insurance Program Description (August 1, 2002).*

The Flood Disaster Protection Act of 1973 prohibits federal agencies from providing financial assistance for acquisition or construction of buildings and certain disaster assistance in the floodplains in any community that did not participate in the NFIP by July 1, 1975, or within 1 year of being identified as flood-prone. This law required federal agencies and federally insured or regulated lenders to require flood insurance on all grants and loans for acquisition or construction of buildings in designated Special Flood Hazard Areas (SFHAs) in communities that participate in the NFIP. This requirement is referred to as the Mandatory Flood Insurance Purchase Requirement. The SFHA is that land within the floodplain of a community subject to a 1 percent or greater chance of flooding in any given year, commonly referred to as the 100-year flood. The 1-percent-annual-chance flood (or 100-year flood) represents a magnitude and frequency that has a statistical probability of being equaled or exceeded in any given year, the 100-year flood has a 26 percent (or 1 in 4) chance of occurring over a 30-year period.²⁵

In 1994, Congress amended the 1968 Act and the 1973 Act with the National Flood Insurance Reform Act (NFIRA). The 1994 Act included measures to increase compliance by mortgage lenders; increase the amount of flood insurance coverage that can be purchased; provide flood insurance coverage for the cost of complying with floodplain management regulations by individual property owners; establish a Flood Mitigation Assistance grant program to assist States and communities to develop mitigation plans and implement measures to reduce future flood damages to structures; codify the NFIP's Community Rating System; and require FEMA to assess its flood hazard map inventory at least once every 5 years.²⁶

Federal Clean Water Act, Section 404

The U.S. Army Corps of Engineers (USACE) regulates “discharge of dredged or fill material” into “waters of the U.S.,” which includes tidal waters, interstate waters, and all other waters that are part of a tributary system to interstate waters or to navigable “waters of the U.S.,” as well as the use, degradation, or destruction of which could affect interstate or foreign commerce or which are tributaries to waters subject to the ebb and flow of the tide (33 C.F.R. 328.3(a)), pursuant to provisions of Section 404 of the CWA. The USACE generally takes jurisdiction within rivers and streams to the “ordinary high water mark” determined by erosion, the deposition of vegetation or debris, and changes in vegetation. The USACE defines jurisdictional wetlands as areas that contain hydrophytic vegetation (i.e., aquatic vegetation), hydric soils (i.e., soils that are sufficiently wet in the upper part to produce anaerobic conditions), and wetland hydrology, in accordance with the procedures established in the USACE Wetland Delineation Manual.²⁷ On January 9, 2001, the United States Supreme Court ruling in the *Solid*

²⁵ *Ibid.*

²⁶ *Ibid.*

²⁷ *U.S. Army Environmental Laboratory, Wetlands Delineation Manual, 1987 Edition.*

Waste Agency of Northern Cook County v. United States Army Corps of Engineers (No. 99-1178) held that the CWA does not give the federal government regulatory authority over non-navigable, isolated, intrastate waters. As a result of this decision, some previously regulated depressional areas, such as mudflats, sandflats, wetlands, prairie potholes, wet meadows, playa lakes, natural ponds, and vernal pools, which are not hydrologically connected to other intrastate or interstate “waters of the U.S.,” are no longer regulated by the USACE.²⁸ Potential impacts to designated “waters of the U.S.” are discussed in subsection 4.3, Biological Resources of this EIR.

Section 401 of the CWA requires that any applicant for a federal permit that involves activities resulting in a discharge to “waters of the U.S.” shall provide a certification from the State in which the discharge is proposed. The State certification needs to conclude that the discharge will comply with the applicable provisions under the federal CWA. Therefore, before the USACE will issue a Section 404 permit, applicants must apply for and receive a CWA Section 401 Water Quality Certification. In the State of California, the overall regulation, protection, and administration of water quality is carried out by the State Water Resources Control Board (SWRCB).

The SWRCB and the LRWQCB enforce State of California statutes, equivalent to or more stringent than the federal statutes. The LRWQCB is responsible for establishing water quality standards and objectives that protect the beneficial uses of various waters in their region. The LRWQCB is also responsible for protecting surface and ground waters from both point and non-point sources of pollution.

National Pollution Discharge Elimination System

The USEPA established the National Pollutant Discharge Elimination System (NPDES) Program as the primary implementation program for regulating surface water quality. The NPDES Program requires permits for storm water discharge from storm drain systems into “waters of the U.S.” The NPDES Program addresses storm water discharge during both pre- and post-construction activities.

Construction activities disturbing one acre or more are required to comply with the SWRCB General Construction Activity Storm Water Permit. This requires the preparation and approval of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must include the implementation of Best Management Practices (BMPs) that would reduce the potential for

²⁸ *These areas may still be regulated by CDFG under Fish and Game Code Section 1600 or by the RWQCB under the Porter-Cologne Act. Legislation has been introduced to the State Assembly to revise the Fish and Game Code to specifically regulate isolated waters affected by the SWANCC case.*

discharge of accidental and/or implicit pollutants into the storm drain system during grading and construction. The BMPs should be designed to maintain construction areas in such a condition that storm flows do not carry wastes or pollutants off-site. The General Construction Activity Storm Water Permit requires that these BMPs be in place prior to issuance of a grading permit.

Under the General Construction Activity Storm Water permit, project applicants are also required to implement a Standard Urban Storm Water Mitigation Plan (SUSMP) during the operational life of a project to ensure that storm water pollution is addressed through the incorporation of BMPs in the design of the development. This requirement provides numerical water quality design standards to ensure that storm water runoff is managed for water quality concerns in addition to flood protection. Project applicants are required to select source control and treatment control BMPs from the list approved by the RWQCB. In combination, the treatment control BMPs must be sufficiently designed and constructed to treat, infiltrate, or filter the first 3/4-inch of storm water runoff from a storm event.

4.6.2.2 State Level

Porter-Cologne Water Quality Control Act

Division 7 of the California Water Code, also known as the Porter-Cologne Water Quality Control Act, contains provisions that cover water quality protection and management for California's waters. The Porter-Cologne Act establishes the SWRCB and the nine RWQCBs as the principal state agencies responsible for the protection and, where possible, the enhancement of the quality of California's waters. The SWRCB sets statewide policy, and together with the RWQCBs, implements state and federal laws and regulations. In California, the NPDES permit program is administered by the SWRCB, through the RWQCBs.

Under the Porter-Cologne Act, a RWQCB may choose to regulate discharges of waste (dredge or fill materials) by issuing Waste Discharge Requirements (WDR), a type of state discharge permit, instead of issuing a CWA Section 401 Water Quality Certification. The SWRCB must review the WDR and certify, condition, or deny any activity if it does not comply with state water quality standards. Each RWQCB may waive WDRs for a specific discharge or category of discharges as long as the conditions stated in the respective RWQCB's Water Quality Management Plan are followed. Processing of a WDR is similar to that of a Section 401 certification; however, the RWQCB has slightly more discretion to add conditions to a project under the Porter-Cologne Act than under the CWA. The Project area is located within Region 6 and, thus, would obtain a WDR permit or CWA Section 401 Water Quality Certification for the proposed project from the LRWQCB.

California Department of Fish and Game Code

Section 1602 of the California Fish and Game Code requires any entity (e.g., person, State or local government agency, or public utility) who proposes a project that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, it must first notify the CDFG of the proposed project. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support, or have supported, riparian vegetation. The CDFG's jurisdiction extends to the river, stream, or lake's top of bank, or to the outer edge of the adjacent riparian vegetation (i.e. riparian "drip line"), whichever is greater. If the CDFG determines that a proposed project may substantially adversely affect existing resources, a Lake or Streambed Alteration Agreement will be required.

Lahontan Regional Water Quality Control Board

The Town is within the jurisdictional boundaries of the LRWQCB. One of nine regional boards in the state, the LRWQCB develops and enforces water quality objectives and implementation plans that safeguard the quality of water resources in its region. Its duties include developing "basic plans" for its hydrologic area, issuing waste discharge requirements, taking enforcement action against violators, and monitoring water quality. In March 1995, a Water Quality Control Plan for the Lahontan Region, North and South Basins, adopted by the LRWQCB, took effect. The plan outlines policies and regulations for municipal wastewater, treatment, disposal, and reclamation. The Water Quality Control Plan also establishes specific erosion and sediment control guidelines for land developments within the Town. These standards are designed to provide developers with a uniform approach for the design and installation of adequate systems to control erosion and mitigate urban drainage impacts from the Town in an effort to prevent the degradation of waters of Mammoth Creek and Hot Creek. Under a Memorandum of Understanding with the LRWQCB, the Town administers erosion control measures on a project by project basis to make sure that they are in place and operational.

Assembly Bill 3030

In 1992, the California Legislature approved AB3030 to allow local agencies whose service areas overlie a state designated groundwater basin to develop and implement groundwater management plans (GMP). The law also stated that a local agency might not manage ground water pursuant to AB3030 within a service area of another local agency without the agreement of that entity. In effect, the purpose of the GMP was two-fold:

- Outline the role of the local agency in managing the local ground water resource; and
- Maximize the water supply and to protect the quality of the supply.

Components of the GMP include the following:

- Control of saline water intrusion;
- Identification and management of wellhead protection areas and recharge areas;
- Regulate migration of contaminated ground water;
- Administer well abandonment and destruction programs;
- Mitigate overdraft conditions;
- Replenish ground water extracted by producers;
- Monitor ground water levels and storage;
- Facilitate conjunctive uses;
- Identification policies for well construction;
- Construct/operate contaminated ground water remediation, recharge, storage, conservation, water recycling and extraction;
- Develop/maintain relationships with state/federal regulatory agencies; and
- Review land use plans and coordinate with land use planning agencies to assess activities that may create a risk of contaminating ground water.

4.6.2.3 Local Level

Storm Drainage Master Plan for the Town

In response potential erosion and flooding hazards as a result of increased urbanization, the Mono County Public Works Department prepared the Mammoth Lakes SDMP dated July 1984, which included a Master Plan Report, Design Manual, and Implementing Ordinance. An update to the SDMP was completed on May 26, 2005. The SDMP was primarily formulated to control the existing drainage and erosion problems by establishing a program to rehabilitate existing development areas, while also providing policies, standards, and procedures to guide future development.

The SDMP identifies several existing drainage problems in the Town including the following:

- Lack of a stable drainage system in much of the community located within the Urban Growth Boundary;
- Roadside and slope erosion due to uncontrolled runoff in poorly defined channels from steep areas;

- Drainage that crosses private property, and development in or near the natural drainage channels;
- Undersized culverts and channels; and
- Discharge of runoff from developed areas directly to Mammoth Creek resulting in high sediment loads to the creek and water quality degradation.

In response to these problems, the SDMP identifies general drainage improvements throughout the Town that would remedy existing drainage problems and accommodate Plan buildout development. Construction of the SDMP facilities can be spread out over a number of years. This would allow facilities to be built as they are needed or as further development occurs. Three priority levels have been established in the SDMP for construction of the improvements as summarized below:

- Priority 1 improvements focus primarily on eliminating existing drainage and erosion control problems;
- Priority 2 improvements include solutions to less critical drainage problems and facilities required to provide adequate drainage trunk capacity for the ultimate development; and
- Priority 3 improvements include the remainder of SDMP facilities, which are principally improvements for local storm drainage.

The SDMP strives to retain or improve natural streams where possible, rather than replacing them with storm pipes (for aesthetic, economic, and functional purposes). Storm pipes would be placed in streets where feasible; however, some easements would be required on private property, primarily where existing development has occurred near stream zones. The updated SDMP recommends the Town replace corrugated metal pipelines that failed to transmit the required 20-year flows, with pipes of the same size made of concrete, PVC, HDPE, or other materials that do not have a rough texture.

The SDMP also includes guidelines for erosion control for the Mammoth Lakes area. In an effort to remedy drainage and erosion problems, the erosion guidelines prescribe requirements that must be followed during all phases of developments involving soil disturbance on one-quarter acre or more. The erosion guidelines also provide a basis for consistent design of storm drainage and erosion control facilities.

Town Municipal Codes and Ordinances

Municipal Code Chapter 15.36: Water-Efficient Landscape Regulations

This chapter was enacted for the purpose of adopting rules and regulations pursuant to the Water Conservation in Landscaping Act. The purpose of this chapter is to promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible; establish a structure for designing, installing and maintaining water efficient landscapes in new projects; and establish provisions for water management practices and water waste prevention for established landscapes.

4.6.3 THRESHOLDS OF SIGNIFICANCE

Based primarily on Appendix G in the CEQA Guidelines, the Project would be considered to have a significant impact on hydrology and water quality if the Updated Plan would:

- Violate of any water quality standards or waste discharge requirements;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation onsite or offsite;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or FIRM or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;
- Construct new storm water drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental effects; or
- Result in inundation by seiche, tsunami, or mudflow.

4.6.4 IMPACTS AND MITIGATION

Issue 4.6-1: Would development associated with implementation of the Updated Plan result in a violation of any water quality standards or waste discharge requirements?

Discussion: Development in accordance with the Updated Plan would likely lead to an increase in the amount of impervious surfaces in the area. This increase would cause a decrease in the amount of water percolation into the ground and result in greater surface runoff quantities at higher velocities. During construction of the individual development sites, runoff from disturbed areas may contain silt and debris, resulting in short-term increases in the existing sediment load in the storm drain system. As a result, water quality could be impaired as well as the water-carrying capacity of the drainage channel, potentially aggravating current flood conditions. Runoff from development may also discharge pollutants from motor vehicles, such as petroleum hydrocarbons, glycol, and dissolved heavy metals. The LRWQCB reports that surface runoff and storm water drainage have adversely affected the water quality within Mammoth Creek. Runoff from paved surfaces has increased the concentrations of nutrients, organic compounds, heavy metals, asphaltic concrete particles, and petroleum deposits within the creek. Impacts would vary depending on the level of construction activity, weather conditions, soil conditions, and the increased sedimentation of drainage systems within the local area of the individual development sites. In addition, the increased use of pesticides, herbicides, fertilizers and other chemicals associated with development and recreational areas (such as golf courses) may impair surface waters through stormwater discharges and runoff. All construction projects would be subject to compliance with federal, state and local water quality and waste discharge requirements, including the NPDES Program, as deemed appropriate.

The Updated Plan also proposes the adoption of numerous implementation measures to reduce potential impacts regarding water quality and waste discharge. These measures are described below.

Implementation Measures in the Updated Plan

- I.1.A.a.1 The Town shall require the use of Best Management Practices (BMP²s) during and after construction and development as a means to prevent erosion, siltation, and flooding.
- I.1.A.a.2 Projects requiring a grading permit shall implement Best Management Practices (BMP²s) and shall be required to control erosion and sedimentation.
- I.1.A.b.1 The Town of Mammoth Lakes shall maintain an up to date Drainage Master Plan.

- I.1.A.b.3 The Town shall regulate the modification of natural stream beds and flow to ensure that adequate mitigation measures are utilized.
- I.1.B.a.2 All activities within “jurisdictional” wetlands require a U.S. Army Corps of Engineers Section 404 Clean Water Act permit, California Regional Water Quality Control Board Clean Water Certification or Waiver, and the Town shall notify the California Department of Fish and Game pursuant to section 1600 and if necessary obtain a Lake and Streambed Alterations Agreement.
- I.1.B.e.3 Require new development in the vicinity of Mammoth Creek to maintain minimum setbacks and preserve stream bank vegetation.
- I.7.A.b.1 The Town shall require where practical and when warranted by the size of the project that parking lot storm drainage shall include facilities to separate oils and salts from storm water.
- II.4.C.a.5 The Town shall maintain and implement the Spill Prevention, Control, and Countermeasure Plan for the Mammoth Yosemite Airport as required by the Oil Pollution Act of 1990 which mandates a spill response system for the proper handling, storage, and transportation of oil in the event a discharge occurs.
- II.4.C.a.6 The Town shall regulate, specify, and develop sites for the safe collection of hazardous wastes; all facilities shall comply with State and Federal regulations and be designed and located in areas where they pose minimal threat to the environment.

The implementation measures in the Updated Plan would serve to protect existing surface and groundwater from pollutants associated with new development. With these implementation measures and compliance with federal, state and local water quality and waste discharge requirements, water quality standards or waste discharge requirements would not be violated.

Mitigation Measures

The Updated Plan would not result in a violation of any water quality standards or waste discharge requirements. Therefore, no mitigation measures are required.

Level of Significance After Mitigation

Impacts with regard to water quality standards or waste discharge requirements would be less than significant.

Issue 4.6-2: *Would development associated with implementation of the Updated Plan result in a substantial alteration of the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site?*

Discussion: Development in accordance with the Updated Plan could lead to alterations of the existing drainage patterns, especially where drainage occurs on private property, or development occurs near natural drainage channels. During construction of the individual development sites, runoff from disturbed areas may contain silt and debris, resulting in short-term increases in the existing sediment load in the storm drain system. As a result, water quality could be impaired. Impacts would vary depending on the level of construction activity, weather conditions, soil conditions, and the increased sedimentation of drainage systems within the local area of the individual development sites.

All construction projects would be subject to compliance with applicable federal, state and/or local requirements to reduce the affects of erosion and siltation, including the NPDES Program. All development must comply with Municipal Code Sections 12.08.090, Drainage and erosion design standards, 12.08, Land clearing, earthwork and drainage facilities, and 12.08.080, Engineered grading permit requirements. These code sections serve to implement the implementation measures in the Updated Plan. Best management practices (BMPs), which would reduce and/or eliminate erosion potential, would be incorporated into development projects. Additionally, the SDMP also includes guidelines for erosion control for the Mammoth Lakes area. In an effort to remedy drainage and erosion problems, the erosion guidelines prescribe requirements that must be followed during all phases of developments involving soil disturbance on one-quarter acre or more. The erosion guidelines also provide a basis for consistent design of storm drainage and erosion control facilities.

Furthermore, should any future development result in the alteration of the course of a stream or river, the development would be required to comply with Section 1602 of the California Fish and Game Code, which requires notification of such activity to the CDFG. If the CDFG determines that a proposed project may substantially adversely affect existing resources, a Lake or Streambed Alteration Agreement would. This regulatory process would ensure that substantial erosion or siltation would not occur as a result of the alteration of the course of a stream or river not occur from future development.

The Updated Plan also contains a number of implementation measures designed to minimize erosion and siltation through drainage control from new development.

Implementation Measures in the Updated Plan

- I.1.A.a.1 The Town shall require the use of Best Management Practices (BMP²s) during and after construction and development as a means to prevent erosion, siltation, and flooding.
- I.1.A.a.2 Projects requiring a grading permit shall implement Best Management Practices (BMP²s) and shall be required to control erosion and sedimentation.
- I.1.A.b.1 The Town of Mammoth Lakes shall maintain an up to date Drainage Master Plan.
- I.1.A.b.2 The Town of Mammoth Lakes shall encourage, through project review, that watercourses be integrated into new development in such a way that they enhance the aesthetic and natural character of the site. Mapped intermittent streams shall not be routinely placed in culverts.
- I.1.A.b.3 The Town shall regulate the modification of natural stream beds and flow to ensure that adequate mitigation measures are utilized.
- I.1.B.a.2 All activities within “jurisdictional” wetlands require a U.S. Army Corps of Engineers Section 404 Clean Water Act permit, California Regional Water Quality Control Board Clean Water Certification or Waiver, and the Town shall notify the California Department of Fish and Game pursuant to section 1600 and if necessary obtain a Lake and Streambed Alterations Agreement.
- I.1.B.e.3 Require new development in the vicinity of Mammoth Creek maintain minimum setbacks and preserve stream bank vegetation.
- II.3.B.a.1 The Town shall update its development standards as needed to include advances in construction techniques which minimize soil erosion and slope instability.
- II.4.A.a.3 The Town shall retain, to the maximum practical extent, primary community water courses and bodies in their natural state, through existing criteria in the Town Development Code. Creek corridors should be carefully identified, corridor setbacks established, and strict regulations precluding riparian vegetation removal and creek regime modification should be followed.

The implementation measures in the Updated Plan serve to maintain the existing drainage pattern of the Planning Area, including streams and river courses (MC Chapter 12.08). Through the implementation of the Draft General Plan the Town would encourage maintaining the natural

function of watercourse by requiring a setback from watercourses and not routinely allowing that watercourses be placed in culverts. The maintenance of watercourses in a natural state would contribute to the preservation of the existing drainage patterns. With these implementation measures and compliance with federal, state and local design and construction requirements, substantial erosion or siltation within or adjacent to the Planning would not occur.

Mitigation Measures

The implementation of the Updated Plan would not substantially alter drainage patterns causing substantial erosion or siltation within the Planning Area. Therefore, no mitigation measures are required.

Level of Significance After Mitigation

Impacts with regard to erosion and siltation would be less than significant.

***Issue 4.6-3:** Would development associated with implementation of the Updated Plan result in a substantial alteration of the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?*

Discussion: Flood-prone areas may enlarge or contract as developments both upstream and downstream occur. Upstream development may include a variety of alterations to existing conditions such as more impervious surface, thus more runoff; altered drainage patterns, shifting the location of surface runoff; increases in runoff velocity; and alterations to water quality. Downstream developments may block flood waters, thus creating ponding and backup of previously freer flowing waters.

All future development within an identified flood hazard area would be subject to the design requirements and regulations set forth by the Town, Mono County and/or FEMA. All development must comply with Municipal Code Sections 12.08.090, Drainage and erosion design standards, 12.08, Land clearing, earthwork and drainage facilities, and 12.08.080, Engineered grading permit requirements. These code sections serve to implement the implementation measures in the Updated Plan. Additionally, the SDMP identifies general drainage improvements throughout the Town that would remedy existing drainage problems and accommodate Plan buildout development. These improvements would serve to reduce the potential for flooding.

The Updated Plan also contains a number of implementation measures designed to control the rate or amount of surface runoff to reduce the potential for flooding.

Implementation Measures in the Updated Plan

- I.1.A.a.1 The Town shall require the use of Best Management Practices (BMP²s) during and after construction and development as a means to prevent erosion, siltation, and flooding.
- I.1.A.b.1 The Town of Mammoth Lakes shall maintain an up to date Drainage Master Plan.
- I.1.A.b.2 The Town of Mammoth Lakes shall encourage, through project review, that watercourses be integrated into new development in such a way that they enhance the aesthetic and natural character of the site. Mapped intermittent streams shall not be routinely placed in culverts.
- I.1.A.b.3 The Town shall regulate the modification of natural stream beds and flow to ensure that adequate mitigation measures are utilized.
- I.1.B.e.3 Require new development in the vicinity of Mammoth Creek maintain minimum setbacks and preserve stream bank vegetation.
- II.4.A.a.1 The Town shall regulate development in flood plains and near the perimeter of natural water bodies and regulate development in flood areas when there is threat to life or property.
- II.4.A.a.2 The Town shall maintain a flood hazard management program including regulations in the Town Development Code.
- II.4.A.a.3 The Town shall retain, to the maximum practical extent, primary community water courses and bodies in their natural state, through criteria in the Town Development Code. Creek corridors should be carefully identified, corridor setbacks established, and strict regulations precluding riparian vegetation removal and creek regime modification should be followed.

The implementation measures in the Updated Plan and Municipal Code sections serve to maintain the existing drainage pattern of the Planning Area, including streams and river courses. With these implementation measures and compliance with federal, state and local design and construction requirements, surface runoff rates within the Planning Area would not be substantially increased.

Mitigation Measures

The implementation of the Updated Plan would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. Therefore, no mitigation measures are required.

Level of Significance After Mitigation

Impacts with regard to flooding as a result of the alteration of existing drainage patterns would be less than significant.

***Issue 4.6-4:** Would development associated with implementation of the Updated Plan result in creation or contribution of runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

Discussion: As stated in the Existing Conditions section above, the 1984 Mammoth Lakes SDMP prepared for the Mono County Public Works Department identified several existing drainage problems in the Town. The 1984 SDMP also identified general drainage improvements throughout the Town that would remedy existing drainage problems and accommodate anticipated flow increases from development up until the period of 1999 to 2004 when the SDMP projected the Town to reach buildout under the existing General Plan (Tables 6-5, 6-6, and 6-7 in the 1984 SDMP). Over the last few years, improvements to the storm drain system have been made to Red Fir Road, Old Mammoth Road, Sierra Park Drive, Lake Mary Road and within the North Village Area. An update to the SDMP was completed on May 26, 2005. The updated SDMP provides hydraulic modeling of the drainage system and prioritizes the implementation of storm drainage facility improvements designed to accommodate development allowed in the existing General Plan. The general distribution and types of land uses would be similar under the Updated Plan with regard to stormwater runoff. The amount of impervious surface would not be changed with the Updated Plan compared with the existing Plan. All construction projects would be subject to compliance with all applicable federal, state and local water quality and waste discharge requirements, including the NPDES Program.

In addition, the Updated General Plan includes implementation measures created to minimize runoff water such that the capacity of existing or planned stormwater drainage systems would not be exceeded, nor would there be substantial additional sources of polluted runoff from new development.

Implementation Measures in the Updated Plan

- I.1.A.a.1 The Town shall require the use of Best Management Practices (BMP²s) during and after construction and development as a means to prevent erosion, siltation, and flooding.
- I.1.A.a.2 Projects requiring a grading permit shall implement Best Management Practices (BMP²s) and shall be required to control erosion and sedimentation.
- I.1.A.b.1 The Town of Mammoth Lakes shall maintain an up to date Drainage Master Plan.
- I.1.A.b.3 The Town shall regulate the modification of natural stream beds and flow to ensure that adequate mitigation measures are utilized.
- II.4.A.a.3 The Town shall retain, to the maximum practical extent, primary community water courses and bodies in their natural state, through criteria in the Town Development Code. Creek corridors should be carefully identified, corridor setbacks established, and strict regulations precluding riparian vegetation removal and creek regime modification should be followed.

The implementation measures in the Updated Plan serve to prevent runoff water from exceeding the capacities of existing and planned capacities of stormwater drainage systems and prevent polluted runoff. With these implementation measures and compliance with federal, state and local design and construction requirements, storm drainage capacities would be maintained and substantial additional sources of polluted runoff would not occur.

Mitigation Measures

The implementation of the Updated Plan would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, no mitigation measures are required.

Level of Significance After Mitigation

Impacts with regard to storm drain capacities and polluted runoff would be less than significant.

Issue 4.6-5: *Would development associated with implementation of the Updated Plan result in an otherwise substantial degradation of water quality.*

Discussion: As discussed above, development associated with the Updated Plan would not result in a substantial degradation of water quality due to compliance with all applicable federal, state and local regulations, as well as implementation of the applicable implementation measures.

Implementation Measures in the Updated Plan

Refer to the implementation measures discussed under Issues 4.6-1 and 4.6-4.

Mitigation Measures

The implementation of the Updated Plan would not degrade water quality. Therefore, no mitigation measures are required.

Level of Significance After Mitigation

Impacts with regard to water quality would be less than significant.

Issue 4.6-6: *Would development associated with implementation of the Updated Plan result in placement of housing within a 100 year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

Discussion: The Updated Plan identifies several potential flood hazard areas in the Town. The Mammoth Creek Areas located in the southeast quadrant of the Town and Murphy Gulch east and north of the UGB are designated flood zones by the FEMA. The FEMA flood map also incorporated a portion of Murphy Gulch into the 100-year (but not the 500-year) flood zone. The entire designated Murphy Gulch flood zone is outside of the Municipal Boundary (and well outside of the UGB), but within the larger Planning Area. As shown in Figure 4.5.2, the mapped segments extend roughly one mile west of U.S. Highway 395, including (and extending eastward) of the confluence with Mammoth Creek. The intersection of U.S. Highway 395 with SR 203 is located outside of the flood area.

FEMA standards apply to development in the 100-year floodplain, which is the area with a one percent or greater chance of being flooded in any one year. A special study of the flooding potential of Mammoth Creek has been prepared by FEMA, and FEMA has plotted the extent of flooding potential as shown in Figure 4.6.2. As shown, the Flood Hazard map indicates that the 100-year flood corridor for Mammoth Creek does not extend far from the normal creek channel

in most locations throughout Town. Areas most prone to flooding would include the Corrals and portions of Old Mammoth located along the Creek alignment. Several stretches of Mammoth Creek, all located in the Old Mammoth area, are also subject to 500-year flooding.²⁹ As noted previously, the Town has established a conservation easement and building setbacks along the Creek for the purpose of resource and floodplain management. Although some established and existing land uses do fall within the mapped flood area for Mammoth Creek, none of the future development areas shown on the Plan would occur within the 100-year flood zones.

The Updated Plan contains a number of implementation measures designed to minimize the affects of flooding within the Town.

Implementation Measures in the Updated Plan

- I.1.A.a.1 The Town shall require the use of Best Management Practices (BMP²s) during and after construction and development as a means to prevent erosion, siltation, and flooding.
- I.1.A.b.1 The Town of Mammoth Lakes shall maintain an up to date Drainage Master Plan.
- I.1.A.b.3 The Town shall regulate the modification of natural stream beds and flow to ensure that adequate mitigation measures are utilized.
- I.1.B.e.3 The Town shall require new development in the vicinity of Mammoth Creek maintain minimum setbacks and preserve stream bank vegetation.
- II.4.A.a.1 The Town shall regulate development in flood plains and near the perimeter of natural water bodies and regulate development in flood areas when there is threat to life or property.
- II.4.A.a.2 The Town shall maintain a flood hazard management program including regulations in the Town Development Code.
- II.4.A.a.3 The Town shall retain, to the maximum practical extent, primary community water courses and bodies in their natural state, through criteria in the Town Development Code. Creek corridors should be carefully identified, corridor setbacks established, and strict regulations precluding riparian vegetation removal and creek regime modification should be followed.

²⁹ ESRI and FEMA U.S. Flood Hazard Areas - Flood Data website, <http://mapserver2.esri.com/cgi-bin/hazard>

The implementation measures in the Updated Plan serve to reduce hazards to residential uses as a result of flooding. With these implementation measures and compliance with all applicable federal, state and local design requirements, including FEMA design requirements, residential uses would be designed and located to meet the minimum flood hazard requirements.

Mitigation Measures

The implementation of the Updated Plan would result in less than significant impacts with regard to flooding. Therefore, no mitigation measures are required.

Level of Significance After Mitigation

Impacts with regard to flooding as a result of the placement of housing within a designated flood hazard area would be less than significant.

***Issue 4.6-7:** Would development associated with implementation of the Updated Plan result in placement within a 100 year flood hazard area structures which would impede or redirect flood flows?*

Discussion: As stated above, the Updated Plan identifies several potential flood hazard areas in the Town, including Murphy Gulch and the Mammoth Creek drainage. FEMA standards apply to development in the 100-year floodplain, which is the area with a one percent or greater chance of being flooded in any one year. All future development within an identified flood hazard area would be subject to the design requirements and regulations set forth by the Town, Mono County and/or FEMA. Additionally, the Updated Plan contains a number of implementation measures designed to minimize the affects of flooding within the Town.

Implementation Measures in the Updated Plan

- I.1.A.a.1 The Town shall require the use of Best Management Practices (BMP²s) during and after construction and development as a means to prevent erosion, siltation, and flooding.
- I.1.A.b.1 The Town of Mammoth Lakes shall maintain an up to date Drainage Master Plan.
- I.1.A.b.3 The Town shall regulate the modification of natural stream beds and flow to ensure that adequate mitigation measures are utilized.
- I.1.B.e.3 The Town shall require new development in the vicinity of Mammoth Creek maintain minimum setbacks and preserve stream bank vegetation.

- II.4.A.a.1 The Town shall regulate development in flood plains and near the perimeter of natural water bodies and regulate development in flood areas when there is threat to life or property.
- II.4.A.a.2 The Town shall maintain a flood hazard management program including regulations in the Town Development Code.
- II.4.A.a.3 The Town shall retain, to the maximum practical extent, primary community water courses and bodies in their natural state, through criteria in the Town Development Code. Creek corridors should be carefully identified, corridor setbacks established, and strict regulations precluding riparian vegetation removal and creek regime modification should be followed.

The implementation measures in the Updated Plan serve to guide the design of structures within flood hazard areas. With these implementation measures and compliance with all applicable federal, state and local design requirements, including FEMA design requirements, structures within flood hazard areas would not impede or redirect flood flows.

Mitigation Measures

The implementation of the Updated Plan would not result in the placement of structures within a 100 year flood hazard area that would impede or redirect flood flows. Therefore, no mitigation measures are required.

Level of Significance After Mitigation

Impacts with regard to flooding as a result of the placement of structures within a designated flood hazard area would be less than significant.

***Issue 4.6-8:** Would development associated with implementation of the Updated Plan result in exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?*

Discussion: As discussed under Issues 4.6-6 and 4.6-7, the Updated Plan identifies several potential flood hazard areas in the Town, including Murphy Gulch and the Mammoth Creek drainage. Potential hazards to residential uses and other structures as a result of development within a flood hazard area would be minimized through compliance with all applicable federal, state and local regulatory requirements and implementation of the Updated Plan's implementation measures. No future dams or levees are anticipated in the Updated Plan. However, if any future dams and levees were necessary, they would be designed to conform to

all applicable safety and design standards of all applicable federal, state and local requirements. All future development within an identified flood hazard area would be subject to the design requirements and regulations set forth by the Town, Mono County and/or FEMA. Any new development placed in a potential inundation zone of a dam or levee would undergo a site-specific analysis to ensure appropriate drainage is in place or would be constructed so that people or structures are not exposed to significant risk of loss, injury or death involving flooding.

Additionally, the Updated Plan contains a number of implementation measures designed to minimize the affects of flooding and emergencies within the Town.

Implementation Measures in the Updated Plan

- I.1.A.a.1 The Town shall require the use of Best Management Practices (BMP²s) during and after construction and development as a means to prevent erosion, siltation, and flooding.

- II.4.A.a.1 The Town shall regulate development in flood plains and near the perimeter of natural water bodies and regulate development in flood areas when there is threat to life or property.

- II.4.A.a.2 The Town shall maintain a flood hazard management program including regulations in the Town Development Code.

- II.3.A.b.5 The Town shall render all available assistance and cooperation in emergency situations to minimize loss of life, injury to persons, and damage to property.

- II.3.A.b.6 The Town shall maintain an Emergency Plan for Mammoth Lakes which sets forth the responsibilities, functions, and operations of the Town government and its interrelationship with other agencies and jurisdictions which provide services during an emergency.

- II.3.A.b.7 The Town shall develop and maintain an emergency notification and information system to minimize loss of life during a time of emergency.

The implementation measures in the Updated Plan serve to reduce hazards to people and structures as a result of flooding. With these implementation measures and compliance with all applicable federal, state and local design requirements, including FEMA design requirements, flooding hazards to people or structures within or adjacent to the Planning Area would be reduced to a less than significant level.

Mitigation Measures

The implementation of the Updated Plan would not result in exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Therefore, no mitigation measures are required.

Level of Significance After Mitigation

Impacts with regard to flooding from failure of a levee or dam would be less than significant.

***Issue 4.6-9:** Would development associated with implementation of the Updated Plan result in construction of new storm water drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?*

Discussion: The SDMP update was completed on May 26, 2005. The updated SDMP provides hydraulic modeling of the drainage system and prioritizes the implementation of storm drainage facility improvements designed to accommodate development under the existing Plan. However, the improvements would be the same under the Updated Plan since the general distribution and types of land uses are the same with regard to runoff issues. All new storm drain facility upgrades or expansion of existing facilities would be subject to compliance with all applicable federal, state and local construction requirements, including the NPDES Program. Additionally, the Updated Plan includes implementation measures to minimize environmental impacts during construction projects, which includes construction of new storm water drainage facilities or expansion of existing facilities.

Implementation Measures in the Updated Plan

- I.1.A.a.1 The Town shall require the use of Best Management Practices (BMP²s) during and after construction and development as a means to prevent erosion, siltation, and flooding.
- I.1.A.a.2. Projects requiring a grading permit shall implement Best Management Practices (BMP²s) and shall be required to control erosion and sedimentation.
- II.3.B.a.1 The Town shall update its development standards as needed to include advances in construction techniques which minimize soil erosion and slope instability.

The implementation measures in the Updated Plan serve to protect the environment from pollutants during construction and post-construction. With these implementation measures and

compliance with all applicable federal, state and local water quality and waste discharge requirements, significant environmental effects would not occur.

Mitigation Measures

The Updated Plan would not result in result in construction of new storm water drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental effects. Therefore, no mitigation measures are required.

Level of Significance After Mitigation

Impacts with regard to construction of new or expanded storm water drainage facilities would be less than significant.

***Issue 4.6-10:** Would development associated with implementation of the Updated Plan result in people or structures being inundated by seiche, tsunami, or mudflow?*

Discussion: The Project would not result in a higher probability of inundation by seiche, tsunami, or mudflow. The project site is not located in an area that would be impacted by a tsunami. The impacts from mudflows are considered to be negligible given the varying topography and heavily vegetated nature of the Planning Area. Any new development placed in a potential seiche inundation zone would undergo a site-specific analysis to ensure appropriate drainage is in place or would be constructed so that people or structures are not exposed to significant risk of loss, injury or death involving flooding.

Mitigation Measures

The Updated Plan would not result in result in people or structures being inundated by seiche, tsunami, or mudflow. Therefore, no mitigation measures are required.

Level of Significance After Mitigation

Impacts with regard to seiches, tsunamis, or mudflows are less than significant.