



2016 Sustainability Report



IVGID Public Works

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Incline Village, NV 89451

yourtahoepace.com/public-works

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Sustainability Report Profile

Reporting Period: **Calendar Year 2016**

- This document is the first IVGID Public Works Sustainability Report.
- This report is a comprehensive document showing sustainability measurements specific to IVGID's water and wastewater systems.
- This report will be used to track and promote successes, failures, and challenges related to sustainability.
- This report will serve as a benchmark for all progress to be compared to in future annual reports.

Highlights

- Public Works electricity consumption (provided by NV Energy) decreased by 9 percent in 2016 compared to 2009 while cost to NV Energy decreased by 38 percent over the same timeframe.
- The Public Works Solar Array has generated 318,550 kWh and avoided 476,000 pounds of Carbon Dioxide over its lifetime.
- The 2016 community-recycling rate in Crystal Bay and Incline Village, Nevada is 20.1 percent of total community waste, compared to the 2016 Washoe County recycling rate of 29.5 percent and the 2016 State of Nevada recycling rate of 22.4 percent.
- 101 Household Hazardous Waste Events were held in 2016 serving 1694 residential customers, properly disposing or recycling 33 tons of Household Hazardous Waste and 29 tons of Electronic Waste.
- The Public Works Waste Not Program reached an approximate total of 387,182 people through public event and advertising outreach in 2016.

Contact the Waste Not Program for more information.

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Executive Summary

Public Works is a part of the Incline Village General Improvement District (IVGID) on the north shore of Lake Tahoe in the state of Nevada. IVGID is a quasi-public agency established under Nevada Revised Statute, Chapter 318 and chartered to provide water, sewer, trash, and recreation services for the unincorporated communities of Crystal Bay and Incline Village, Nevada. It is governed by an elected Board of Trustees which, acting on behalf of the electorate, sets policy and determines strategies to accomplish its Strategic Plan. Both Crystal Bay and Incline Village are located within Washoe County, the entity that had the authority to create IVGID.



The Public Works Department follows leadership directive and policy pursuant to IVGID's Vision, Mission and Values as described in this document. This report will focus on operations as it pertains to Public Works as well as Administration and does not include data for any recreation venues that IVGID owns.

The purpose of the IVGID Sustainability Program is to responsibly manage resources under IVGID's care, protect public health and balance its social and environmental duties to the citizens and community while providing cost-effective services to ratepayers. Sustainability holds importance to Public Works in terms of environmental, social and economic security. This importance is highlighted by Lake Tahoe, the place where we live, work, recreate, visit, and invest.

IVGID Core Values

IVGID's Vision Statement

With passion for quality of life and our environment, Incline Village General Improvement District will enhance the reputation of our community as an exceptional place to live, work, invest, and play.

IVGID's Mission Statement

The Incline Village General Improvement District delivers exemplary recreational experiences and provides the highest level of water, sewer, and solid waste services while striving for fiscal and environmental sustainability.

IVGID's Value Statement

We are dedicated people providing quality service, for our community and environment, with integrity and teamwork.

IVGID's Mantra Statement

One District • One Team

Sustainability Action Plan

Management Approach to Sustainability

The community of Crystal Bay and Incline Village has been committed to protecting local resources for decades. IVGID has developed a strategic plan to define long-term principles and the means to achieve them. An internal Sustainability Framework has been produced to help guide staff and leadership in achieving sustainability goals and principles. The IVGID Board of Trustees approved Resolution Number 1836 in 2015 to direct District staff and future policies to consider sustainability and the environment in District operations, policies and planning (Appendix A). Long Range Principle Number One includes protecting the environment as a strategic goal for long term planning within the District (Appendix B). Furthermore, the directive to form a sustainability committee is encouraging the District to engage more staff and community support for related initiatives, policies and programs.

Public Works is a member of the American Water Works Association (AWWA) and the Water Environment Federation (WEF). Both of these organizations provide information, insight and tools for public utilities to take advantage of to improve their operations while communicating with other colleagues in the industry. AWWA and WEF both provide supporting tools for using sustainability at water and wastewater utilities. This report primarily relies on recommendations from the WEF publication, *Sustainability Reporting Statements for Wastewater Systems*. The AWWA publication, *The Green utility: A Practical Guide to Sustainability* is another source of information that this report relies on for sustainability recommendations at a public utility.

Sustainability is not a new subject for small organizations such as Public Works. The American Water Works Association reports that approximately 20% of utilities report having adopted a sustainability vision or plan (*Landis, 2015*). This benchmark report is very important as Public Works continues to document sustainability information and encourages other IVGID venues to do the same.

Stakeholder Expectations

The IVGID Sustainability Program is designed to engage the organization regarding sustainability measures specific to local venues while upholding community values in environmental stewardship. The residents and visitors of Crystal Bay and Incline Village are the priority stakeholders within the District. Transparency is valuable to the ratepayers. Local and regional regulators should expect Public Works to be compliant with all current and potential standards while becoming a model for the region.

Tahoe Regional Planning Agency

The Tahoe Regional Planning Agency (TRPA) has established the Lake Tahoe Sustainable Communities Program. This program sets target thresholds for Master Plan areas within the Lake Tahoe Basin to consider while evaluating sustainability measurements. The TRPA provides a series of documents to help guide communities within the Lake Tahoe Basin develop sustainability frameworks, visions and action plans.

Sustainability action planning allows the region as a whole to make significant progress in attaining sustainability related goals. Achievement of sustainability related goals helps to protect Lake Tahoe for future generations to enjoy.



IVGID Sustainability Framework

IVGID has developed an internal sustainability framework to help organize sustainability efforts and give staff the necessary tools to achieve sustainability related goals. Four phases divide this framework to facilitate the development and implementation of sustainability initiatives and products. Detailed descriptions of each phase and objectives for those phases are described beginning on the next page.

IVGID Sustainability Framework Goals

- Increase staff, resident and visitor participation and awareness in sustainable activities, energy efficiency, waste reduction and recycling activities.
- Review and upgrade District policies and practices to encourage or require waste reduction, recycling and environmentally preferable purchasing.
- Serve as a model for the region to influence waste prevention, recycling, and procurement efforts among other public agencies, businesses, contractors, residents and visitors.

IVGID Sustainability Framework Phases

Phase I

Phase one has been completed. The purpose of phase one was to create a managing body, with strong purpose and internal support as well as defined roles and operations. The results of phase one are the initiatives enumerated below in addition to the sustainability framework. Furthermore, administrative capacity and support is continually allocated.

- ✓ [Environmental Sustainability Resolution - Resolution #1836](#)

Resolution number 1836 introduces the subject of environmental sustainability to the community and Board of Trustees. This resolution was passed unanimously by the IVGID Board of Trustees on April 29th, 2015. Find this resolution in Appendix A of this document.

- ✓ [Resources and Environment - Long Range Principle #1 \(2015 - 2017 IVGID Strategic Plan\)](#)

IVGID revised its Long-Range Principle #1 on resources and the environment to include stronger language on recycling, waste reduction and sustainability. The IVGID Board of Trustees approved this principle as a part of the Strategic Plan on September 23rd, 2015. Find this principle in Appendix B of this document.

Phase II

The 2016 Public Works Sustainability Report helps to complete phase two as an internal assessment of sustainability measurements within the department. This creates an initial benchmark of data to refer to and build upon in long-term strategies. Phase 2 is research oriented and will establish a sustainability management and tracking system with an initial performance benchmark. The goal of this phase will be to reinforce products and supporting tools that were developed in the previous phase.

- ✓ [Public Works Initial Benchmark Assessment - This Report](#)

- ✓ [Diamond Peak Ski Resort Initial Benchmark Assessment - Sustainable Tourism Operator's Kit for Evaluation or STOKE](#)

The Sustainability Framework is designed to instigate a perpetual process within the organization that consistently evaluates sustainability measurements and goals. Reports produced after the initial benchmark assessment will help the community of Crystal Bay and Incline Village become more resilient to future environmental challenges. Public Works sustainability benchmark considerations are described in subsequent sections of this report.

IVGID Sustainability Framework Phases - Continued

Phase III

Phase three incorporates the build out of products and supporting tools such as the formation of a sustainability committee to help drive employee and customer guidance in sustainability initiatives in addition to policies that require recycling, waste reduction and purchasing protocols for all facets of the District.

Form Sustainability Committee - In Progress

A committee of selected individual staff members from each department or venue will be tasked to meet at least once a month for one hour to discuss, plan, and develop specific projects, initiatives, and opportunities that will improve the District and its venue's sustainability performance overall.

Sustainable Procurement and Waste Reduction Policy - In Progress

The purpose of this initiative is to support and facilitate the purchase of products and services that minimize the harmful effects to the environment from its production, delivery, use and disposition. Therefore, it will be the District's procurement strategy to purchase and use environmentally preferable products whenever they perform satisfactorily and can be acquired at similar total value (cost and quality) within the applicable public purchasing statutes. The Sustainability Committee will review this initiative and the IVGID Board of Trustees will approve the final policy.

Phase IV

Phase four may not be the last phase of the sustainability framework. This phase will have an emphasis on the development and deployment of the sustainability strategy on a longer timeline. Long-term strategies will introduce new initiatives and implement projects that offer solutions to complex and evolving issues while continuing to track progress internally and with outside assistance from certification or assessment entities.

Long-Term Sustainability Strategy

The purpose of this initiative is to set in place action plans that achieve positive results and recognition for sustainability efforts District-wide. Action plans can address target goals for the years 2020, 2035 and 2050 in reduction of Greenhouse Gas (GHG) emissions and overall energy usage as set by the TRPA.

Facility Profile

Main Function, Core Responsibilities, and Services Offered

The Public Works Department provides water and sewer services and manages the Solid Waste Franchise Agreement for the residential and commercial properties of Crystal Bay and Incline Village, Nevada. Public Works also provides engineering, conservation, fleet services, building maintenance, snow removal, and BMP maintenance to our internal customers; Golf, Ski, Recreation, and Administration. Waste Management Inc. provides solid waste services through a franchise agreement.

The District is also responsible to its Federal, State and Local regulatory agencies. The U.S. Environmental Protection Agency regulates the production and delivery of safe drinking water and the proper treatment and disposal of wastewater. The Nevada Department of Environmental Protection (NDEP) and Washoe County Health District (WCHD) administer the laws. This responsibility requires substantial reporting to demonstrate compliance with the laws, such as performing laboratory tests, doing system evaluations, having a watershed protection program, inspecting new construction as well as all the traditional activities to deliver water and treat wastewater.

We also serve contractors, developers, and property owners in plan checks, field inspections, backflow surveys, water right analysis, dumpster enclosures, bear boxes, project management (internal), engineering services (internal), water audits, water conservation education, recycling education, and household hazardous waste disposal.

Important Customers and Stakeholders

The District reads approximately 4,450 meters monthly, billing 4,270 water accounts and 4,170 sewer accounts. Some facilities have multiple water meters such as Championship Golf and some accounts are for water only such as irrigation accounts. The multi-family developments are typically served with one



Water Resource Recovery Facility (WRRF) located at 1250 Sweetwater Road in Incline Village, NV

large meter for all the units in that particular Home Owners Association (HOA). A detailed customer breakdown is presented below:

- Total Accounts Billed: 4270
- Total Water Meters Read: 4450
- Total Irrigation Meters: 89
- Snow Making Meter: 1
- Sewer Only Accounts: 13
- Waste Management directly bills 4,138 residential customers and 275 commercial customers.



Service or Collection Area, Facility Locations, and Infrastructure Inventory

IVGID owns and operates the Burnt Cedar Water Disinfection Plant (BCWDP) located on the North Shore of Lake Tahoe. In order to treat and supply an average of 1 Billion Gallons of water annually our Water Infrastructure Assets include:

- A UV and Ozone Treatment Plant able to treat 8.5 MGD
- 100 miles of Water Mains between 4” to 24”
- 2031 Gate Valves
- 13 Water Tanks with 7 Million Gallons of Storage
- 14 Water Pumping Stations with 26 Pressure Zones
- Service connections to over 4,300 Water Meters
- Total Water Infrastructure Replacement Value: \$275,000,000



IVGID constructed the Wastewater Resource Recovery Facility (WRRF) in 1962. Our Wastewater Infrastructure Assets Include:

- 105 Miles of Gravity Lines and 14 Miles of Sewer Force Main between 6” to 24”
- 1,926 Sewer Utility Holes
- 19 Sewer Pump Stations
- A wastewater resource recovery facility able to treat 2.1 MGD
- 20 miles of Effluent Pipeline to Carson Valley for treated effluent water
- Total Sewer Infrastructure Replacement Value: \$325,000,000



Unique Requirements for Wastewater Processing at Lake Tahoe

IVGID first built a Walker Process Package Treatment Plant (one circular structure with four segments handling the treatment process) in 1962. This treatment plant had a maximum capacity of 0.7 MGD (million gallons per day) with five sewage-pump stations throughout Incline Village delivering wastewater to Sweetwater Road and eventually used on local spray irrigation fields.

The discharge of effluent into Lake Tahoe's waterbody or streams was first prohibited in 1946. A Federal Water Pollution Conference was held in July of 1966 at Lake Tahoe. As a result, all properties are required to have sewer connections and all treated effluent must be exported outside of the Lake Tahoe Basin by 1970 in order to protect Lake Tahoe's water quality and clarity. The Porter Cologne Act and TRPA Compact of 1970 formally prohibit any effluent discharge within the Lake Tahoe Basin.

IVGID met the export requirement in the early 1970s with completion of a twenty-one-mile pipeline that delivered the treatment plant's secondary effluent into the Carson River. NDEP mandated more stringent treatment requirements in 1974 in addition to the Safe Drinking Water Act of 1974 and subsequent reauthorization requirements. IVGID completed construction of the Wetlands Enhancement Facility in Carson Valley for the disposal of the treatment plant's effluent in 1984. This project helped Public Works meet all local, state, and federal requirements and also provides a waterfowl habitat.

The Wastewater Resource Recovery Facility is a biological secondary treatment facility with a rated capacity of 2.14 MGD. Wastewater treatment processes include micro-screening, grit removal, carbonaceous activated sludge, secondary clarification, solids dewatering and sodium hypochlorite disinfection of the effluent. There are nineteen sewage pumping stations delivering raw sewage to the WRRF.



The IVGID Spooner Pump Station (effluent export line pump) blends into its surroundings along Highway 28, south of Sand Harbor Nevada State Park



IVGID Wetlands Enhancement Facility in Carson Valley, NV

Scale of Organization

The IVGID service area is substantially built-out at this point. The Washoe County Assessor parcel database shows that there are approximately 9060 parcels in the service area with approximately 1000 parcels owned by the United States and the State of Nevada that are non-buildable. Approximately 7500 parcels are residential single family and multi-family, 200 parcels are commercial and there are approximately 250 parcels that are undeveloped. The full time population is estimated below 10,000 people with that number increasing to nearly 20,000 people during peak tourism times in the summer months and winter holidays.

This Report

This report strictly examines all Public Works infrastructure, the Public Works Facility at 1220 Sweetwater Road, as well as the IVGID Administrative Office (Anne Vorderbruggen Building) located at 893 Southwood Boulevard. Public Works infrastructure includes the Burnt Cedar Water Disinfection Plant (BCWDP) located at 665 Lakeshore Boulevard, all water pipeline, water pumps, water reservoirs and associated technology as well as the Water Resource Recovery Facility (WRRF) located at 1250 Sweetwater Road, all sewer pipeline, sewer pumps and manholes. The Public Works Facility is comprised of an administrative center, a storage warehouse, a fleet maintenance garage, a buildings maintenance warehouse, a pipeline maintenance warehouse, a wash bay, a vacuum truck (Vactor) garage, fuel pumping station, and a hazardous and electronic waste collection area in addition to various open air and closed storage spaces.



IVGID Public Works Facility located at 1220 Sweetwater Road in Incline Village, NV

Environmental Considerations

Introduction

The most recent Strategic Plan approved by the IVGID Board of Trustees places “Resources and the Environment” as the first Long Range Principle in a series of defined long-term management principles. This principle sets goals for all District departments and venues to begin measuring and tracking their sustainability performance and create a mechanism for implementing sustainability related policies and initiatives with staff and community members. Some sustainability related objectives to that policy include funding for defensible space operations, formation of a District Sustainability Committee and to create an environmentally friendly purchasing policy to be approved by the Board of Trustees. Please see Appendix B for a detailed description of this principle and its objectives. This principle applies to all IVGID departments and venues.

Sustainability metrics within Public Works divisions typically compare standard indicators such as effluent flows and bio-solids generation with resource use such as electricity consumption. The comparison between these indicators allow Public Works to compare our sustainability performance to similar sized utilities. This report is not meant to be a complete inventory of those sustainability indicators but future reports will at least measure natural gas and fleet fuel consumption, landfill bound waste and recycling by volume and certain employee statistics as more information is gathered, organized and interpreted.

A major sustainability indicator that is missing from this report are Greenhouse Gas (GHG) Emissions caused by consumption of natural resources. Greenhouse Gas Emissions include airborne chemicals such as Carbon Dioxide that contribute to global rise in temperatures and changes in climate over time. Methods for estimating Greenhouse Gas Emissions are currently under research for determining the most accurate information at IVGID venues and Public Works. Future reports will track this information as emissions are inventoried.

Finally, all environmental considerations will be under evaluation in comparison to standards set by the U.S. Environmental Protection Agency, Nevada Department of Environmental Protection, Washoe County, and the Tahoe Regional Planning Agency in addition to any other applicable industry standards. Public Works’ performance on these indicators will help determine goals for reducing emissions in future operations or promoting sustainability initiatives.

Bio-Solids

Bio-solids are nutrient rich organic materials produced from wastewater treatment facilities like the one that Public Works operates. Bio-solids can be recycled and applied as fertilizer to improve and maintain productive soils and stimulate plant growth. Effective bio-solids management options help ensure that useful materials are recycled on land at Bentley Ranch in Carson Valley, NV and harmful materials are not released to local water bodies. Bio-solid amounts allow Public Works to compare production versus resource use and can also be used to compare our sustainability performance indicators with similar sized utilities based on metric tons of processed bio-solids.

Bio-Solids (Metric Tons)	Year	
User	2015	2016
Bentley Ranch	285.4	298.5
Total Metric Tons:	285.4	298.5



IVGID Bio-Solids in use at Bentley Ranch in Carson Valley, NV

Effluent Flows

Public Works treats wastewater and ultimately releases treated secondary effluent in Carson Valley, NV. The table below displays the amounts of flow of effluent once it is released back into the environment at three separate locations. The Wetlands Enhancement Facility takes most of this flow especially in the winter, but Clear Creek Golf Course and Carson Valley Ranch also use treated effluent in their operations during the summer season. Effluent flows also allow Public Works to examine production versus resource use compared to other similar utilities.

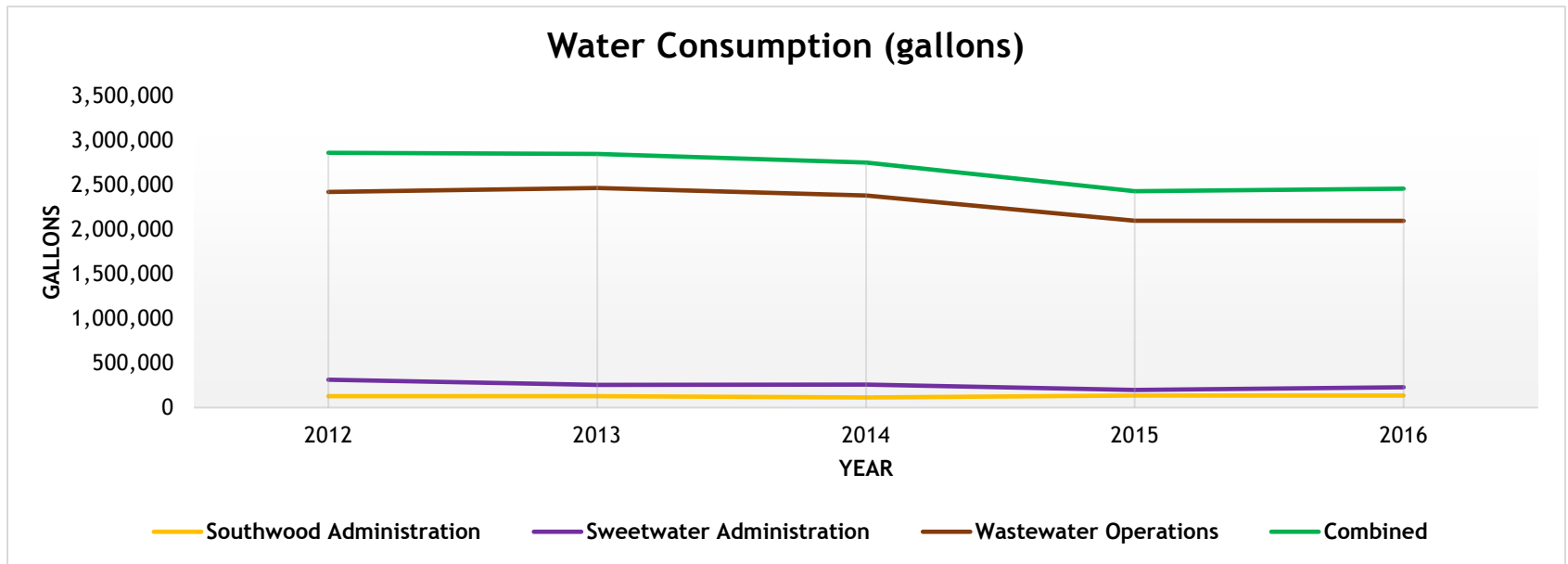
Effluent Flows (Gallons)	Year	
User	2015	2016
IVGID Wetlands Facility	223,029,000	239,678,000
Clear Creek Golf Course	69,941,000	59,456,000
Carson Valley Ranch	35,470,000	47,146,000
Total Gallons:	328,440,000	346,280,000



IVGID Wetlands Enhancement Facility in Carson Valley, NV

Water Consumption

Public Works delivers treated water to its facilities in addition to all other IVGID venues. Water consumption is metered per regulatory code. The Public Works facilities have nine water meters at its properties including the administrative buildings at 893 Southwood Boulevard and 1220 Sweetwater Road, the Water Resource Recovery Facility as well as various pumps throughout Crystal Bay and Incline Village. This data reflects all water use for Public Works operations and does not include any data from irrigation systems or other IVGID venues such as Diamond Peak Ski Resort, Incline Village Golf facilities or Parks and Recreation operations. Water consumption by Public Works has decreased over the past five years. Various improvements to infrastructure at district facilities has allowed regular operations to continue while increasing water-use efficiency. Data for 2013, 2014, and 2015 has been estimated to account for unusual fluxuation in water consumption that occurred due to various capital improvement projects at Public Works facilities.



Year	2012	2013	2014	2015	2016
Southwood Administration	127,070	127,120	113,580	135,110	133,730
Sweetwater Administration	313,138	254,576	256,770	198,047	227,613
Wastewater Operations	2,423,553	2,468,478	2,384,247	2,099,226	2,099,029
Combined	2,863,761	2,850,174	2,754,597	2,432,383	2,460,372

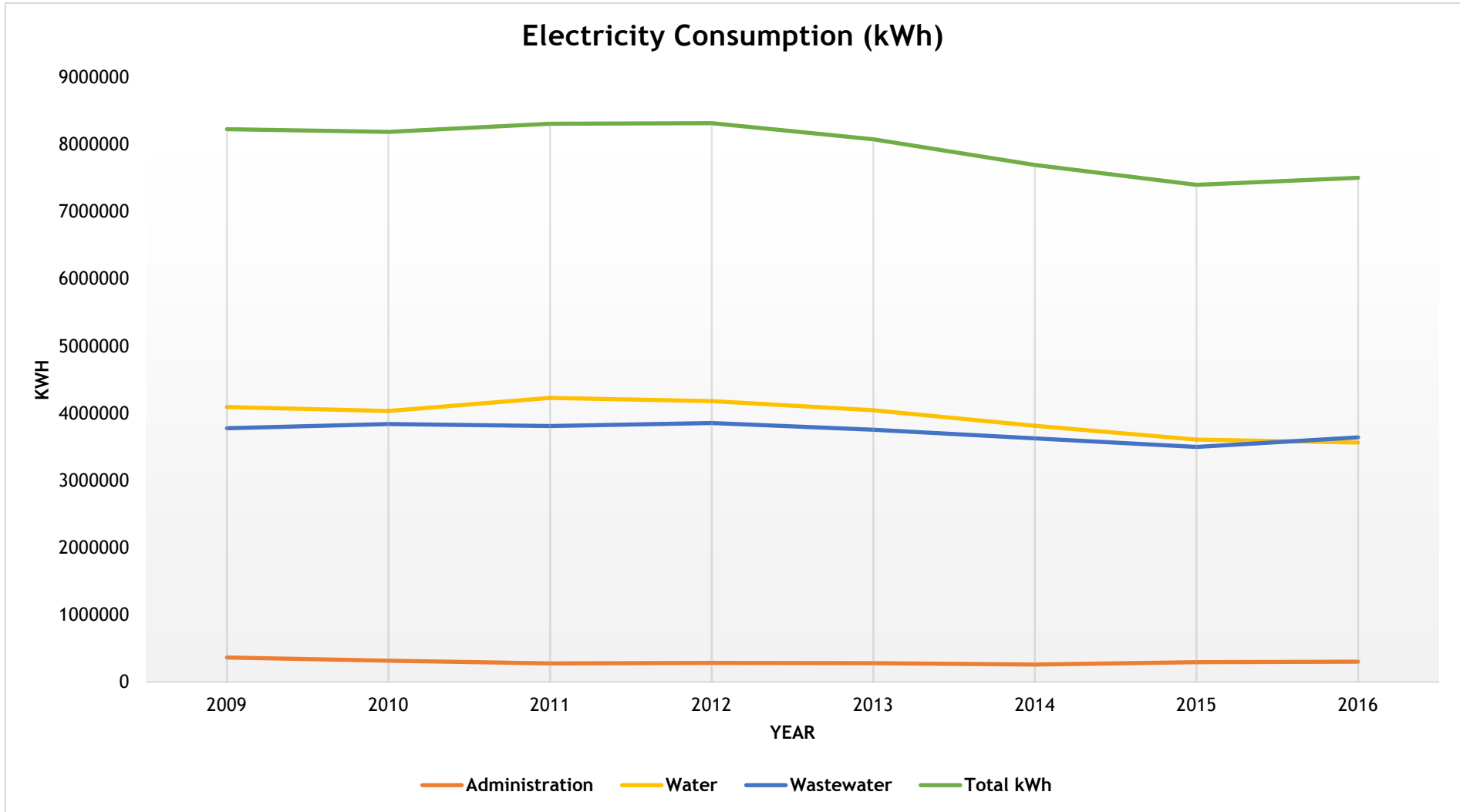
Electricity Consumption

Crystal Bay and Incline Village receives electricity service from NV Energy whose power sources in Northern Nevada include a mix of coal, natural gas and renewable electricity generation stations. The Incline Village General Improvement District does not currently participate in a Renewable Energy Credit (REC) program or any other similar programs. Rooftop solar in the Lake Tahoe Basin can be difficult to achieve with local regulations, but the Public Works Facility does have a small solar array installed on its roof.

NV Energy collects the most accurate electricity data and readily available records go back to 2009. Overall electricity consumption is measured in kilo-watt-hours (kWh) and has shown a decreasing trend since then. New equipment upgrades and revised operational procedures may be contributing to this trend. Public Works electricity consumption was reduced by over 700,000 kWh in 2016 compared to 2009. On average, Public Works electricity consumption has decreased by approximately 100,000 kWh per year since 2009.

Public Works has 36 electrical meters including at water and wastewater pumps, the Burnt Cedar Water Treatment Plant, the Water Resource Recovery Facility, and the administrative buildings at 893 Southwood Boulevard and 1220 Sweetwater Road. These meters do not include electricity consumption for Diamond Peak Ski Resort, Incline Village Golf Facilities, or Parks and Recreation operations.

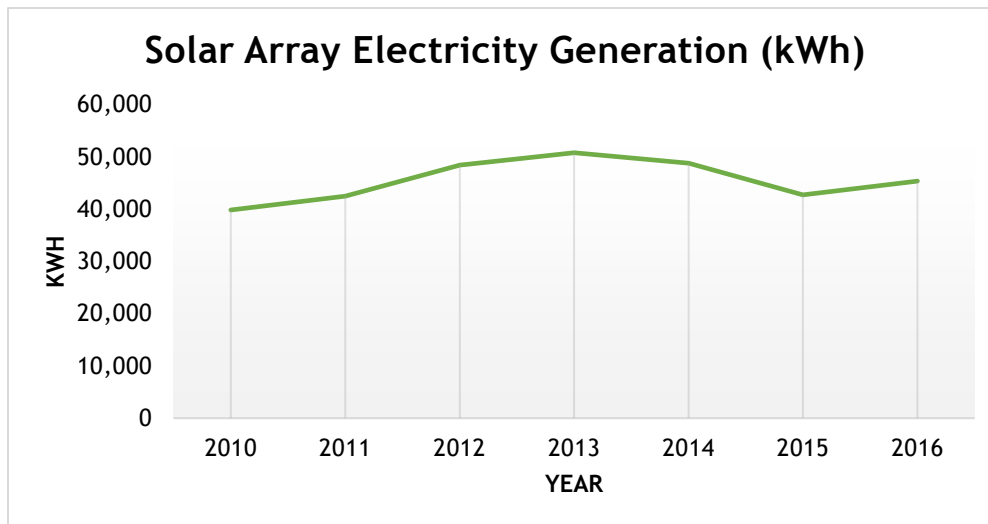
Public Works Total Electrical Consumption by Year			
Year	Total Electrical Consumption (kWh)	Year to Year Consumption Difference (kWh)	Consumption Difference Compared to 2009 (kWh)
2009	8,234,038	n/a	n/a
2010	8,193,527	-40,511	-40,511
2011	8,313,935	120,408	79,897
2012	8,321,749	7,814	87,711
2013	8,082,952	-238,797	-151,086
2014	7,700,473	-382,479	-533,565
2015	7,403,764	-296,709	-830,274
2016	7,509,237	105,473	-724,801
Average:	7,969,959	-103,543	



Year	2009	2010	2011	2012	2013	2014	2015	2016
Administration	363,920	316,000	274,400	284,320	280,720	258,880	293,869	301,307
Water	4,092,456	4,036,261	4,230,002	4,181,633	4,046,362	3,815,001	3,609,908	3,564,799
Wastewater	3,777,662	3,841,266	3,809,533	3,855,796	3,755,870	3,626,592	3,499,987	3,643,131
Total kWh	8,234,038	8,193,527	8,313,935	8,321,749	8,082,952	7,700,473	7,403,764	7,509,237

Public Works Solar Array

The installation of one hundred fifty solar-photovoltaic 205-watt panels on the roof of the Public Works Facility took place in January 2010. Public Works owns one of the largest solar arrays in Incline Village, NV including 2540 sq. ft. of solar panel surface. This electricity generation provides approximately 25% of the power need for the building’s daytime operations. This system functions without battery storage. It is a grid-tied system so any excess energy produced is returned to the main electrical grid via reverse metering. The approximate cost of this project was \$306,000 with \$171,000 funded by District capital and \$135,000 funded by NV Energy’s Solar Generations Program Rebate. An estimated 34 metric tons or 68,000 pounds of Carbon Dioxide emissions are avoided annually by this project. Nearly half a million pounds of Carbon Dioxide emissions into our atmosphere have been avoided since this project was installed.



Solar Array Electrical Generation							
Year	2010	2011	2012	2013	2014	2015	2016
kWh Generated:	39,844	42,504	48,454	50,803	48,814	42,733	45,398
Lifetime Electricity Generation (kWh):	318,550						
*Lifetime CO ₂ Avoidance (lbs.):	476,000						

* = Approximate value to date

Hazardous Waste Disposal

Hazardous waste is unavoidable as treatment plant processes and operational necessities require the use of harsh chemicals, aerosols and paint related materials. Generation of this type of waste comes from the Public Works treatment processes, infrastructure maintenance, recreation venues, as well as the Nevada State Certified Laboratory located at the Water Resource Recovery Facility (WRRF). IVGID is a Small Quantity Generator (SQG) permitted by the Environmental Protection Agency (EPA) due to the amount of hazardous materials that are generated. The table below displays wastes generated by the Incline Village General Improvement District and is managed separately from the Household Hazardous and Electronic Waste Program offered to residents.

District Hazardous Waste Tracking	Business Referred To: Incline Village General Improvement District <u>EPA ID Number: NVR 000 089 532</u>	Activity Status: Small Quantity Generator (SQG)	1250 Sweetwater Rd. Incline Village, NV 89451
<i>Waste Code</i>	<i>Common Name</i>	<i>Weight in Pounds 2015</i>	<i>Weight in Pounds 2016</i>
UN1263	Flammables	950	150
UN2809	Mercury	8	10
UN3266	Corrosive Liquid Basic	12	
UN3266	Corrosive Liquid Acidic	15	
UN1253	Aerosols	15	
UN1550	Waste Aerosols		40
UN2929	Toxic Liquid, Flammable, Organic		50
UN3152	Polychlorinated Biphenyls		100
UN2460	Waste Trichloroisocyanuric Acid		8
UN2920	Waste Corrosive Liquids, Flammable		120
UN2810	Toxic Liquids, Organic		60
UN3264	Waste Corrosive Liquid Acidic, Inorganic		40
Total Hazardous Waste Weight in Pounds:		1,000 lbs.	578 lbs.

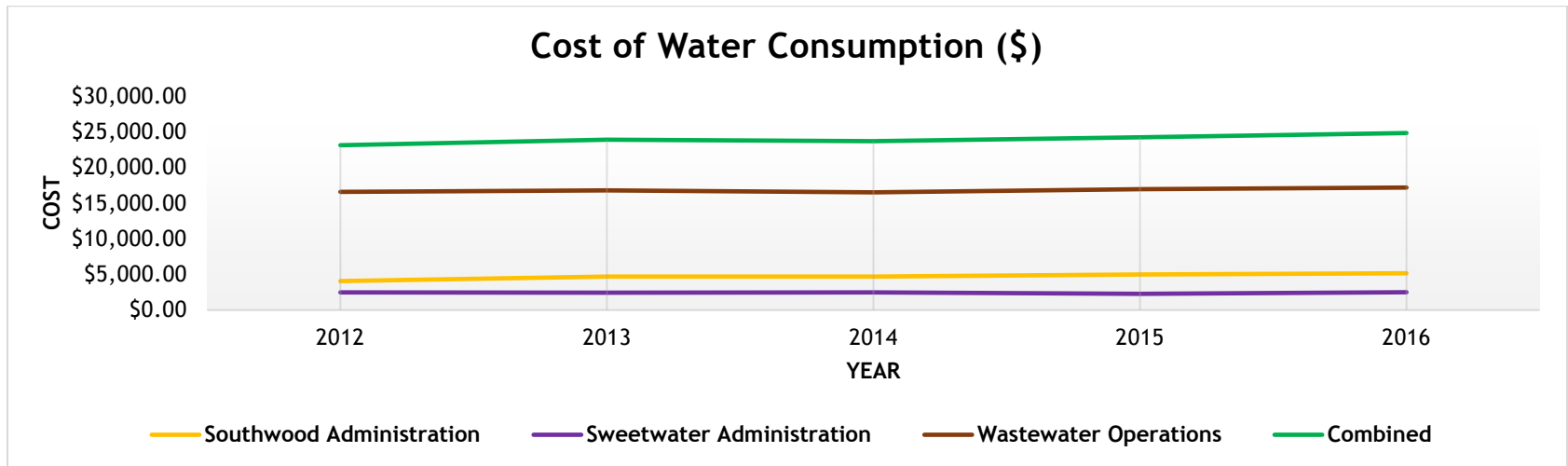
Economic Considerations

Introduction

Economic considerations for Public Works include expenses related to resource use. Basic information regarding the average user as well as environmental compliance spending will be examined in future reports. Detailed financial information for Public Works and IVGID as a whole can be found online at <https://inclinevillagegidnv.opengov.com/transparency>

Water Consumption Cost

Public Works bills all water meters including meters used by IVGID operations. The table below represents the total water consumption cost for all nine water meters that Public Works uses, but do not include water consumption cost for any irrigation systems, Diamond Peak Ski Resort, Incline Village Golf Facilities, or Parks and Recreation operations. Water rates have gradually increased since 2012.



Year	2012	2013	2014	2015	2016
Southwood Administration	\$4,054.50	\$4,700.48	\$4,695.26	\$4,980.49	\$5,148.49
Sweetwater Administration	\$2,474.01	\$2,415.49	\$2,467.47	\$2,267.06	\$2,491.19
Wastewater Operations	\$16,565.84	\$16,766.00	\$16,490.61	\$16,953.94	\$17,161.99
Combined	\$23,094.35	\$23,881.97	\$23,653.34	\$24,201.49	\$24,801.67

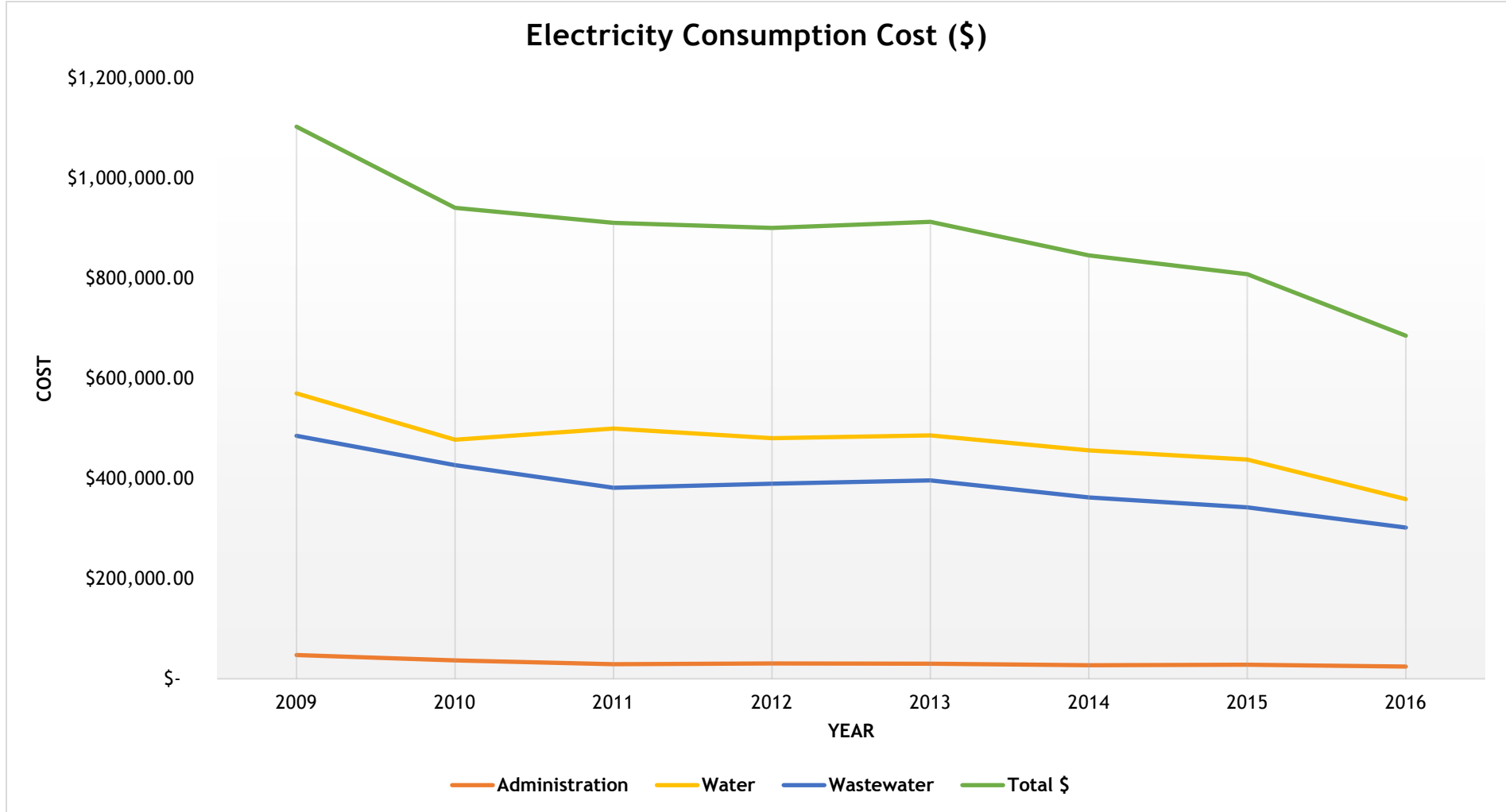
Electricity Consumption Cost

Improvements to local energy infrastructure under NV Energy's management has affected electricity rates. While electricity consumption is going down for Public Works operations so are electricity rates. The table below is an example of electrical rate decrease for the majority of meters associated with Public Works operations. A decrease in electricity rates allows the District to be more cost-efficient per kilo-Watt-hour (kWh) in performing regular duties across all venues. The cost to NV Energy in 2016 was \$400,000 less expensive than it was in 2009. Electricity consumption at Public Works has decreased by approximately 9% since 2009 while the electricity cost has decreased by approximately 39% over the same time. On average, Public Works electricity cost has been reduced by nearly \$60,000 per year since 2009.

NV Energy Rate Schedule	2009	2012	2016
NEV_GS1 = General Service (less than 10,000 kWh/month)	\$0.12857 per kWh	\$0.09416 per kWh	\$0.073434 per kWh

The graph and table on the next page display the electricity cost to Public Works over the same period as measured by the electricity consumption data in the previous section. These meters do not include electricity consumption for Diamond Peak Ski Resort, Incline Village Golf Facilities, or Parks and Recreation operations.

Public Works Total Electrical Cost by Year			
Year	Total Electrical Cost (\$)	Year to Year Cost Difference (\$)	Cost Difference Compared to 2009 (\$)
2009	\$ 1,103,472.01	n/a	n/a
2010	\$ 941,096.71	-\$162,375.30	-\$162,375.30
2011	\$ 911,277.41	-\$29,819.30	-\$192,194.60
2012	\$ 900,949.95	-\$10,327.46	-\$202,522.06
2013	\$ 913,519.35	\$12,569.40	-\$189,952.66
2014	\$ 846,257.06	-\$67,262.29	-\$257,214.95
2015	\$ 808,660.22	-\$37,596.84	-\$294,811.79
2016	\$ 685,709.59	-\$122,950.63	-\$417,762.42
Average:	\$ 888,867.79	-\$59,680.35	



Year	2009	2010	2011	2012	2013	2014	2015	2016
Administration	\$ 47,414.37	\$ 36,475.00	\$ 29,224.26	\$ 30,436.98	\$ 30,274.36	\$ 26,939.55	\$ 28,216.57	\$ 24,407.48
Water	\$ 570,450.23	\$ 477,704.95	\$ 500,037.64	\$ 480,660.57	\$ 486,578.84	\$ 456,671.23	\$ 438,004.45	\$ 359,084.93
Wastewater	\$ 485,607.41	\$ 426,916.76	\$ 382,015.51	\$ 389,852.40	\$ 396,666.15	\$ 362,646.28	\$ 342,439.20	\$ 302,217.18
Total \$	\$ 1,103,472.01	\$ 941,096.71	\$ 911,277.41	\$ 900,949.95	\$ 913,519.35	\$ 846,257.06	\$ 808,660.22	\$ 685,709.59

Facebook pages have been established for:

IVGID Public Works

Bear Smart - Incline Village

Drink Tahoe Tap! (Tahoe Water Suppliers Association)

Extensive website information on all topics is available at the following web locations:

yourtahoepace.com

bearsmartinclinevillage.org

tahoeh20.org

Community Alliance

Introduction

Public Works has participated in community outreach, involvement, and education for 25 years with the establishment of the Waste Not program. Public Works outreach also includes newsletter inserts in every utility bill with staff available in person and by phone to answer customer questions. Waste Management, Inc. conducts its own outreach per services offered.

Waste Not Community Conservation Services

Waste Not staff provides educational materials, interactive activities and technical services to residents and visitors on recycling, waste reduction, bear awareness, trash storage, household hazardous waste disposal, electronics recycling, water conservation and watershed protection on a year-round basis, as well as at more than 40 Tahoe area special events annually. Four full-time employees and a pool of valuable volunteers staff our programs.

Waste Not staff offers an average of 20 annual educational programs on stream science, recycling, and wildlife awareness to students in the Incline Village/North Shore schools. Lessons are also offered at regional youth organization camps. On-site tours of the Public Works water and sewer operations and Waste Not’s technical services are offered upon request. Waste Not’s staff produces custom brochures, posters, flyers, factsheets, stickers, magnets and buttons, refillable water bottles, reusable grocery bags, dog waste collection supplies and other items. Waste Not uses local print, online resources and social media outlets to promote information, services and events.

Waste Not Program Outreach for 2016	
Event Name	Estimated Number of People Reached
Tahoe/Truckee and South Tahoe Earth Days	5,300
Tahoe/Truckee Snapshot Day	20
IV/CB Community Clean Up Day	50
Red, White, and Tahoe Blue Community Fair	1,000
Great Sierra River (and Beach) Clean Up	25
Total Outreach (all other events and advertisements)	387,182

Community Landfill Waste and Recycling

Waste Management, Inc. provides weekly landfill bound and recycling collection services to Crystal Bay and Incline Village residents in addition to a transfer station where residents may dispose of excess waste or recycling. Services are available to residents and commercial properties 365 days throughout the year except during severe weather events. Waste Management, Inc. accepts yard waste during designated dates throughout the year. Waste Management, Inc. also accepts sharps, construction debris and collects holiday trees curbside during a designated timeframe after the Christmas holiday. The community wide single stream recycling rate in 2016 was 20.11%. The Washoe County recycling rate was 29.5% and State of Nevada recycling rate was 22.4% for 2016 (www.nvrecycles.nv.gov).

Community Wide Regular Collection Services		
Year	2015	2016
Landfill Bound Waste (tons)	13407	14229
Single Stream Municipal Recycling (tons)	1099	1052
Single Stream Municipal Recycling Rate	20.51%	20.11%
WM Curbside Yardwaste Program (tons)	280	340
Holiday Tree Chipping Program (estimated tons)	25	25
Community Recycling Rate from all Recycle Sources	22.96%	22.44%

Let's Talk Trash

The IVGID Board of Trustees approved a new solid waste franchise agreement with Waste Management, Inc. on July 7, 2016 based on recommendations from a Solid Waste Committee put together by the IVGID General Manager to evaluate options, problems, and feedback from community members. Public presentations and outreach occurred in 2016 to educate community members of the change. Community trash and recycling service allowed residents to place 7 landfill bound bags curbside collected every week in addition to unlimited comingled recyclables curbside collected every other week before the Board of Trustees decision to accept a new franchise agreement.

The new Waste Management Inc. franchise agreement places priority on containerization of waste and recycling materials. All residents have been distributed one 64 gallon rolling cart for landfill bound waste and one 64 gallon rolling cart for comingled recyclables to both be collected once per week. Residents have the option to upsize to a 96 gallon cart or downsize to a 32 gallon cart and are allowed to return the recycle cart according to the individual property's needs. Wildlife Resistant Carts are available in 96 gallon and 64 gallon sizes for properties that want to prevent or have had issues with wildlife. Bear Shed service is available at the lowest monthly service rate for properties that have metal garbage can enclosures installed to incentivize best practices for securing and containing waste.

Community Household Hazardous Waste and Electronic Waste

The Public Works Waste Not program staff collects Household Hazardous Waste and Electronic Waste from current Crystal Bay and Incline Village residents with valid proof of residency. This program is operated every Tuesday and Thursday from 3:00pm to 5:00pm February 1 - October 31 and from 3:00pm to 4:30pm November 1 - January 31 or by pre-arranged appointment. The site closes during holidays and severe weather. At least two staff members with HAZWOPER (Hazardous Waste Operations and Emergency Response) certifications must be present during operational hours to ensure that all safety and regulatory codes are properly enforced. The HAZWOPER 24-hour class completion certified three Public Works staff in the spring of 2016.



HAZWOPER Certified Staff

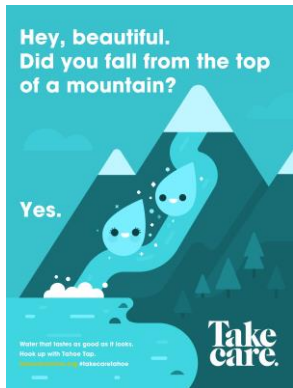
Each person in the United States produces an average of 4 pounds of household hazardous waste each year for a total of about 530,000 tons per year in the United States of America. The Average U.S. household produces more than 20 pounds of household hazardous waste per year. As much as 100 pounds can accumulate in the home, often remaining there until the residents move out or conduct an extensive cleanout (www.epa.gov).

According to the 2016 IVGID Comprehensive Annual Financial Report (CAFR), there are approximately 8,100 recreation accounts in Crystal Bay and Incline Village. These accounts essentially represent the total number of active households that have access to the Public Works HHW and e-waste program. If only half of these households utilized this service in 2016, then the community average was 16 pounds of hazardous waste and 14 pounds of electronic waste produced per household. Therefore, households in this community produce less hazardous waste than the national average. The national averages according to the USEPA indicate that households in Crystal Bay and Incline Village have the potential to double the amount of hazardous waste collected by Public Works in 2016.

The 2010 U.S. Census indicates that the population of Incline Village was 8,777 and the population of Crystal Bay was 305 for a total population of 9,082 individuals. 7 pounds of hazardous waste and 6 pounds of electronic waste was produced per capita in 2016, assuming all of those individuals live in within the District year round and have access to this service. These statistics indicate that Crystal Bay and Incline Village citizens produce more hazardous waste per capita than the national average.

The number of customer interactions tracks how many individuals presented their IVGID Pass or other proof of residency to gain access to this service throughout the year. The individual is a representative of the household and no information is gathered to indicate the amount of waste that was produced per capita from that household. Some individuals come more than once per year and each drop-off event is counted toward the total number of customer interactions. Public Works HHW customers brought an average of 39 pounds of hazardous waste and 34 pounds of electronic waste per visit in 2016.

Household Hazardous Waste (HHW) and Electronic Waste (E-waste) from the IVGID Public Works Residential Collection Program		
Year	2015	2016
Number of Designated HHW/E-waste Drop-Off Events	102	101
Number of HHW/E-waste Customer Interactions	1452	1694
HHW Collected from Drop-Off Events (tons/pounds)	27 tons/54,000 lbs.	33 tons/66,000 lbs.
• Average HHW Collected per Customer Visit (pounds)	37 lbs.	39 lbs.
• Average HHW Produced per Capita (pounds)	6 lbs.	7 lbs.
• Average HHW Produced per Household (pounds)	13 lbs.	16 lbs.
E-waste Collected from Drop-Off Events (tons/pounds)	41 tons/82,000 lbs.	29 tons/58,000 lbs.
• Average E-waste Collected per Customer Visit (pounds)	57 lbs.	34 lbs.
• Average E-waste Produced per Capita (pounds)	9 lbs.	6 lbs.
• Average E-waste Produced per Household (pounds)	20 lbs.	14 lbs.

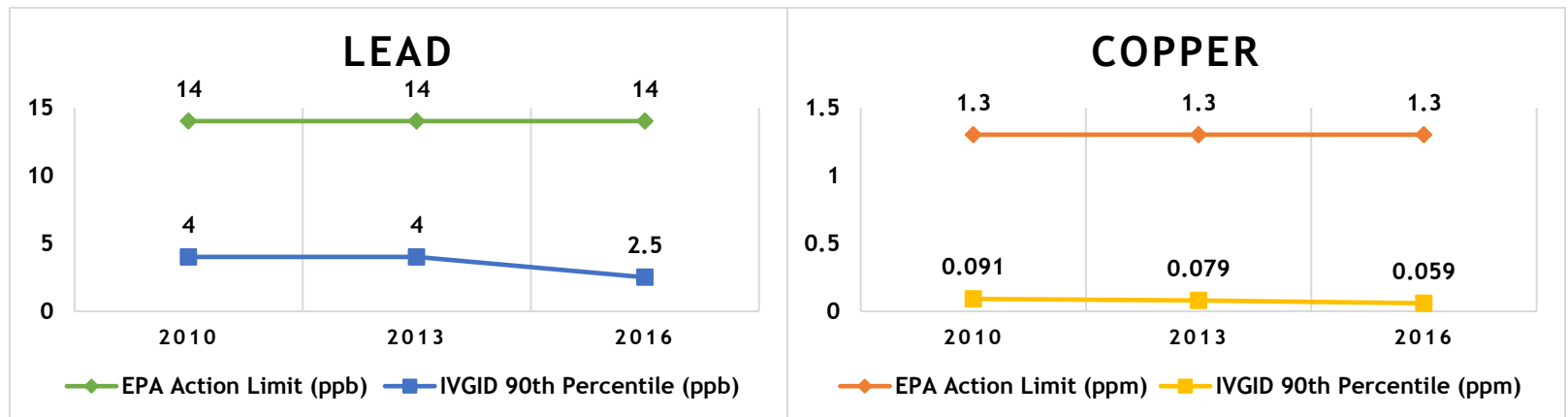


Consumer Confidence

Lake Tahoe is a pristine waterbody that has unique characteristics. The United States Environmental Protection Agency considers Lake Tahoe to be an “Outstanding Natural Resource Water, Tier 3” giving the lake the same protective designation as Crater Lake in Oregon and Mono Lake in California. This designation allows the Public Works Department to operate under a “filtration-exemption status.” Five other water purveyors from around the Tahoe Basin whose source of water is Lake Tahoe are also filtration-exempt. The Tahoe Water Suppliers Association (TWSA) helps these agencies comply with state and federal standards while protecting the local quality of water.

Public Works uses the Lake Tahoe Intake at the Burnt Cedar Water Disinfection Plant as its source of water. The type of water source is surface water as opposed to groundwater sources. The water provided is safe and high quality. Tap water provided by Public Works exceeds all national standards. A Consumer Confidence Report (CCR) is issued annually by Public Works to comply with all laws and educate the public about the drinking water supply. It is required to include an explanation of any violations for each calendar year. We are pleased to report to our customers that there were no drinking water violations. There are no additional required health effects notices. Please see the 2016 CCR for detailed information.

Lead and Copper levels are of high concern to the utility and its customers because of adverse health effects that could occur if there are high concentrations of these heavy metals in drinking water. Typical sources of these metals come from corrosion of household plumbing systems, erosion of natural deposits, and leaching from wood preservatives. The graphs below display the IVGID 90th percentile results for Lead and Copper contamination compared to U.S. Environmental Protection Agency “Action Limits” or the concentration of the contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow. We are pleased to report that Public Works is well below the EPA’s Action Limits.

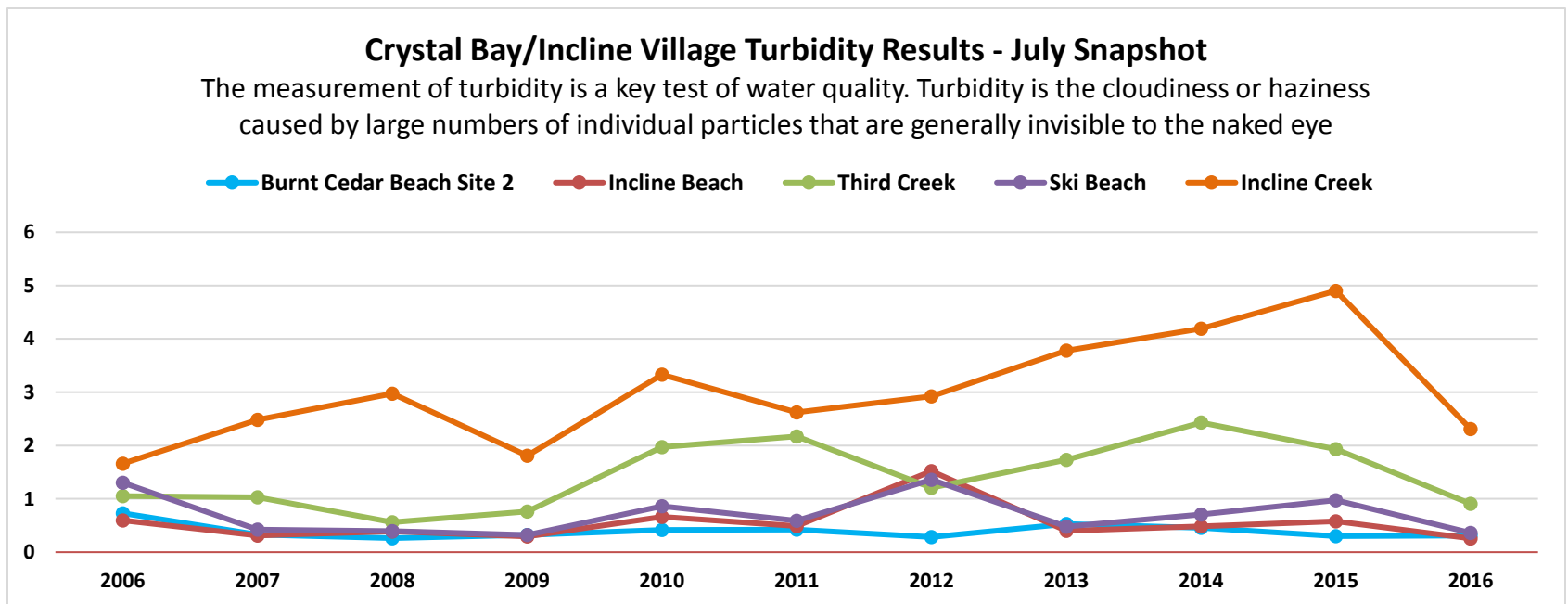


Water Quality Monitoring

One way of protecting local water quality is to monitor and consistently observe the environment for any changes over time. The Waste Not Program facilitates six water quality samples from IVGID owned properties to help build a databank for our natural resource (please see Map 2). Public Works staff has been monitoring and recording water quality data at Burnt Cedar Beach and Jetty, Incline Beach, Ski Beach, Third Creek and Incline Creek since 2004. Beach-site water quality parameters include general observations, temperature, turbidity, total coliform and fecal coliform. Dissolved Oxygen (DO) and Total Dissolved Solids (TDS) are measured at creek-sites in addition to beach-site parameters. The Graph below displays turbidity data from all monitoring sites over the years in the month of July. This is called a snapshot since it only examines data for a single moment in time instead of a scientific average.



Incline Beach Water Quality Monitoring Event



Conclusion

Moving Sustainability Forward

This report features a select few sustainability measurements that are most important to Public Works operations and its stakeholders. Future reports may give more detail to existing datasets but will also include additional sustainability related measurements, as those datasets are prepared. The meaning of this information is to inform stakeholders, staff and leadership within the organization of potential improvements that could be made to our overall operational footprint.

Goals for future reports:

- Track more sustainability performance indicators including: natural gas consumption and cost, fleet fuel consumption and cost, waste by volume and cost, greenhouse gas emissions, community solid waste violation and containerization statistics, environmental compliance activities and spending, as well as basic information regarding employees and the average user.
- Define thresholds and compare to other similar organizations.
- Conduct public outreach and education.
- Conduct sustainability performance assessments at all IVGID venues.

The American Water Works Association reports that energy efficiency measures are easy to implement and enable utilities to document significant cost savings, greenhouse gas emissions, and reduced environmental impacts. Documenting successful and cost effective sustainable practices related to resource use helps utilities make the case for sustainability. This report assists Public Works in making progress toward achieving a sustainable utility.

The Incline Village General Improvement District recognizes that the community of Crystal Bay and Incline Village is a system of built, natural, and human networks. IVGID also realizes that we must plan for the future from a regional perspective while implementing local projects and initiatives. Sustainability is an essential behavior in managing a community-wide system. Our environmental resources are pristine yet growing populations, drought and climate change challenge the resiliency of our community. This challenge demands that organizations and communities within the Lake Tahoe Basin make plans with sustainability as a key strategy element.

IVGID is addressing the sustainability element through long-range principles, a sustainability framework, in addition to this report. In conclusion, it is most efficient to redevelop first, provide efficient infrastructure, support concentrated development, restore, and enhance the environment, enhance recreational and heritage resources, practice communication and civic engagement, provide leadership, and practice fiscal responsibility to make progress in cultivating a sustainable community.

Acronyms, Definitions, and References

Acronyms

AL - Action Limit
AWWA - American Water Works Association
BCWDP - Burnt Cedar Water Disinfection Plant
CAP - Climate Action Plan
CCR - Consumer Confidence Report
CO₂ - Carbon Dioxide
DO - Dissolved Oxygen
EPA - Environmental protection Agency
GHG - Greenhouse Gases
HAZWOPER - Hazardous Waste Operations and Emergency Response
IVGID - Incline Village General Improvement District
LEED - Leadership in Energy and Environmental Design
MGD - Million Gallons per Day
NDEP - Nevada Department of Environmental Protection
NSAA - National Ski Areas Association
ppb - Parts per Billion
ppm - Parts per Million
SEZ - Stream Environment Zone
STOKE - Sustainable Tourism Operator's Kit for Evaluation
TBD - To be determined
TDS - Total Dissolved Solids
TRPA - Tahoe Regional Planning Agency
TWSA - Tahoe Water Suppliers Association
WEF - Water Environment Federation
WRRF - Water Resource Recovery Facility

Definitions

Adaptation - Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effect, which minimizes harm or exploits beneficial opportunities.

Climate Change - Any long-term change in average climate conditions in a place or region, weather due to natural causes or as a result of human activity.

Greenhouse Gases Emissions - The emission of gases in the earth's atmosphere that reduce the loss of heat into space.

Mitigation - A human intervention to reduce the sources or improve the uptake (sinks) of greenhouse gases.

Resilience - The ability of a system to absorb some amount of change, including shocks from extreme events, and recover from them to be able to function and provide essential services and amenities that it has evolved or been designed to provide.

Stream Environment Zone - Generally an area that owes its biological and physical characteristics to the presence of surface or ground water.

Sustainability - Improving the quality of human life while living within the carrying capacity of supporting ecosystems.

System - The built, natural and human networks that provide important services or activities.

References

Welch, C. L. 2010. *The Green Utility: A Practical Guide to Sustainability*. Denver, Colorado. American Water Works Association.

WEF Technical Practice Committee Control Group. 2012. *Sustainability Reporting Statements for Wastewater Systems*. Alexandria, Virginia. Water Environment Federation.

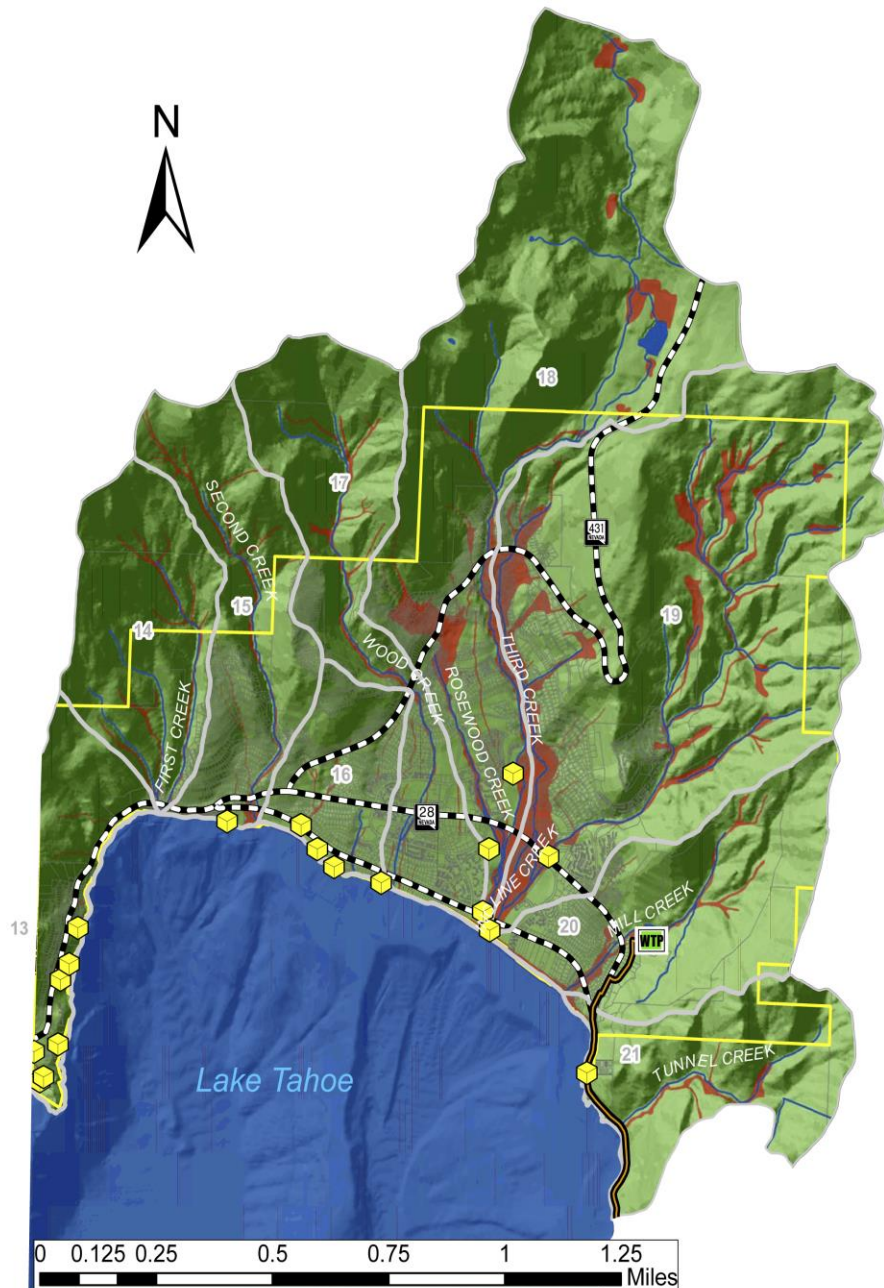
Landis, A. E. 2015. *Current Sustainable Infrastructure Practices 2014: A Report for AWWA*. American Water Works Association.

<https://www.epa.gov/hw/household-hazardous-waste-hhw>

United States Environmental Protection Agency Information on Household Hazardous Waste.

<http://nevadarecycles.nv.gov/uploadedFiles/nevadarecyclesnv.gov/Content/Resources/Data/2016StateRecycling-all%20countiesCharts.pdf>

2016 State of Nevada Recycling Data Charts by County.



Map ID	Watershed Name
13	EAST STATELINE POINT
14	FIRST CREEK
15	SECOND CREEK
16	BURNT CEDAR CREEK
17	WOOD CREEK
18	THIRD CREEK
19	INCLINE CREEK
20	MILL CREEK
21	TUNNEL CREEK

Legend

- Sewer Pump Station
- Waste Water Treatment Plant
- Creeks
- Lake Tahoe Basin Boundary
- State Border
- IVGID Effluent Export Line
- Major Road or State Highway
- Stream Environmental Zone
- Watershed
- Body of Water
- Incline Village GID Service Boundary

Plate 13: Potentially contaminating sources in the Incline Village General Improvement District (IVGID) area. Potentially contaminating sources include sewer pump stations, waste water treatment plants, and an effluent export line. Map provided by the Tahoe Water Suppliers Association.

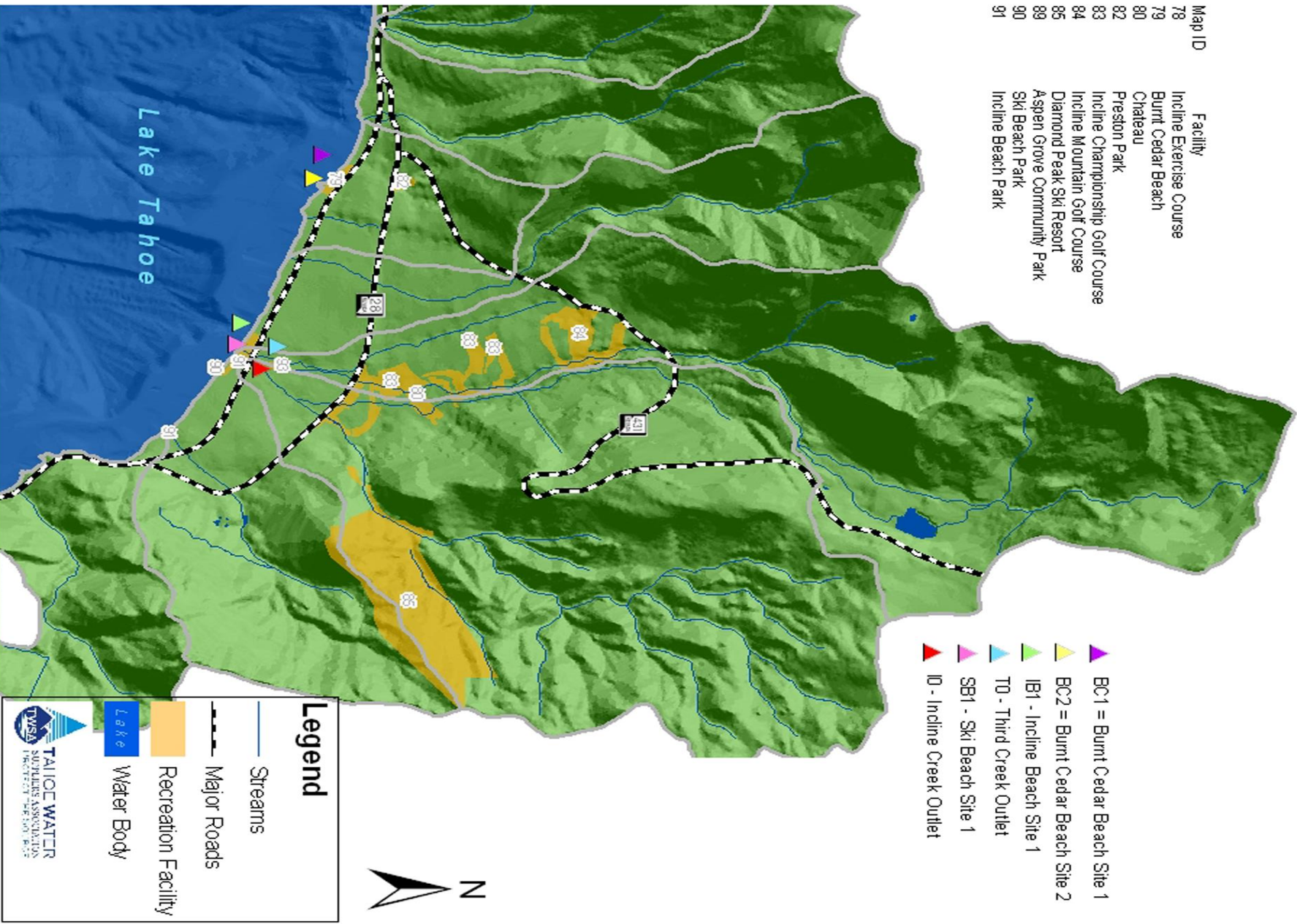


Plate 17: The Incline Village General Improvement District monitors local beach sites for total coliform, fecal coliform, and turbidity levels. Map provided by the Nevada Tahoe Water Suppliers Association.



**RESOLUTION NUMBER 1836
 ENVIRONMENTAL SUSTAINABILITY RESOLUTION
 INCLINE VILLAGE/CRYSTAL BAY, NEVADA**

WHEREAS, it is in the interest of Incline Village/Crystal Bay, Nevada to conserve and protect natural resources for current and future generations; and

WHEREAS, IVGID acknowledges that a changing climate poses economic and recreational challenges to the communities of Incline Village/Crystal Bay; and

WHEREAS, IVGID operations have economic, cultural and environmental impacts that are currently not fully evaluated and benchmarked; and

WHEREAS, the evaluation of sustainability topics including but not limited to: Economic Health, Community Health, Safety and Equity, Forest, Biological and Recreational Resources and Management, Solid Waste and Recycling and Water Quality, Resources and Conservation and can provide economic and environmental benefit to the District; and

WHEREAS, Nevada Revised Statutes 278, 332, 338 and 444A and the Washoe County Master Plan have established sustainability-related policies; and

WHEREAS, the Tahoe Regional Planning Agency has established the Sustainable Communities Program, Framework and Action Plan; and

WHEREAS, this policy will further contribute to the District's compliance with county, state and regional governing bodies; and

WHEREAS, IVGID being located within the Lake Tahoe Basin and watershed creates an enhanced need for environmental stewardship and leadership; and

WHEREAS, sustainability is an essential behavior of the IVGID core values which are Integrity, Service, Responsibility, Excellence, and Teamwork.

NOW, THEREFORE, BE IT RESOLVED THAT THE BOARD OF TRUSTEES OF INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT does hereby recognize the importance of environmental sustainability for our organizations and the priority it must play in decision- and policy-making; and encourages the citizens of Incline Village and Crystal Bay, Nevada in taking a proactive role in changing human behavior in embracing sustainable practices to help protect our environment.

Appendix A

Long Range Principles

LONG RANGE PRINCIPLE #1 Resources and Environment

Initiating and maintaining effective practices of environmental sustainability for a healthy environment, a strong community and a lasting legacy.

- Review and upgrade District policies and practices to encourage or require waste reduction, recycling and environmentally preferable purchasing.
- Develop sustainability measures, goals and metrics to create and/or maintain a sustainable District.
- Provide the community with environmental education and technical services on watershed protection, water conservation, pollution prevention, recycling and waste reduction.

Objectives for 2015-2017

1. Form a Sustainability Committee comprised of representatives from each Department to plan sustainability efforts, prioritize projects, and coordinate internal efforts to implement the best practices relating to sustainability.

Reporting Status - August 24, 2016: In progress

Reporting Status - April 17, 2017: In progress

2. Prepare a policy for review and approval by the Board of Trustees to purchase environmentally preferable products, reuse durable products, reduce the waste stream and prevent pollution.

Reporting Status - August 24, 2016: Resolution 1836, Environmental Sustainability Statement, was adopted on April 29, 2015.

Reporting Status - April 17, 2017: In progress

