NEVADA COUNTY GRAND JURY
Eric Rood Administration Center
950 Maidu Avenue
Nevada City, California 95959
Telephone: 530-265-1730
Email:grandjury@nccourt.net

June 15, 2023

Lindsay Romack, Mayor
Truckee Town Council
10183 Truckee Airport Rd

Truckee, CA 96161

Enclosed is a copy of the report prepared by the Grand Jury: **Donner Lake: A Pearl in Peril**.

Please be advised that your response(s) are due on or before September 14, 2023.

This report will be published June 16, 2023, on the Grand Jury's Website at: http://nccourt.net/divisions/gj-reports.shtml.

The California Penal Code (§933.05) prohibits disclosure of any portion of this report prior to its publication by the Grand Jury.

The California Penal Code also requires that responses to Grand Jury reports be addressed to:

The Honorable Judge Scott Thomsen
Supervising Judge of the Grand Jury
201 Church Street
Nevada City, California 95959

To assist you in writing your response we are enclosing a copy of Section 933.05 (a) of the Penal Code. To assist you with responding an electronic formattable copy of this report can be obtained by request from the jury at grandjury@nccourt.com.

The Grand Jury appreciates your cooperation.

Sincerely,

Joe D'Andrea, Foreperson
20222-2023 Nevada County Grand Jury

California Penal Code §933.05 (a) & (b)

(a) For purposes of subdivision (b) of Section 933, as to each grand jury finding, the responding person or entity shall indicate one of the following:

(1) The respondent agrees with the finding.

(2) The respondent disagrees wholly or partially with the finding; in which case the response shall specify the portion of the finding that is disputed and shall include an explanation of the reasons therefor.

(b) For purposes of subdivision (b) of Section 933, as to each grand jury recommendation, the responding person or entity shall report one of the following actions:

(1) The recommendation has been implemented, with a summary regarding the implemented action.

(2) The recommendation has not yet been implemented, but will be implemented in the future, with a timeframe for implementation.

(3) The recommendation requires further analysis, with an explanation and the scope and parameters of an analysis or study, and a timeframe for the matter to be prepared for discussion by the officer or head of the agency or department being investigated or reviewed, including the governing body of the public agency when applicable. This timeframe shall not exceed six months from the date of publication of the grand jury report.

Donner Lake:
A Pearl in Peril

2022-2023 Nevada County Grand Jury

Report Date: May 16, 2023

Release Date: June 21, 2023

Donner Lake: A Pearl in Peril

Summary

Donner Lake is one of the most beautiful lakes in the Sierra Nevada and located within the Town of Truckee which at more than seventeen thousand people is the most populous town in Nevada County. Donner Lake is a mixed residential and business community that attracts tourists, vacationers, and others who seek recreation and unique alpine settings.

A hub for recreation, there are two public beaches and 37 public piers that provide ready access to the lake for sunbathers, swimmers, fishers, paddlers, and other outdoor enthusiasts. The lake holds some of the largest Mackinaw trout in California and is home to brown trout, rainbow trout, and Kokanee salmon. (Lakepedia 2015-2021) (Activities 2023)

The construction of Interstate 80 (completed in 1964) was a significant event affecting the Donner Lake area. Transient human activity and resident settlers have influenced the Truckee and Donner Lake area since before the days of the historic Donner party's trek across the Sierras.

Interstate 80 infrastructure and other building activity in the Truckee area over the past 150 years have placed a burden on the environment, specifically the watershed surrounding Donner Lake. Runoff and erosion associated with steep slopes above and below Interstate 80 have created dangerous conditions and ongoing challenges for residents living below the interstate as well as negatively impacting the health of Donner Lake.

Within the circumference of Donner Lake, one hillside stands out as the steepest and most lightly vegetated. It is made up of the most erosive type of rock in the area. It is ranked in the highest categories of risk for erosion and landslides, and it is the focus of this report.

Decades of citizen complaints and critical observations of others have focused on Interstate 80 drainage design and infrastructure being unable to adequately manage stormwater and spring-melt runoff in the Donner Basin area. These conditions have damaged roads, homes, utilities, stormwater management facilities, and imperil Donner Lake.

Challenges with the water quality of Donner Lake have been known since 1978, or earlier. Beginning in 2011 the Environmental Protection Agency classified the lake as an impaired water due to priority organics including PCBs, Chlordane, and Arsenic.

This has resulted in fish consumption guidelines published by the California Office of Environmental Health Hazard Assessment. However, the lake is considered safe for swimming, boating, kayaking, etc.

The Nevada County Grand Jury's investigation has produced evidence that most stakeholders agree the hillside that is the focus of this report has created problems that endanger Truckee residents and Donner Lake. All interviewed are willing to cooperate and collaborate to address the challenges.

All interviewed agreed addressing the interrelated issues will require not only securing funding but a commitment to collaboration and cooperation among local, county, regional, state, and federal agencies.

The Town of Truckee has made protecting the environment a priority. The town's forward-looking 2025 and 2040 General Plans both contain action items for improvement. There are non-profit agencies in the Donner Basin, such as the Truckee River Watershed Council, and the Donner Lake Interagency Partnership for Stewardship, that focus on environmental projects improving the Basin's lands and waters.

The Grand Jury recommends Truckee assume a leadership role and establish a partnership with the County of Nevada and Donner Lake Interagency Partnership for Stewardship to convene a consortium of stakeholders dedicated to identifying and implementing solutions to the water-quality issues facing Donner Lake and the associated risks to people and property as identified in this report.

Table of Contents

Approach

The Nevada County 2022-2023 Grand Jury (Grand Jury) used the following methods in conducting the investigation for this report:

- Reviewed documents from a variety of sources including Nevada County (County), the Town of Truckee (Town), local and regional agencies, and the State of California.
- Reviewed communications including emails, reports, and transcribed notes.
- Reviewed publicly available documents.
- Interviewed local government officials, Nevada County residents and others with knowledge of the matters of concern to the Grand Jury.
- Reviewed complaints submitted to the Grand Jury.
- Observed areas of interest and concern to the Grand Jury.

Background

The Grand Jury received citizen complaints associated with both runoff from Interstate 80 (I-80) and the maintenance and repair of a residential road in the path of the runoff. These and related issues were found to create significant risk for the homes and residents of this road and a section of Donner Pass Road, as well as for other residents and visitors of Donner Lake, the Town of Truckee (Truckee), and the ecosystem of Donner Basin and the Truckee River Watershed.

This report focuses on two primary issues: 1) the sedimentation and pollution of Donner Lake as a result of stormwater and spring-melt runoff, topography, soil type, and naturally occurring pollutants, and 2) a residential community and undergrounded town utilities in the bullseye of one of the steepest, most erosive, and dangerous hillsides in the immediate circumference of Donner Lake.

The location specific to this report, 1,500 feet of steep hillside assessed to be at the highest level of risk for erosion and landslides, a location that carries polluted runoff from I-80.

Issues of concern include:

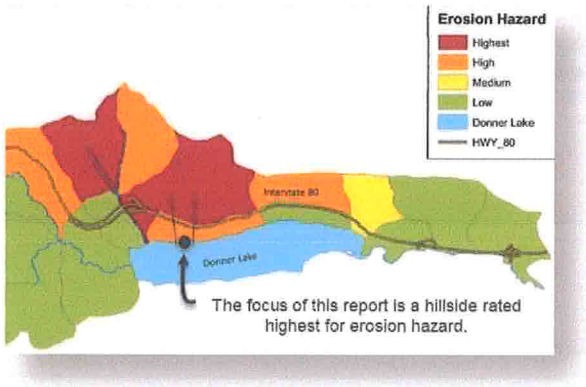
- 1,500 feet of hillside erosion and runoff
- I-80 stormwater drainage
- The safety of residents who live on the two roads at the bottom of the hillside
- Critical water, gas, and electric utilities that service more than 1,000 residents
- Lack of road maintenance
- The health of Donner Lake
- The risk to residents and visitors who enjoy its waters for recreation

These will be addressed in the discussion section that follows.

Discussion

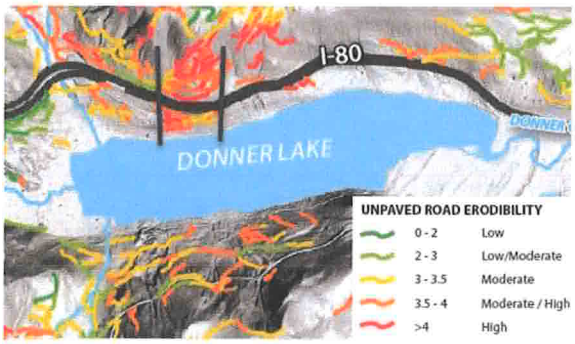
Hillside Erosion and Runoff

Donner Lake is the key feature in Donner Basin, a 29.5 square mile sub-watershed located just east of the Sierra Nevada crest. It is part of the Truckee River watershed.



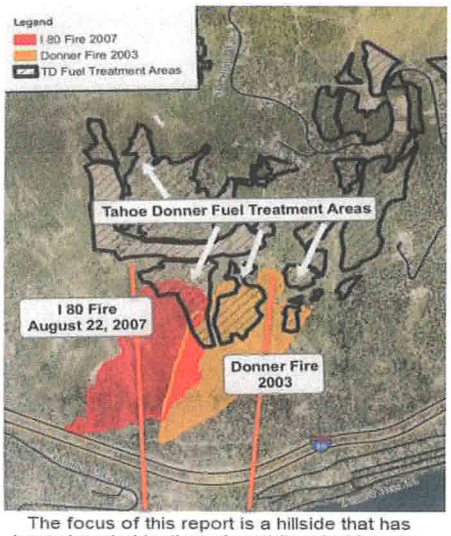
Donner Lake is managed as a water supply reservoir for recreation, municipal, industrial, irrigation, and hydropower use. The lake feeds Donner Creek, which is then joined by the basin's largest tributary, Cold Creek. Donner Creek flows into the Truckee River another 1.5 miles downstream. (TRWC, Donner Basin Assessment Final Report 2016)

In the immediate vicinity of the lake, the highest erosion hazard exists on the north side of Donner Lake, above I-80. The focus of this report is a location where the most erosive soils coincide with the steepest and most barren slopes.



The focus of this report is a hillside that contains the lake's highest concentration of unpaved roads.

This location has the highest density of backcountry roads. These destabilize hillsides and contribute large amounts of sediment to runoff. (TRWC, Donner Basin Assessment Final Report 2016)



The focus of this report is a hillside that has been denuded by three forest fires in 63 years. (1960 Donner Ridge Fire not shown.).

Additionally, three fires have burned through this area in the last 60 years. In 1960 the Donner Ridge fire, the largest fire in Truckee's history, burned from Donner Ridge to the Nevada border. Two other fires followed, the Donner Fire in 2003, and the I-80 fire in 2007.

Attempted reforestation on the hillside above I-80 after the Donner Ridge Fire was unsuccessful due to the use of non-native plants and trees.

Location of Highly Erosive Rock

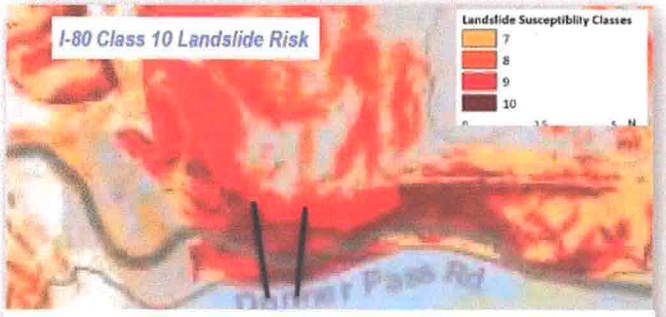
The basin's most erodible types of rocks are found on the hillside which is the focus of this report. These include tuffs, breccias and undifferentiated volcaniclastics which contain a high percentage of erodible fine-grained matrix.

In contrast, the rock types in the highest elevations of Donner Basin are granite and granodiorite, which resist erosion. The northern and southern slopes of the Donner Lake, Gregory Creek and Lakeview Canyon contain a range of basaltic to andesitic rocks of intermediate to high erodibility. (TRWC, Donner Basin Assessment Final Report 2016)

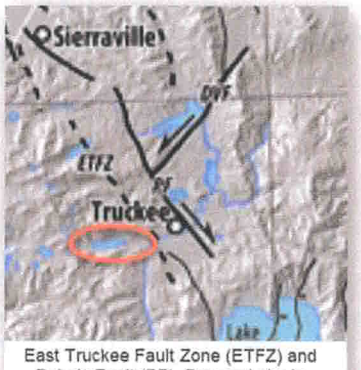
Risk of Landslides

In 2022, this steep, barren hillside of erosive rock and laced with backcountry roads was rated by The Nevada County Transportation Commission (NCTC) to be at the highest level of risk for landslides, Class 10. (NCTC 2022) The graphic on the left below shows this area in deep red, running continuously from high above I-80 down to Donner Lake.

This is not only a risk for Truckee residents, critical Town utilities and the Lake, it puts all traffic and travelers on I-80 at risk.



The focus of this report is a narrow, 1,500 foot band of hillside rated from top to bottom as a Class 10 risk for landslides.



East Truckee Fault Zone (ETFZ) and Polaris Fault (PF). Donner Lake in orange. (Advancing Earth and Space Science, 2014)

Potential for Large Earthquakes

Compounding the high risk of landslides, Dr. Graham Kent, Director of the University of Nevada, Reno Seismological lab, described current conditions in this area as overdue for earthquakes in the 6 to 7 range. (Greyson Howard, Tahoe Quarterly)

John Bellini, a United States Geological Survey geophysicist, stated there are several faults in the Tahoe area, more than appear on most seismology maps. See the image on the right, above.

The Polaris Fault, a primary strike-slip fault, runs through Truckee on a line northwest to Sierraville. The East Truckee normal fault zone runs from just east of Donner Lake northwest

toward Independence Lake. In May of 2021, three earthquakes hit the Truckee area, the strongest registering 4.7. In 1966, an earthquake registering between 5.5 and 6.3 struck the area, its epicenter west of Boca Reservoir. (San Francisco Chronicle, May 7, 2021)

The aggregate of these issues raises concern because they are concentrated on a quarter-mile wide band running the length of a steep 1,500-foot hillside. This area has little vegetation or other impediments to slow water, debris or landslides except I-80 and a two-road residential community.

Past Studies and Recommendations

Runoff and erosion occur naturally during periods of moderate to heavy rainfall and snowmelt. Watershed basins rely on runoff to feed streams and rivers. However, numerous agencies have cited unmanaged runoff and erosion as causes for the degradation of Donner Lake's water quality. Several reports since 2006 have identified conditions affecting Donner Lake. Three reports of note are: [Finding]

- Inland Ecosystems report dated 2006. Report commissioned by Truckee Donner Public Utility District (TDPUD). (Inland Ecosystems 2006) The report was commissioned to assess surface runoff conditions and erosion above West Reed Avenue (sic) in the Donner Lake Watershed.
- Truckee River Watershed Council report dated September 16, 2015, titled: Report Documentation: Water Quality/Erosion Issues. (TRWC, Water Quality / Erosion Issues 2015)
- The Donner Basin Assessment–Final Report, prepared by cbec, inc. eco engineering, 2016. (cbec 2016)

Key observations in the Inland Ecosystems report describe conditions related to runoff and resulting infrastructure damage, stating:

- In a subsection of the report titled "Culvert Runoff from Above and Along Interstate 80," deficiencies of the I-80 infrastructure are noted and include culverts being undercut by erosion. Additionally, the subsection notes that runoff is not contained by the culverts. [Finding]
- In a subsection of the report titled "Hillside Runoff and Drainage onto West Reed Avenue (sic)" noted that "Hillside runoff observed on December 31, 2005, flowed over clogged culverts and across West Reed Avenue undermining water and gas utilities and washing out portions of the road."
  [Finding]

The Inland Ecosystems report outlines an approach to address the issues, stating:

> … a collaborative plan involving Caltrans, the Town, TDPUD and Southwest Gas be formulated and implemented to repair and/or restore culverts and drainage ditches from

under I-80 to West Reed Avenue (sic) and downslope to Donner Pass Road before the 2006/2007 storm season.

Key observations in the Truckee River Watershed Council report of September 16, 2015, describe inadequate or insufficient infrastructure and states:

> High flow volumes stemming from below Highway I-80 have caused channelization and erosion in areas above West Reed Avenue (sic) and have impacted and caused degradation to both public and private properties along areas downslope of I-80.
>
> Natural seeps/springs are present below I-80 and above West Reed Avenue (sic) that allow continuous water flow to downslope areas including West Reed Avenue (sic) where there is inadequate infrastructure present to adequately convey water flow to a central stormwater system resulting in overtopping of roadway and degradation to public and private properties located downslope of natural seeps/springs.
>
> Stormwater infrastructure along West Reed Avenue (sic) is inadequate or insufficient to handle large flow volumes from upland areas including the drainage system established below I-80. Specific issues identified include undersized & unmaintained culverts, insufficient or non-existent stormwater drainage ditches, and overtopping or flooding on the local roadway.

This report then offered proposed solutions, stating:

> Enhance treatment of stormwater flowing from I-80 drainage culverts to better infiltrate stormwater at the source or to disperse stormwater flows more evenly across the hillside, rather than sending runoff to existing channel and over exposed bedrock areas where flows and velocity are likely to increase. May entail construction of a large settling basin, or construction of a series of check dams along small, incised channel that currently leads to larger, main channel.
>
> Construct and install an infrastructure system that will adequately handle continuous flows from natural seeps/springs located upslope of West Reed Avenue (sic). Appropriate construction items may include larger sized culverts crossing West Reed Avenue(sic) and a regular maintenance schedule and/or installation of an established drainage channel conveying water to appropriate stormwater infrastructure system. [Finding]
>
> Determine and recognize ownership and responsibility for maintenance and upkeep of Reed Avenue West. Once ownership is determined, seek funding to address infrastructure problems such as undersized, deteriorated, and unmaintained culverts, roadways, and stormwater drainage ditches. Develop solutions that will reduce impact on public and private property areas as well as on local natural resources such as Donner Lake. Once appropriate solutions have been implemented, put in place a clear maintenance plan and establish responsibility for following the maintenance plan and schedule. [Finding]

The three reports document runoff and erosion issues that have been noted by citizens of Truckee for decades.

While there appears to be agreement that these conditions exist, the Grand Jury has found no evidence of significant improvements, either made or planned, for the infrastructure of this area. [Finding]

Impairment of Donner Lake

Sediment from Donner Lake's three feeder streams carries into the lake and combined with hillside runoff have a negative impact on the lake's water quality. The steep hillside on the north side of Donner Lake consists of highly erodible soils. Runoff from heavy storms, rain-on-snow, and spring-melt carry fine sediment and pollutants into Reed Avenue West and Donner Pass neighborhoods before spilling directly into the lake. (cbec 2016) [Finding]

One of the challenges within the Donner Lake ecosystem is chemicals known to be harmful to humans readily sorb (stick to, embed) to sediment such that they are stored and transported with these particles. This contaminated sediment settles in the lake and enters the food chain, and becomes concentrated in the fatty tissues of fish. (Health January 2011) (TRWC, Donner Basin Assessment Final Report 2016)

Stormwater is defined as water from rain or melting snow. It flows down steep hillsides, from rooftops, over paved streets, sidewalks, and parking lots, across bare soil, and through lawns and storm drains. As it flows, runoff collects and transports soil, pet waste, salt, pesticides, fertilizer, oil and grease, litter, and other pollutants.

In this sub-basin, Donner Lake acts like a natural sediment trap, capturing and retaining most of the transported bed load and suspended load sediments, passing water of relatively low turbidity into Donner Creek. (cbec 2016) While relatively clear, this water can carry significant contaminants.

Donner Basin Potential Pollution Sources

Potential Pollutants	Sources
PCBs	Erosion of contaminated sediments/soils, improper waste oil disposal, road/railroad runoff, power transformers, atmospheric deposition
Chlordane	Erosion of contaminated soils, improperly disposed pesticides, road/railroad runoff, atmospheric deposition
Arsenic	Erosion of natural mineral deposits, pesticides, wood combustion, coal combustion, waste incineration, mining and smelting (unlikely)
Mercury	Erosion of natural deposits, fossil fuel emissions, atmospheric deposition
Sediment	Natural hillslope erosion, logging roads, construction areas, inadequate stormwater drainage infrastructure, in-channel bed mobilization and bank erosion

A History of Environmental Challenges

Since 2011, Donner Lake has been listed as an "impaired water body" by the Environmental Protection Agency under the Clean Water Act (303d) because it exceeds the standards set for

fish-tissue concentrations of PCBs (Toxic Organics), Chlordane (Pesticides) and Arsenic (Metals). (Boards 2014/2016) [Finding] This is primarily a concern for those who eat fish from the Lake, and not those who otherwise enjoy its waters. Fishing is one of the most popular recreational draws of the lake (Westervelt 2015).
This contamination has been a concern for decades:

- 1978: The State and Regional (Lahontan) Water Boards tested fish for contaminants between 1978 and 2000. Results showed that chemicals in fish from Donner Lake, but not other nearby water bodies, repeatedly exceeded human health screening values for "priority organic" chemicals, PCBs and Chlordane. (Boards 2014/2016)

- 2002: The California Department of Fish and Game analyzed fish from Summit Creek, Donner Lake and Donner Creek in 2002, and from 2005 to 2007. They found mercury, PCBs, and the pesticides DDT (and metabolites DDE and DDD), Dieldrin, Chlordane and its constituents. The levels of mercury and PCBs in the fish were of potential health concern.

- 2016: The 2016 Donner Basin Assessment Final Report included mercury in its findings due to the 2011 health advisory regarding levels of mercury in fish tissues. This finding has not been replicated in publicly available literature and more testing is needed.

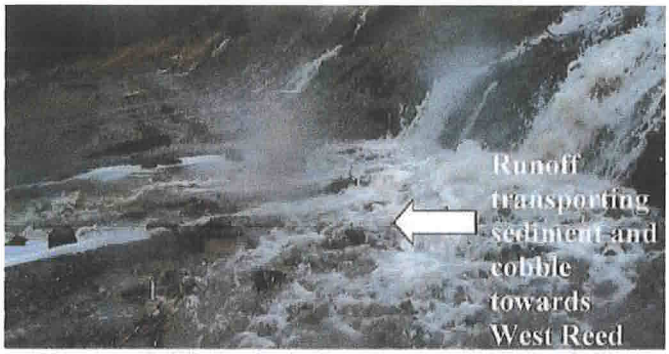
The above cited Donner Basin Assessment Report goes on to note that the presence of arsenic, Chlordane, PCBs, mercury, and excess sediment within the Donner Basin have impacts on the ecological health of Donner Lake, Donner Creek and its tributaries, and the Truckee River as well as the human population relying on these water bodies for recreation and water supply. (TRWC, Donner Basin Assessment Final Report 2016)

All these contaminants have the potential to bioaccumulate in organisms, meaning that relatively limited concentrations present in the environment can concentrate to toxic levels in animal tissues. They are also quite persistent in the environment which leads to continued contamination even in the case of chemicals that are currently out of use (i.e., Chlordane and most applications of PCBs).

It is concerning that two species of native fish, the Paiute sculpin and mountain whitefish have recently been determined to be missing from Donner Lake. Additionally, and largely tied to increases in visitation and boating, waters of the Lake are now home to several invasive species including Asian clams, crayfish and Mysid shrimp. (DIPS 2022) The relationship between sediment-laden waters and the survivability and growth of an invasive organism population is unclear.

Climate Change will Make it Worse

As snowpack formation declines, runoff volumes during the winter months will increase. Warmer temperatures will also likely result in earlier snowmelt and earlier peaks in spring stream flows in the Donner Basin. Additionally, the atmospheric rivers that plagued northern California in 2022/23 will result in significant stormwater runoff, further damaging the hillside. The pollution of this ecosystem and the health and safety risks for the residents of Truckee and its visitors will continue, if not increase, unless remediate action is taken. [Finding]



Water and electric utilities buried under unpaved road without drainage mitigation on hillside below I-80, above Reed Avenue West, Donner Pass Road, and Donner Lake.


Utilities connecting West Donner to East Donner and located along Reed Avenue West compromised by runoff.

The Donner Lake Basin Assessment report states that while returning the watershed to its pre-disturbance condition is highly unlikely, significant opportunities exist for restoration. Stormwater management practices can be implemented along the I -80 corridor to dissipate energy, reduce peak flows and erosion, and capture pollutants. Both Donner Lake and the basin's stream network would benefit highly from projects in upland areas aimed at reducing erosion and treating urban stormwater runoff. Unpaved roads that exhibit ongoing erosion problems can be improved (or decommissioned) and eroding hillslopes can be stabilized to reduce downstream fine sediment delivery. (TRWC, Donner Basin Assessment Final Report 2016) (cbec 2016)

Stakeholders at Work

The Town of Truckee, the Truckee River Watershed Council (TRWC) and a relatively new organization, Donner Lake Interagency Partnership for Stewardship (DIPS), have recognized these issues and are taking steps to correct the problem. The Grand Jury recommends that the hillside highlighted in this report be prioritized as an area of concern due to its unique nature, significant runoff, and the risk to residents, homes, utility infrastructure, and lake water quality. The Grand Jury has learned that state and federal funding may be available for this project. [Finding]

Truckee has taken several actions that prioritize the importance of water quality: [Finding]

- Truckee's 2025 General Plan and the recently announced 2040 General Plan both have addressed water quality issues in Donner Lake, the Truckee River and other waters of the greater Donner Basin.
- The Town has enacted a Clean Water Program. (Truckee, Clean Water Program 2023)
- The Town's Municipal Code, Chapter 11 Stormwater Quality, unequivocally states:

> The Town of Truckee Town Council has determined that the health, safety, and general welfare of the citizens of the Town are adversely affected by the discharge of pollution into the storm drain system and waters of the State. The Town Council further finds that any violation of this title constitutes a public nuisance.

TRWC studies, plans, and executes projects in Donner Basin that reverse the negative impacts of human intervention and restore the quality of the nearby environment.

DIPS, whose mission statement is: "A coordinated stewardship plan to protect and enhance the long-term ecological and economic health of Donner Lake," is a group of entities and agencies that, working together, can make significant improvements against the challenges related to the degradation of the water quality of Donner Lake and its tributaries and outlets.

DIPS participants/signatories include:

- California State Parks
- Tahoe Donner Association
- Town of Truckee
- Truckee Donner Land Trust
- Truckee Donner Public Utility District

- Truckee Donner Recreation and Parks District
- Truckee Meadows Water Authority
- Truckee Sanitary District
- Truckee River Watershed Council, convener/facilitator

DIPS stakeholders include:

- Caltrans
- Lahontan Regional Water Quality Control Board
  [Finding]

The Grand Jury found years of published research expressing concerns related to water quality issues among local environmental agencies, scholarly groups, and the Town of Truckee. While public use of the Lake is increasing, there does not appear to be wide reporting on the issues of water quality in public and/or tourism forums. [Finding]

It is commendable that the Truckee River Watershed Council and the Town of Truckee are taking steps to address sedimentation and pollution in some areas of the basin. However, much remains to be done. The Grand Jury has concluded that fixing the hillside erosion and freeway drainage issue is critical to the health and safety of all Donner Lake residents and visitors. It is also critical to the area's economy as well as the biology and biodiversity of the Truckee River watershed, including Donner Basin. [Finding]

I-80 Drainage: Stormwater and Seasonal Melt

As previously noted, the area central to this report is on the north side of Donner Lake just to the east of Johnson Canyon. It is a steep hillside and narrow canyon above Donner Lake, and I-80. Starting just below Donner Ridge, the hillside runs from an elevation of approximately 7,400 feet down approximately 1,000 vertical feet to I-80 westbound at 6,400 feet, and then another 500 vertical feet down to Donner Lake.

Storm and spring melt runoff runs down the steep hillside and under the Interstate joining with roadway stormwaters passing through two large culverts. This runoff often discharges at high velocity into channels on the mostly dirt and rock hillside below I-80, and continues down to Reed Avenue West, Donner Pass Road, and Donner Lake.

From 1960-1964, Caltrans built I-80 above Donner Lake using drainage design and technology of the time, which is much different than what would be used today. Sixty years after I-80 was built, Caltrans reports on the changing nature of drainage design in its July 2020 Highway Design Manual:

> The fields of hydrology and the hydraulics of highway drainage are rapidly evolving, and it is the responsibility of the engineer to keep abreast of current design practices.

I-80 Drainage Culvert

Channelization from I-80 looking uphill

Heavy channelization from I-80, looking downhill.

In contrast to I-80's 1960 design, which concentrated and then discharged runoff, a current description of roadway drainage design states:

> Road drainage design has as its basic objective the reduction and/or elimination of energy generated by flowing water. The destructive power of flowing water increases exponentially as its velocity increases.
>
> Therefore, water must not be allowed to develop sufficient volume or velocity so as to cause excessive wear along ditches, below culverts, or along exposed running surfaces, cuts, or fills. A road drainage system must satisfy two main criteria if it is to be effective throughout its design life: 1) It must allow for a minimum of disturbance of the natural drainage pattern; 2) It must drain surface and subsurface water away from the roadway and dissipate it in a way that prevents excessive collection of water in unstable areas and subsequent downstream erosion. (FAO 2023)

The focus of this report is a hillside and drainage that is unique in the Lake basin due to the extreme lack of vegetation, its length and steepness, its erodability, and the concentration of freeway drainage all funneling stormwater (sediment and pollutants) runoff down to and sometimes into the homes of the residents of Reed Avenue West and Donner Pass Road, shown in orange, and then into Donner Lake.

Caltrans' July 2020 Highway Design Manual also states,

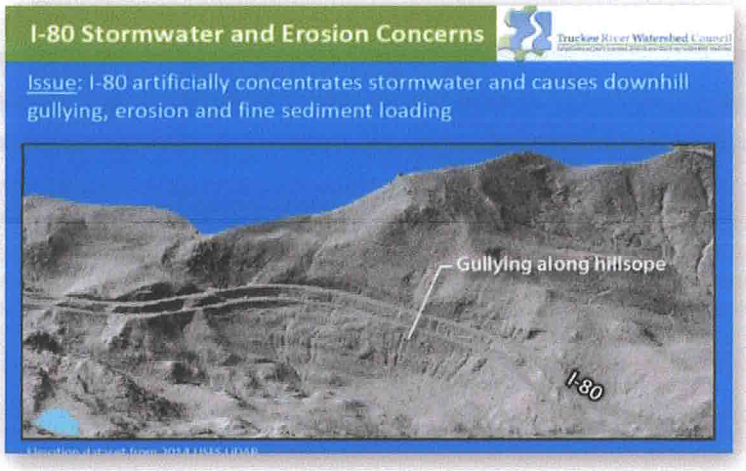
> Drainage design criteria should be selected that are commensurate with the relative importance of the highway, associated risks, and possible damage to adjacent property. The objective of drainage design should be to provide optimum facilities considering function versus cost rather than to just meet minimum standards.

A 2016 Proposal

The Donner Basin Watershed Assessment Report of 2016 recommended several approaches to the challenges of sediment- and pollutant-laden runoff, among them a project for the hillside upon which this report focuses.

> Location
> The I-80 corridor, particularly in steeper portions of Donner Basin (*i.e.*, those west of the eastern end of Donner Lake).
>
> Project Description
> To address the concentration of runoff and associated erosion problems, small-scale stormwater management or "Best Management Practices" (BMPs) should be installed at the outlets of stormwater culverts. Where space is available, small settling basins or infiltration features should be developed. In other locations where little to no space is available, energy dissipation devices, slope drains, "hydro brakes" and other BMPs could be pursued.

Problem



In many locations, the construction of I-80 resulted in the artificial concentration of runoff from uphill areas into stormwater drains and culverts passing under the highway. Combined with increased runoff volumes from the paved road surfaces, this concentrated stormwater causes hillslope erosion problems and gullying, and carries pollutants from the roadway to downstream channels and Donner Lake. Hillslope erosion and gullying are worst in areas with steep slopes and highly erodible soils.

Benefits

Projects will reduce the concentration of stormwater on the downhill side of I-80. In turn, this will reduce the hillslope erosion and gullying that currently occurs in some areas thereby reducing the fine sediment loading to tributaries and Donner Lake.

The conditions discussed throughout this report endanger the safety and property of Truckee residents living on Reed Avenue West and Donner Pass Road. Further, they contribute to the petroleum and chemical product contamination and sediment yield of Donner Lake. This is a detriment to all Donner Lake residents and visitors, as well as to the overall health of the Truckee River ecosystem into which Donner Lake drains.

Critical Town Infrastructure

In 2002, the Town authorized TDPUD to dig a trench through the asphalt roadway, the length of Reed Avenue West, and install gas and water lines to connect the 1,000 or more residents of West Donner to the Towns utility infrastructure. At the same time, electric and water connecting utilities were buried on the hillside just upslope of the road and below I-80. Sewer lines are also present under Reed Avenue West as documented in Shaw Engineering drawings from October 2002. (Engineering 2002) [Finding]

Water, Gas and Electric Connecting East Donner to West Donner

Utility infrastructure on Reed Avenue West

The existing infrastructure for Reed Avenue West will be at risk if the hillside-drainage issues remain unattended. The risk is to the health and safety of Truckee residents and visitors. [Finding]
(Resolutions 1924) (Company 1924) (Law 2018) (CEB 1943) (Supervisors 1960)

(Truckee, Meetings and Minutes 2023)

The Road that Slipped Through the Cracks

Two residential roads lie at the bottom of the hillside and directly in the impact zone this report describes. This includes homes located on a section of Donner Pass Road and the length of Reed Avenue West.

Donner Pass Road is maintained by the Town. Reed Avenue West is not maintained. Due to the location of the road, this is an important issue. Responsibility for maintaining Reed Avenue West has been debated between the residents of the road and the Town since the time of the incorporation of the Town in 1993. As a result, little has been done to provide for its upkeep.

Reed Avenue West plays a major role in allowing stormwater from the hillside and I-80 to enter Donner Lake. It is in a continual state of disrepair, cracked and crumbling, and degrading with time. Lateral drainage is nearly non-existent, culverts are crushed and blocked with debris, and driveways connect directly to the road with no underlying water conveyance.

Stormwater from the hillside moving down from Reed Avenue West onto Donner Pass Road and into Donner Lake

The volume and velocity of runoff from the hillside and I-80 seasonally overwhelm Reed Avenue West, which further degrades its surface, adds pollutants to stormwater, and threatens utilities buried under its length. Sometimes, stormwater runs into and through the homes of residents who live on this road.

The Grand Jury's focus is on looming risks for a major California interstate, the homes and residents of the community that lies below, and the health of Donner Lake.

The Town must decide on repair and maintenance of the road, but the Jury believes that funding that addresses hillside issues—erosion, unchecked runoff, utilities, human safety, and pollution—must also address the Reed Avenue West problems. [Finding]

There are good reasons why the responsibility for the maintenance of this road has been argued. While the road was approved as a public highway in the Green Point subdivision almost 100 years ago, the process for cities and counties adopting roads has changed much since then. Additionally, some County records dating back this far are missing and the language and terminology used to describe roads is sometimes confusing. This may have in 2002 led to a town attorney advising "abandonment of any interest the Town may have in the street," and in 2003, the Town Council declaring Reed Avenue West to be private road. The Town currently recognizes it as an unmaintained public right of way.

Because Reed Avenue West is an important part of the solution to the problems that are the focus of this report, some background on the road's acceptance and the Town's incorporation is useful.

Nevada County – Before Truckee's Incorporation

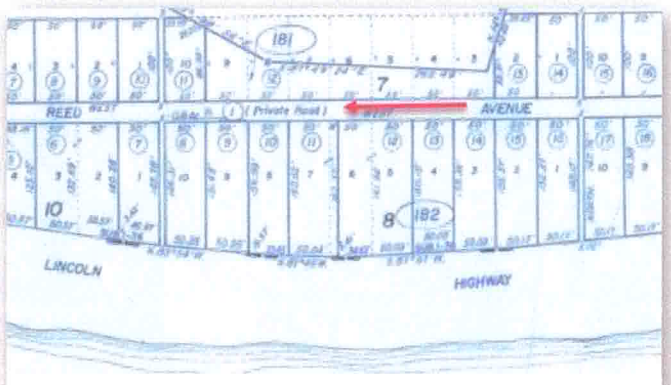
This Grand Jury has found significant evidence that shows Nevada County held Reed Avenue West in the Green Point subdivision as an unmaintained County Road from 1924 until the Town incorporated in 1993, taking ownership. This evidence includes records from the County Assessor's Office and other County records.

In 1924, a unanimous vote by the Nevada County Board of Supervisors (BOS) approved the dedication of Reed Avenue West in the Green Point subdivision as a public highway. At that time, dedication of a road also meant acceptance of a road.

As evidence of its public road status, East Reed Avenue, located in the adjacent Lakeview subdivision, was dedicated (and thereby accepted) by the BOS in 1919. In 1960, the BOS voted to abandon East Reed Avenue, a vote that could only have occurred if the road had been previously accepted. In contrast, Reed Avenue West has never been abandoned by the County.

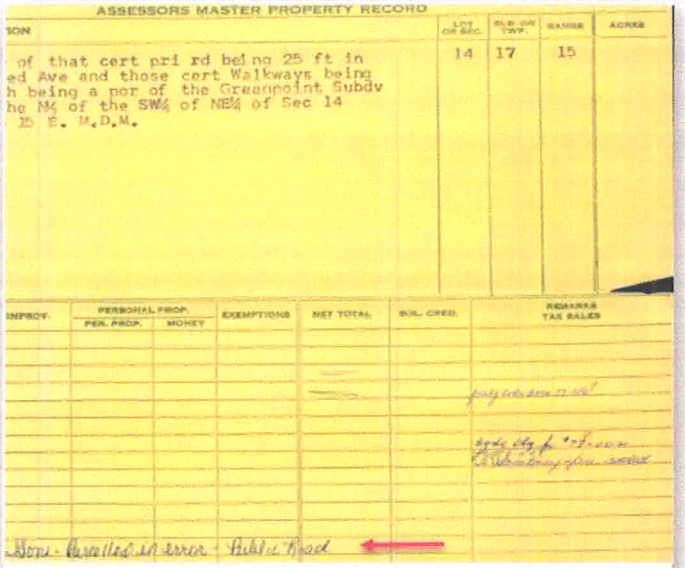
The Jury also found that the County identified an error in record keeping related to the Master Property Record associated with Reed Avenue West.

The 1962 Assessor Map page had erroneously shown the street with its own parcel number and labeled as Private.



The 1962 Assessor Parcel Map showing Reed Avenue West as Parcel #1, and shown as private.

The 1973 Assessor's Master Property Record makes the correction, using the words, "Parceled in Error—Public Road".


ASSESSORS MASTER PROPERTY RECORD

of that cert pri rd beg ng 25 ft in
ed Ave and those cert Walkways being
h being a por of the Greenpoint Subdv
he N½ of the SW¼ of NE¼ of Sec 14
E. M.D.M.

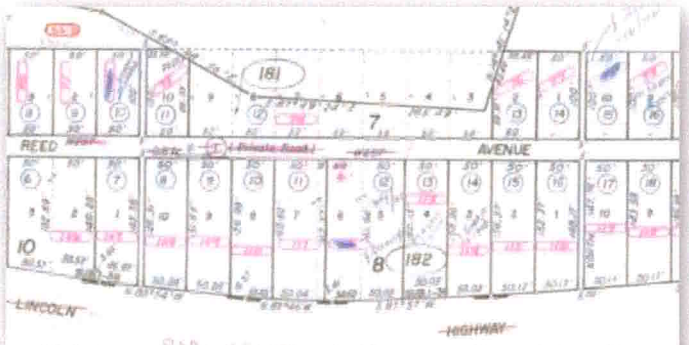
14 17 15

IMPROV. | PERSONAL PROP. PER. PROP. | MONEY | EXEMPTIONS | NET TOTAL | BUS. CRED. | REMARKS TAX SALES

Parcel Parceled in Error Public Road

1973 Master Property Record noting at the bottom of the document, "Parceled in Error - Public Road."

This correction is also reflected on the 1973 Assessor Map.



1973 Assessor Map with handwritten corrections striking the parcel number and private road designation.

Truckee's 1993 Incorporation and a Focus on Roads

In large part, Truckee was successful in receiving voter approval to incorporate on the campaign promise that if tax dollars were kept locally, snow removal, road maintenance, and land use planning would be improved. Kathleen Eagan, Truckee's first mayor, stated:

> The fundamental issues underpinning the people's desire to incorporate centered on two things: the belief that Nevada County was out of touch with interests of the Truckee community and that the county was receiving more locally generated revenue than it was delivering back in the form of services. Particular areas of dissatisfaction were the level of service from Nevada County in snow removal, road

maintenance, and land use planning. (Peacock 2021)

Nevada County's Local Agency Formation Commission (LAFCo) oversaw the Town of Truckee's incorporation in 1993. The County Board of Supervisors formalized the incorporation of Truckee by approving LAFCo resolution 92-06. That resolution specifically addressed roads:

> All County roads, storm drain facilities, easements, and rights-of-way within the boundaries of the new town shall be transferred to the Town and become the responsibility of the Town.

That is consistent with California Street and Highway Code section 989 (amended 1991):

> 989.(a)(1). Upon the incorporation of a city or upon the annexation of territory to a city, all right, title and interest of the county, including the underlying fee were owned by the county, in and to any county highway within the territory involved, which had been accepted into the county road system pursuant to Section 941 shall vest in the city and shall thereupon constitute a city street. (2) All right, title, and interest of a county in and to any county highway included within territory heretofore incorporated as a city or annexed to a city is hereby determined to have vested in the city as a city street. (Information, Street and Highway Codes 941 a-d 1935)

As part of incorporation, LAFCo commissioned a "Comprehensive Fiscal Analysis and Initial Environmental Study." The study specifically noted that the roads that were becoming Truckee's responsibility were in poor repair:

> The Town Council (Truckee) should be alert to the possibility that significant investment may be necessary to bring road and the drainage systems up to sustainable standards. In some cases, e.g., road maintenance and snow removal, the revenue base of the new Town was sufficient to provide a somewhat higher Level of Service than is currently provided by Nevada County.
>
> County Department of Transportation officials have warned that the current maintenance effort on the roads in Truckee is substantially below that needed to keep the roads from deteriorating. As a result, the roads are, for the most part, in poor condition and getting progressively worse. At some point the roads will become nearly impassable or unsafe, necessitating a major expenditure or reconstruction.

Post Incorporation

After incorporation, the residents of Reed Avenue West and the Town began to debate whose responsibility it was to maintain the road. Given the incorporation campaign and LAFCo comments, residents hoped their road would be included in the Town's snowplowing and maintenance efforts.

Due to the poor conditions of the road, several of the residents along the road formed a group to formally bring this issue before the Town Council. Efforts were made to form an assessment district with the assistance of the Town, who commissioned a study to identify improvements. (Engineering 2002). Those efforts failed due to a lack of voting majority among all the road's residents.

For twenty years, the citizens have expanded their efforts for attention to road and drainage issues to include appeals to the Lahontan Water Board, Caltrans, Truckee Donner Public Utility District (TDPUD) and LAFCo.

Conclusion

The Grand Jury found evidence that all stakeholders interviewed agree there are problems and are willing to work together to find a solution. This will require not only securing funding but a commitment to collaboration and cooperation among local, county, regional, state, and federal agencies. [Finding]

The Grand Jury recommends that the Town of Truckee assume a leadership role and partner closely with Nevada County and DIPS to convene a consortium of stakeholders dedicated to identifying and implementing solutions to the perils facing Donner Lake and the associated challenges identified in this report.

The Grand Jury finds that solutions should address the following conditions because they are related and inseparable.

- A largely barren hillside of highly erosive rock
- I-80 outdated drainage design negatively impacting the highly degraded hillside
- Polluted stormwater runoff harming the water quality of Donner Lake
- High risk of landslides, including those caused by earthquakes
- High volume and velocity of runoff damaging integrity of hillside roadways
- The non-functioning state of lateral drainage on Reed Avenue West
- Runoff threatening utility infrastructure relied on by thousands of residents

An effective and lasting solution will address all these factors. Identifying and implementing solutions will take a consortium of local and state governments, private sector agencies and organizations working together. [Finding]

Findings

The Findings represent the Grand Jury's conclusions based on the facts in the Discussion Section. The Findings provide the basis for the Grand Jury's Recommendations. Links to corresponding Facts and Recommendations are provided below.

The Grand Jury finds and concludes that:

Find 1	While there are several sources of significant stormwater runoff into Donner Lake, there is no evidence of a concerted effort by stakeholders to address stormwater runoff in the area of this report's focus.	**Fact 9** **Fact 16** **Rec 1** **Rec 2**
Find 2	Agencies, local governments, and organizations interviewed were all willing to contribute to a consortium convened to address the issues on the hillside affecting Donner Lake, area residents and visitors.	**Fact 26** **Fact 27** **Rec 1** **Rec 2**
Find 3	For successful strategies to be implemented, Caltrans and Lahontan must be part of the consortium and solution.	**Fact 5** **Fact 15** **Rec 1** **Rec 2**
Find 4	There are no entities that regularly test and report on the water quality of Donner Lake.	**Rec 4**
Find 5	The Town of Truckee is taking a leadership role in shepherding town projects with an eye towards sustainability and minimizing negative effects on the environment.	**Fact 13** **Fact 14** **Rec 3**
Find 6	Town of Truckee's strategic interest in water quality, stormwater management and environmental sustainability is key to long term planning.	**Fact 12** **Fact 17** **Rec 3**
Find 7	The pollution of this ecosystem and the health and safety risks for the residents of Truckee and its visitors will continue, if not increase, unless remediate action is taken. Atmospheric rivers that plagued northern California in 2022/23 will result in significant stormwater runoff, further damaging the hillside.	**Fact 1** **Fact 2** **Fact 10** **Fact 11** **Fact 12** **Rec 2** **Rec 3** **Rec 4**

Find 8	Fixing the hillside will improve the water quality of Donner Lake.	Fact 4 Fact 18 Rec 3
Find 9	Inadequate infrastructure, insufficient maintenance, and neglected repairs could lead to disruption to utilities installed in Reed Avenue West and the hillside. This could result in significant health and safety issues to thousands of Truckee residents and visitors.	Fact 6 Fact 19 Fact 25 Rec 3
Find 10	A new rationale exists for the Town to reevaluate its long-term position on Reed Avenue West maintenance and repair.	Fact 24 Rec 3
Find 11	Issues related to the proper designation, repair and ongoing maintenance of Reed Avenue West are part of a larger concern.	Fact 7 Fact 8 Rec 3

Recommendations

The Recommendations represent the Grand Jury's solutions to the issues identified in the Findings. Links to corresponding Findings are provided below.

The Nevada County Grand Jury recommends that:

REC 1	The Town of Truckee initiate a partnership with the County of Nevada and DIPS, for the purpose of convening a consortium including but not limited to: • California State Parks • Tahoe Donner Association • Truckee Donner Land Trust • Truckee Donner Public Utility District • Truckee Donner Recreation and Parks District • Truckee Meadows Water Authority • Truckee Sanitary District • Truckee River Watershed Council, convener/facilitator • Nevada County Transportation Commission • Caltrans • Lahontan Regional Water Quality Control Board	**Find 1** **Find 2** **Find 3**
REC 2	The Town of Truckee, Nevada County and DIPS establish an initial mission and charter for the consortium that should: • Address the significant risks to the safety of Truckee residents, their homes, critical utilities, and importantly, the health and sustainability of the ecological and economic engines of Donner Basin. • Seek and secure the funding to engineer and build the infrastructure necessary to manage the excessive runoff from the hillside and interstate down to Donner Lake. • Establish a working relationship with Lahontan and Caltrans. This is critical to the success of the Consortium's mission.	**Find 1** **Find 2** **Find 3** **Find 7**

REC 3	The Town of Truckee, in collaboration with residents of the hillside and adjacent areas, should identify long-term maintenance and repair solutions that can be put in place after the infrastructure issues are resolved. The Town and the residents should implement solutions that take into consideration: 1) Critical utilities embedded in Reed Avenue West 2) Long-recognized pollution to Donner Lake 3) Ongoing maintenance and repair are critical to preserving the effectiveness of upgraded infrastructure 4) Town of Truckee's strategic interest in Water Quality, Stormwater Management, and environmental sustainability has evolved and is key to long term planning	**Find 5** **Find 6** **Find 7** **Find 8** **Find 9** **Find 10** **Find 11**
REC 4	DIPS and the Truckee River Watershed Council should work with Lahontan Regional Water Quality Board to establish a comprehensive, regular testing and monitoring program focused on water quality of Donner Lake.	**Find 4** **Find 7**

Request for Responses

Pursuant to Penal Code section 933.05, responses are required from the following:

- Nevada County Board of Supervisors:
  Findings 2 and 3
  Recommendations 1 and 2
  Responses due within 90 days

- Truckee Town Council:
  Findings 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
  Recommendations 1, 2, and 3
  Responses due within 90 days

In addition, Pursuant to Penal Code section 933.05, the Nevada County Grand Jury invites responses from the following:

- Donner Lake Interagency Partnership for Stewardship:
  Findings 4 and 7
  Recommendations 1, 2 and 4
  Responses due within 90 days

- Truckee River Watershed Council:
  Findings 4 and 7
  Recommendation 4
  Responses due within 90 days

All responses are to be addressed and sent directly to the Supervising Judge of the Grand Jury:

Scott Thomsen
Supervising Judge of the Grand Jury
201 Church Street
Nevada City, California 95959

Glossary

BMPs	Best Management Practices
BOS	Nevada County Board of Supervisors
Caltrans	California Department of Transportation
County	Nevada County
DIPS	Donner Lake Interagency Partnership for Stewardship
DPR	Department of Public Works
I-80	Interstate 80, Interstate
Grand Jury	2022/2023 Nevada County Grand Jury
LAFCo	Nevada County Local Agency Formation Commission
Lake	Donner Lake
Lahontan	California Regional Water Quality Control Board, Lahontan Region
TDPUD	Truckee Donner Public Utility District
Town	The Town of Truckee
Town Council	Truckee Town Council
TRWC	Truckee River Watershed Council

References

Activities, Tahoe. 2023. *Tahoe Activities: Donner Lake.* https://www.tahoeactivities.com/donner-lake-california/.

Assessor, Nevada County. 1973. "Donner Pines West Subdivision Map."

Boards, CA Water. 2014/2016. "Appendix I: List of Impaired Waters - 303(d)." *CA Water Boards.* https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html.

BOS. 1922. "Fair Statement Proceedings of Board of Supervisors." *The Morning Union.*

cbec, inc. eco engineering. 2016. "The Donner Basin Assessment."

CEB. 1943. "Subdivision Map Act 1893-1943." https://law.justia.com/codes/california/2018/code-gov/title-7/division-2/chapter-4/article-3/section-66477.1/.

Co, Donner Lake Dev. 1947. "Declaration of Special Limitations for Donner Lake Subdivisions."

Commission, LAFCo. 1992. "LAFCo BOS Resolution 92-06." *Truckee Incorporation.*

Company, Donner Lake. 1924. "Donner Lake Company's Green Point Subdivision."

DIPS. 2022. "State of Donner Lake 2021." Truckee.

Engineering, Shaw. 2002. *West Reed Ave Drainage and Paving Improvements.* Reno, NV: Shaw Engineering.

FAO. 2023. "Chapter 4 Drainage Design." *Food and Agricultural Org of the UN.* https://www.fao.org/3/T0099E/T0099e04.htm.

FAQs, West Reed Avenue. 2023. *Town of Truckee Services.* https://www.townoftruckee.com/services/town-information/faq-s#faq_a330.

Hagel, Jan. 1992. *Comprehensive Fiscal Analysis for the Proposed Town of Truckee.* Truckee: LAFCo.

Health, The California Office of Environment. January 2011. *Health Advisory and Safe Eating Guidelines for Fish from Donner Lake (Nevada County, CA).* OEHHA. https://oehha.ca.gov/media/downloads/advisories/donneradvisory.pdf .

Information, CA Legislative. 1935. "Street and Highway Codes 941 a-d." https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=SHC&division=2.&title=&part=&chapter=2.&article=.

—. 1935. "Street and Hwy Codes - 901." https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=SHC&division=2.&title=&part=&chapter=1.&article=.

Inland Ecosystems. 2006. "Report Commisioned by Truckee Donner Public Utility District."

Lakepedia. 2015-2021. *Donner Lake, California: Jewel of the Sierra.* https://www.lakepedia.com/lake/donner.html.

Law, Justia US. 2018. "CA Govt Code 66477.1." https://law.justia.com/codes/california/2018/code-gov/title-7/division-2/chapter-4/article-3/section-66477.1/.

NCTC. 2022. "READY Nevada County, Extreme Climate Event Mobility and Adaptation." Nevada City, 47.

Owners, Green Point Property. 2017. "Damage to West Reed in Truckee."

Peacock, Mayumi. 2021. ""To Be or Not to Be...the Town of Truckee"." *Moonshine Ink.*

Resolutions, BOS. 1924. "Nevada County Board of Supervisors Historical Minutes." July 21. https://nevco.legistar.com/LegislationDetail.aspx?ID=6165160&GUID=0D122EF1-E54C-4914-973B-A34FB5E13111&Options=Text|Attachments|Other|&Search=.

Supervisors, Board of. 1960. "Resolution No. 60-34."

Taber, Stephen L. 1974. "Land Development and the Environment: The Subdivision Map Act Governmental." *McGeorge Law Review.* https://scholarlycommons.pacific.edu/cgi/viewcontent.cgi?article=1540&context=mlr.

Truckee, Town of. 1991. "City / County Roads Maintained." https://portal.laserfiche.com/Portal/DocView.aspx?id=59835&repo=r-6a91ddbc.

—. 2023. "Clean Water Program." https://www.townoftruckee.com/government/engineering-and-public-works/clean-water-program.

—. 2023. *Meetings and Minutes.* https://www.townoftruckee.com/government/town-clerk/meeting-agendas-and-packets.

—. 2003. "West Reed Ownership Update - Town Council Minutes." https://portal.laserfiche.com/Portal/DocView.aspx?id=4761356&repo=r-6a91ddbc.

TRWC. 2016. "Donner Basin Assessment Final Report." https://www.truckeeriverwc.org/images/documents/Donner%20Basin%20Assessment%20presentation%204-25-2016.pdf.

TRWC. 2015. *Water Quality / Erosion Issues.* Truckee: Truckee River Watershed Council.

Westervelt, Amy. 2015. ""Is Something Fishy at Donner Lake?"." *KUNR.* October 15. https://www.kunr.org/energy-and-environment/2015-10-05/is-something-fishy-at-donner-lake.