VILLAGE OF LOS LUNAS

LOS LUNAS WATER CONSERVATION PLAN

Prepared for:

VILLAGE OF LOS LUNAS
P.O. Box 1209
Los Lunas, New Mexico 87031

Prepared by:

MOLZEN CORBIN
2701 Miles Road SE
Albuquerque, New Mexico 87106
Phone: (505) 242-5700 Fax: (505) 242-0673

LEE WILSON & ASSOCIATES, INC.
105 Cienega Street
Santa Fe, New Mexico 87504
Phone: (505) 988-9811

PCR RESOURCES
8 Gavilan Road
Santa Fe, New Mexico 87508
Phone: (505) 466-0042

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MOLZENCORBIN
ENGINEERS | ARCHITECTS | PLANNERS

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EXECUTIVE SUMMARY

This Water Conservation Plan provides information on the current status of the water system and water use in the Village of Los Lunas, documents the Village's past and current water conservation programs, and presents the Village's plans for further conservation efforts. The Conservation Plan is designed to address the requirements of both the New Mexico Office of the State Engineer (OSE) and the New Mexico Water Trust Board (WTB). It is also consistent with the Village's Forty-Year Water Development Plan and the water conservation sections of the Middle Rio Grande Regional Water Plan.

Los Lunas adopted its first water conservation plan, prepared by the Mid-Region Council of Governments, in 2006. As determined by the OSE GPCD Calculator, the Village has reduced its water demand to 127 gallons per capita per day (GPCD) in 2016. This is well below the goal of 140 GPCD established in the Village's water right permit. Total water diversions have increased from 2,324 acre-feet (AF) in 2014 to 2,462 AF in 2016. The Calculator indicates that non-revenue water was 13 percent in 2016.

This Plan is organized as directed by OSE guidance. The Plan proposes that the Village will continue its existing conservation programs to maintain its current level of water use during an anticipated period of growth, while potentially adding some further water savings. The Plan sets the following two goals which reflect an expansion of the existing program.

1. To improve the operational efficiency of the water supply system by reducing water losses and more accurately accounting for water use.
2. To increase water use efficiency in the industrial, commercial and institutional (ICI) and residential sectors.

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The Plan identifies a number of educational, incentive and regulatory actions for existing residences and ICI facilities, as well as for new development, to increase customer conservation. It also addresses actions to improve the efficiency of the water distribution

system through continued metered water use data analysis and related reductions in water loss.

The Plan covers a five-year period of 2017 through 2021, although most of the actions taken during this period will continue past those five years, or at least have a longer lasting impact. If all of the measures contained in this plan are fully implemented, a water savings of up to eight percent may be achieved. Some challenges, such as limited financial and other resources, may affect the Village's ability to fully implement all the conservation measures and achieve the projected level of savings within the planning period. In addition, with the anticipated continued development in the community, these savings could be offset by increases in new demand.

The Village of Los Lunas prepared the Water Conservation Plan with the assistance of its consultants, Molzen Corbin and Associates, Inc. (MCA), Lee Wilson & Associates, Inc. (LWA) and PCR Resources. The U.S. Bureau of Reclamation (BOR) provided funding assistance for the Plan.

1.0 DATA COLLECTION

1.1 Purpose

The Village of Los Lunas prepared a water conservation plan in 2006. During the past 10 years, there have been numerous changes in the community and the Village's water system that necessitate an update of the 2006 plan. Los Lunas, only a short commute from Albuquerque, has continued to grow in both the residential and commercial sectors, requiring an increased supply of water to serve the new growth. The Village has recently acquired a large new Facebook data processing center, which will add significant demand for water. At this point, Facebook has committed to building the first phase of a multi-phase data center. Although the Village currently has sufficient water supply and water rights to accommodate this demand, future phases of the Facebook center and other ICI development will require careful planning to minimize their water resources impact to the extent possible.

In recent years, New Mexico has experienced multi-year droughts that threaten to negatively affect the water supply of the Village and neighboring communities as dry weather conditions continue. Predictions for long-term weather patterns resulting from climate change also point toward a reduced water supply throughout the region. In addition, the New Mexico Water Trust Board (WTB) is requiring communities to have water conservation plans in order to be eligible for water-related project funds. Los Lunas depends upon these funds to implement water infrastructure improvements critical to the management and operation of its water supply system, especially as it confronts increased demand for water.

Although Los Lunas has initiated several successful water conservation actions since 2006, the community is prepared to identify additional conservation measures, evaluate their costs and water savings and set a schedule for implementation. This Plan is designed to update the 2006 plan, meet state regulatory and funding requirements, and help ensure that Los Lunas' water supply remains adequate to serve the community's needs well into the future.

1.2 Planning Team

The planning team that directed the development of the water conservation plan included the Village's Public Works Director, Michael Jaramillo, and the following Village staff members: Ray Vigil, Scott White, and Charles Owens from the Water and Sewer Division, Janice Byrnes and Britne Lee from the Utility Division, Jason Duran from the Parks Division, and Martin Callahan, the IT Director. The Los Lunas planning team worked with the Village's engineering consultants, Molzen Corbin & Associates, Inc. (Clayton TenEyck, Kevin Eades, and Rachel Garcia), planning consultants, Lee Wilson & Associates, Inc. (Carole Cristiano, Lee Wilson, and Casey Gierke), and PCR Resources (Alice Darilek) to develop the plan.

1.3 Local Conditions

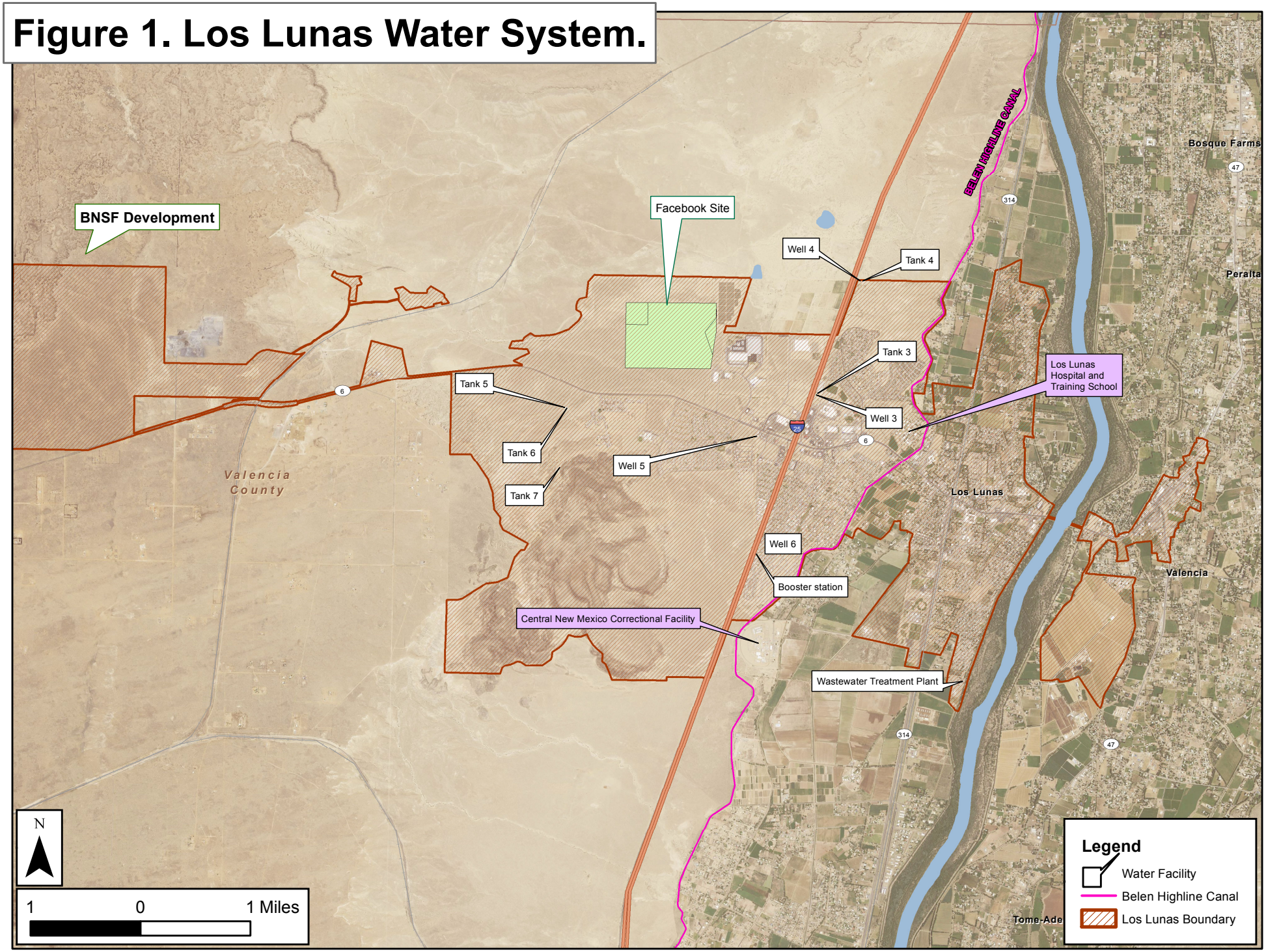
1.3.1 Map

The Village of Los Lunas, situated along the Rio Grande, is located 19 miles south of downtown Albuquerque in the Middle Rio Grande Basin. The Village limits, which cover 10.1 square miles, extend east of the Rio Grande and west of Highway I-25. Figure 1-1 is a map of the current service area of the Los Lunas water system, including areas both inside and outside the Village limits. The map also shows the locations of the Village's wells, water tanks and wastewater treatment plant.

1.3.2 Water Supply Overview

Los Lunas provides water service to 6,481 residential and industrial, commercial and institutional (ICI) customers. These include 5,906 single-family accounts, 69 multi-family accounts that serve 511 housing units, and 506 commercial accounts which include municipal and county government facilities. Included in these numbers are 138 residential, 4 commercial, 4 multi-family, and one school account that are outside the Village limits.

Figure 1. Los Lunas Water System.



W:\CCJOBS\774 - Los Lunas Water Conservation Plan\GIS\Figure 1 - Los Lunas Water System.mxd

The Village currently uses four groundwater wells that withdraw water from the Rio Grande Basin. The water system can currently provide a supply that is adequate to meet current demand and the projected Phase I demand from the Facebook data processing center. In the future, the Village will need to drill a new well to be able to meet anticipated water demand. The Village has completed a well location study that identifies possible locations for this well, which will be referred to as Well 7.

Los Lunas holds a comprehensive water right permit, RG-17065 ENLG., which allows the Village to divert up to 6,320.5 acre-feet of water per year (AFY), provided that the Village has adequate water rights associated with its permit. The Village currently holds 5,566 AFY of diversion rights, assuming a 50 percent return flow. The Village's Forty-Year Water Development Plan contains a complete description of Los Lunas' water rights. The Village diverted almost 2,500 acre-feet of water in 2016. Current projection for water demand in 2025 (excluding the Facebook water use) is 2,860 acre-feet.

The Village's water right permit, issued in 2011 by the OSE, was approved on the basis that the groundwater supply was adequate to allow withdrawals at the projected rate of diversion for 40 years without impairment to other water users. This determination, along with the water rights that the Village currently holds, should provide the community with adequate water supplies well into the future, even if the total projected demand from Facebook does occur.

1.3.3 Demographics and Community Characteristics

The Village of Los Lunas is a community in transition. It is located on the historic San Clemente land grant, which was willed in 1716 and acquired by the Luna family, early social and political leaders in the community. The development of the Santa Fe Railroad brought livestock, hay, other merchandise, passengers and telegraph service to the community. The Village was incorporated in 1928 and serves as the county seat of Valencia County. Los Lunas has evolved from a primarily rural area of farms to a suburban village located near Albuquerque. It houses commuters who work in the Albuquerque area and has a growing residential and commercial

sector. However, it still retains much of its small community nature. The Isleta Pueblo north of the Village and other nearby historic sites attract visitors to the area.

Beginning in the 1980s, Los Lunas began to experience increased residential and commercial growth. Although that growth slowed during the recent economic recession, it has once again accelerated. Residential growth has focused on the west side of I-25, although two other developments, Ranch Valencia and the Fiesta Community, are located on the east side. Most residents live in single-family homes, although it is likely that future development will increase the number of apartment units in the community.

Industrial, commercial and institutional development has expanded in and near the Los Morros Business Park and in the Valencia Y area. Growth in this sector has accelerated in recent years and is expected to increase in the next few years, especially if large ICI developments such as the Facebook data center, continue to locate in the community.

The 2010 U.S. Census count for Los Lunas was 14,835. In 2015, the Census estimated population was 15,336, an increase of three percent since 2010. The GPCD Calculator indicates that current service area population is 17,303. Growth projections for Valencia County indicate the county's population should grow by 1.17 percent through 2020, and 1.01 percent from 2020 through 2025.

The Middle Rio Grande Basin, in which Los Lunas is located, is the largest of three major basins in the New Mexico portion of the Rio Grande rift. Although the basin's climate is semi-arid, the nearby Rio Grande provides irrigation water to the farms that border the Village.

Table 1-1 contains a summary of key community characteristics and demographic facts relative to Los Lunas.

TABLE 1-1
COMMUNITY CHARACTERISTICS AND DEMOGRAPHICS

2015 Population	15,336
Population Breakdown	58% Hispanic; 36% White; 6% other
Average Household Size	2.69 persons per household
Housing Stock	66% constructed after 1989; 34% prior to 1990
Median Age	35
Median Household Income	$52,166
Unemployment Rate	9 percent
Average Maximum Temperature	92.9 degrees
Annual Maximum Temperature	72.8 degrees
Average Minimum Temperature	18.8 degrees
Annual Minimum Temperature	37.9 degrees
Annual Precipitation	9.09 inches

Sources: U.S. Census American Fact Finder; Western Regional Climate Center

2.0 ASSESSING PUBLIC WATER SUPPLIER PERFORMANCE

The OSE requires that a municipal water conservation plan contain documents that provide a detailed breakdown and analysis of diversion and water use data. These documents are contained in Appendices A-D and are as follows:

- Appendix A: AWWA Audit. This document contains information about 2016 diversions and water use, a grading matrix to provide information about the efficiency of the water system and a breakdown of non-revenue water between apparent water losses and real losses. The Audit contains a separate spreadsheet that explains how the Village selected the grades and calculations for each category of water use documented in Appendix A.

- Appendix B. AWWA Audit Narrative. The narrative expands upon the brief discussions in the Audit spreadsheet. The narrative was prepared by LWA in consultation with MCA and Village staff.

- Appendix C: OSE GPCD Calculator. This document contains information about 2016 diversions and metered use by category. It is used to identify overall per capita use and per capita use by sector, along with a calculation of non-revenue water. This document was prepared by Village staff, in consultation with LWA.

- Appendix D: Summary of Data Results. This document reviews and analyzes the information contained in the Calculator and Audit in accordance with OSE requirements.

The findings and data analysis are summarized below.

2.1 Data Results and Analysis, AWWA Water Audit

Appendix A contains the AWWA Water Audit and Appendix B is the audit narrative. The data results and analysis for the audit are found in the first section of Appendix D.

2.2 Data Results and Analysis, GPCD Calculator

Appendix C contains the GPCD Calculator. The data results and analysis for the calculator are found in the second section of Appendix D. The Calculator indicates that 2016 per capita use was 127 gpcd. Non-revenue water totaled 126 million gallons (MG) in 2015 and 102 MG in 2016.

3.0 SETTING WATER CONSERVATION GOALS

3.1 Objective

The objective of the water conservation plan is to help sustain the community's water supply to meet water needs in the coming years.

3.2 Reasons for Developing a Water Conservation Plan

There are numerous reasons for Los Lunas to prepare and adopt a new water conservation plan. They include the following:

- Update 2006 Plan. The Village's most recent water conservation plan is about 10 years old and therefore contains water supply and water system information that is now dated. In addition, the plan is general in nature and does not include specific information about the conservation measures to be implemented. A new plan is needed to update information on the water supply and distribution system, as well as to better identify specific conservation actions for implementation within a scheduled timeframe, as required by the OSE.

- Consider Future Water Needs. Los Lunas experienced significant population growth from 2000-2007. The growth rate decreased during the financial crisis from 2008-2014; however, there will likely be continued and perhaps accelerated growth in the Village, primarily because of the planned Facebook data center and other potential commercial developments. Although Los Lunas' water supply is adequate to meet near-future needs, additional water rights will be needed to meet long-term water demand. Such water rights are becoming more difficult to find in this region.

- Respond to Drought. In the past several years, New Mexico has experienced severe drought conditions. Although the water supply picture has recently improved somewhat, surface water supplies are still below average. Coupled with the drier weather patterns forecast for the Southwest because of climate change, there is concern about the reliability

of surface water supplies, including the San Juan Chama Project (SJCP) water rights to offset effects of pumping the Village's wells.

- Meet State Requirements. The WTB is strengthening its requirements for municipal water conservation plans in order for cities to qualify for state water-related funding. For a community like Los Lunas, with limited financial resources, such funding is important to maintaining its water supply infrastructure.

- Respond to Increasing Costs of Water Rights and Water Production. As the Village continues to grow, the purchase price of water rights will likely increase as water supplies become scarcer. Water conservation provides a lower-cost water supply alternative for the community. Water system operating costs for such necessities as electrical power, chemicals, meter replacement and pipeline maintenance are also rising. Reductions in water use reduce the costs of pumping and treatment.

- Participate in Regional Efforts. Several nearby communities, such as Albuquerque, have implemented comprehensive water conservation programs. In such a water-short region, Los Lunas' management staff believes it is the Village's responsibility to take similar actions to protect this resource for future needs.

3.3 Identify Water Conservation Goals

The overall water conservation objective for Los Lunas is to help sustain the community's water supply to meet water needs in the coming years. To attain that objective, the community has identified the following two action-oriented goals.

- Improve the operational efficiency of the water supply system by reducing water losses and more accurately accounting for water use.

- Increase water use efficiency in the residential and ICI sectors.

3.4 Prioritize Goals

Both goals identified above are important in achieving a sustainable water supply for Los Lunas; and the community plans to implement them in a comprehensive manner. However, the first goal, to improve the operational efficiency of the water supply system, is viewed as the main priority, as it will focus on continued analysis of metered water use data to achieve more accurate accounting of water use and a reduction in water loss. Such improvements will benefit the overall operation of the water supply system and help identify areas in which water conservation efforts are needed. Therefore, the achievement of this goal will benefit both the supply-side and demand-side water conservation program.

The second goal, to increase water use efficiency in the community's water use sectors, is also important, especially in light of the projected increase in ICI development in coming years. Water conservation measures will include an incentive program, ordinance revisions, and follow-up actions regarding abnormal water use by residential and ICI customers. A typical increase in water use occurs during the summer months and is attributed to landscape irrigation. Water conservation efforts include a focus on the ICI sector, which includes the highest water users, and outdoor water use. Attention will also be given to increasing water use efficiency in new residential and ICI developments and initiating a modest amount of wastewater reuse.

3.5 Evaluate Goals

Goal #1: Improving the operational efficiency of the water supply system through more accurate accounting of water use and a reduction in water losses is a priority of the water conservation plan.

Goal #2: Increasing water use efficiency in the residential and ICI sectors is also an important goal.

The Public Works Director and water utility staff will evaluate progress toward achieving the goals on an annual basis and make adjustments as needed.

3.6 Best Management Practices

The best management practices that were initially considered for each goal are contained in Table 3-1. After meetings and discussions among the members of the planning group, some of the practices were modified and others added. Several best management practices were selected for inclusion in the conservation plan. They are summarized in Table 3-2 and will be referred to in following sections of the Plan text.

TABLE 3-1
BEST MANAGEMENT PRACTICES CONSIDERED

Goal #1 - Improve the operational efficiency of the water supply system by reducing water losses and more accurately accounting for water use.	Goal #2 - Increase water use efficiency in the residential and ICI sectors.
Continue to address existing computer-based data collection and management problems to improve the accuracy of water accounting information.	Revise current ordinances regarding water waste, water shortages and landscaping to avoid duplication and make other changes as needed to update and strengthen the ordinances.
Resume a regular schedule of leak detection surveys as directed by the results of a survey evaluation.	Study the feasibility of a toilet rebate program, or similar incentive, for water users with a 3.5 gallon or higher-per flush toilets.
	Implement an incentive program based upon the results of the feasibility study.
	Develop further procedures to notify ICI water users of higher-than-normal usage.
	Offer water use surveys, or other educational services or incentives, to those ICI water users whose usage is determined to be above normal.
	Work with the state correctional facility and other state facilities to encourage the reduction of water use at their locations.
	Revise current requirements for new developments to include slope standards to prevent runoff, maintenance requirements for commercial landscapes, and other requirements such as highly efficient plumbing fixtures and appliances.
	Study the feasibility of using treated wastewater for construction or other purposes as determined to be cost effective.
	Consider conducting a water rate study to review the current rate structure and identify ways in which rates can further encourage water use efficiency.
	Begin to work with school board members and other school officials to encourage the inclusion of water conservation curriculum in classrooms.
	Evaluate the implementation of a water use tracking tool on the Village website for water users to access their water use records and publicize its availability.
	Continue irrigation efficiency improvements in Village facilities, such as parks, the sports complex and schools.

TABLE 3-2
BEST MANAGEMENT PRACTICES SELECTED

Goal #1 - Improve the operational efficiency of the water supply system by reducing water losses and more accurately accounting for water use.	Goal #2 - Increase water use efficiency in the residential and ICI sectors.
Continue the correction of existing computer-based data collection and management problems to improve the accuracy of water accounting information.	Revise current water conservation and water shortage ordinances to avoid duplication and make other changes as needed to update and strengthen the ordinances.
Resume a regular schedule of leak detection surveys when the annual amount of non-revenue water totals more than 10%.	Develop further procedures to notify residential and ICI water users of abnormal water use. Offer water use surveys, or other educational services or incentives, to water users whose usage is determined to be above normal.
	Study options for implementing an incentive program to encourage greater water use efficiency by the community's water users; implement a chosen incentive program.
	Study the feasibility of using treated wastewater for construction or other purposes as determined to be cost effective.
	Work with the state correctional facility and other state facilities to encourage the reduction of water use at their locations.
	Work with school board members and other school officials to encourage the inclusion of water conservation curriculum in classrooms.
	Continue irrigation efficiency improvements in Village facilities, such as parks, the sports complex and schools.
	Evaluate the implementation of a water use tracking tool that allows water users to monitor their recent and ongoing water use.
	Conduct a water rate study to review the current rate structure and identify ways in which rates can further encourage water use efficiency.
	Review current requirements for new developments to determine if new standards should be set to improve indoor and outdoor water use efficiency.

4.0 PUBLIC INVOLVEMENT, EDUCATION, AND OUTREACH

4.1 Public Involvement During the Planning Process

The planning process used both traditional communication methods, as well as social media, to inform members of the community about the development of the conservation plan and to request comments about proposed water conservation measures. For example, the Village staff developed an online survey through the Village website to: (1) inform the public about the plan; and (2) obtain comments about the kinds of conservation measures the public wanted to be included in the Plan. Notices about the survey were placed on the Village Facebook page, in the Valencia County News-Bulletin, and in the Village newsletter that is sent to water users with their monthly water bills.

Although the Village received only 85 responses to its online survey, the results provided useful information for the development of the water conservation plan. Most of the respondents were over 50 years old, had lived in the village for 10 years or less, and resided west of Highway I-25. The most important reason they gave for choosing to conserve water was a limited water supply, followed by ensuring that their children and grandchildren have plenty of water. The conservation topics about which they wanted more information were the bigger picture of water supply and demand, water use restrictions and water conservation tips. When asked if they had low-flow fixtures in their homes, 40 percent said they had a low-flow toilet and 32 percent noted they had a low-flow showerhead.

Numerous comments were received about how the survey respondents thought Los Lunas should conserve water and what actions should be included in the conservation plan. Some actions mentioned often were: education on how to conserve; enforcement of water use restrictions and penalties for water waste; providing rebates and incentives to conserve; promoting more rainwater harvesting and recycling; and balancing economic development with water needs. More detailed information on the survey results is contained in Appendix F. At Village Council meetings, Los Lunas staff informed Council members and the public about the development of the plan and the chosen water conservation measures. In addition, an internal planning committee composed of relevant Village staff held several meetings with the

Village's water planning consultants to review the proposed conservation measures and other information contained in the plan.

4.2 Education and Outreach After Plan Adoption

4.2.1 Public Information Program

Los Lunas staff will continue to use the Village's Facebook page, website and monthly newsletter that accompanies water bills as the primary methods of communication to the public as conservation actions are implemented. Staff will also brief the Village Council on implementation actions as they are planned and implemented. The focus of the public information program will be on informing residents and businesses about the requirements of the water conservation and water shortage ordinances, seasonal reminders related to outdoor irrigation times and practices, and customer service communications identifying abnormal water use and potential water leaks.

4.2.2 Outreach Program Activities

Some outreach efforts will be directed at developers of residential and ICI projects to inform them about the Village ordinances and requirements for water use efficiency. High-water users in the residential and ICI sectors will be identified and offered water use consultations to help them reduce consumption. Finally, Village staff will expand an outreach effort to businesses and residents to help them take advantage of the high-usage and leak alerts the new metering system offers.

4.2.3 In-School Educational Programs

The Village staff plans to meet with Los Lunas school administrators to encourage them to use available water conservation curricula from the OSE and other sources to teach students about the importance of water and how they can save this valuable resource. The staff will also identify other opportunities to provide conservation information to students, such as staff presentations to classes.

5.0 DEVELOPING A WATER CONSERVATION PROGRAM

5.1 Challenges

The main challenge to the implementation of Los Lunas' water conservation plan is the limited availability of financial resources and personnel to implement the water conservation measures described in the plan while dealing with growing residential and ICI development that may offset the reduction in total water use. Although Los Lunas has moved forward in its efforts to improve the efficiency of its water system through such actions as the installation of automatic-read meters and replacement of old, leaking distribution lines, these infrastructure improvements are costly and take time to implement. The Village has needed to obtain grant funds to help pay the cost of some of these improvements. Additional conservation measures that can help businesses and residents save water, such as water use consultations and incentive programs, may also need additional sources of funding, as well as more staff or assistance from consultants, to be fully implemented.

5.2 Program Components

The program components consist of the supply-side water efficiency measures identified in Goal #1 and the demand-side measures that address Goal #2.

5.2.1 Program Title: Goal #1 - Supply-Side Water Efficiency Measures

5.2.1.1 Program Summary

Table 5-1 summarizes the measures identified in Goal #1 to improve the operational efficiency of the water supply system by reducing water losses and more accurately accounting for water use. For the last several years, Los Lunas has experienced data management problems that have resulted in inaccurate metered water use data. These problems were primarily caused by: (1) inadequate communication between the automatic-meter-read signals and the billing software, causing incorrect meter reads that required significant staff time to recheck manually;

and (2) a number of large commercial meters that were not operating properly, also resulting in inaccurate meter reads.

TABLE 5-1
LOS LUNAS WATER CONSERVATION MEASURES 2017-2021

Measure	Cost	Estimated Water Savings	Implementation Schedule	Notes
Data Management	$40,000	3%	2017-2021	System Analysis
Leak Detection	$10,000	Low	2017-2021	10% NR Water
Incentive Program	$52,000	Low	2017-2019	Toilet Rebate
WC/WS Ordinances	$10,000	Low	2017-2018	Update
Reuse	$120,000	1%	2018-2019	Construction
High Usage Response	$30,000	Low	2017-2021	Residential and Small ICI Users
ICI Use Surveys	$20,000	Low	2020-2021	Large ICI Users
Water Rates	$30,000	1%	2020-2021	Inclining Rates
Village Facilities	0	Low	2017-2021	Retrofits
State Facilities	In ICI Surveys	Low	2020-2021	Surveys
New Development Facilities	$20,000	Low	2020-2021	Update
School Education	0	Low	2018-2019	Curriculum
Tracking Tool	0	Low	2020-2021	On-line Access

Notes: A combination of low water savings is estimated to achieve a 3% reduction in diversions.
Zero cost figures indicate Village staff will implement measures at no additional substantial costs.

The Village staff has taken several steps to resolve these issues. They have recently upgraded the billing software and transferred the hosting of the software server to the meter manufacturer. The upgrade allows the staff to check water use records weekly, giving them the ability to identify unusual water meter reads quickly instead of having to wait until monthly bills are being created. Although these actions have improved the accuracy of the metered water use data, the staff is just becoming familiar with the new system and expects that some additional work remains before the desired level of data accuracy is achieved.

The water utility has also replaced almost all of the malfunctioning large commercial water meters. Some communication problems remain between the new meters and the related equipment that sends the meter-read signals; however, the staff is currently working to correct the problem.

Prior to 2006, the Village contracted with a private firm to conduct leak detection surveys for older areas of the water system every two years. The last survey, conducted in 2006, detected no leaks; and due to budgetary constraints, no further surveys were scheduled. The amount of non-revenue water has fallen to 16 percent or below in the last three years, resulting from increased data management and system monitoring. Because of this reduction, the Village has decided not to resume leak detection efforts unless the amount of non-revenue water exceeds 10 percent in the previous year.

In 2016, non-revenue was 13 percent of diversions; however, because of increased monitoring of water use, that percent decreased throughout the year and is currently averaging less than five percent. Because of this, the Village will not pursue contract leak detection services in 2017. However, the Village will continue to use its geo-phone listening device to pinpoint exact locations of observed leaks. In addition, for the coming years, the Village plans to purchase 10 data loggers, which can be moved and placed in different sections of the water distribution system to detect unusual flows and help identify leaks.

5.2.1.2 Targeted User

Although the primary target of this program is the improvement of the water supply operation and infrastructure, it will indirectly affect all water users served by the water utility.

5.2.1.3 Saturation of Target User

The conservation measures will improve the overall water supply system operation through a reduction in water losses.

5.2.1.4 Implementation Dates

An estimated implementation schedule for each measure follows.

Data Analysis and Management	2017-2021
Leak Detection	2017-2021

5.2.1.5 Anticipated Cost from 2017-2021

Data Analysis and Management	$40,000*
Leak Detection	$10,000**

** $8,000/year*
***10 data loggers @ $1,000 each*

5.2.1.6 Anticipated Staffing

Anticipated staffing includes the Public Works Director and water utility staff.

5.2.1.7 Funding Source

Most of the costs for these supply-side measures would be covered by Village funds. If needed, the Village could seek additional funding from such sources as the WTB and BOR.

5.2.1.8 Anticipated Results and Alignment with Goals

All of the measures in this program meet Goal #1 of the plan: to improve the operational efficiency of the water supply system by reducing water losses and more accurately accounting for water use.

A continued effort to improve water system and water use data and analysis is expected to have a significant effect in allowing earlier detection and repair of water leaks, reducing non-revenue water and otherwise improving system management. This measure is expected to result in an

estimated water savings of three percent. The Village plans to activate leak detection measures when non-revenue water totals 10 percent or more. Because leak detection surveys in the past have identified few water line leaks, these actions are expected to result in a low level of water savings.

The total estimated water savings from these supply-side actions is three percent.

5.2.1.9 Why Program was Chosen

The program was identified as a priority for making needed improvements in the operation and maintenance of the Village's water supply system. These improvements would address problems associated with the accuracy of metered water use data and related software programs. The program addresses the findings of the AWWA water system audit, as well as additional information gathered by the Public Works Director and the Village's water resources consultant.

5.2.1.10 Estimated Lifetime Impact of Program

The replacement of improperly operating large commercial water meters should achieve long-lasting impacts, including increased accuracy of water meter readings, along with a potential increase in revenue, as old meters tend to register lower-than-actual water use. Use of the additional data produced by the automatic metering software should result in water leaks being detected and repaired more quickly, thus reducing water losses on an ongoing basis. This software should also allow Village staff to more quickly identify and address abnormally high water usage by customers, which should result in water use reductions. Water savings from these supply-side conservation measures are estimated to be three percent.

5.2.1.11 How the Program Will Be Implemented

The Public Works Director will oversee the implementation of the program by the Village's water utility staff and contractors.

5.2.1.12 Tracking and Evaluation

The Public Works Director and water utility staff will track and evaluate the program's progress on an annual basis, identify needed adjustments, and implement as needed.

5.2.1.13 Annual Reporting and Updates

The Public Works Director and the Village's water resources consultant will prepare an annual report and updates on the program's status as required by the Village and by the OSE.

5.2.2 Program Title: Goal #2 - Demand-Side Water Efficiency Measures

5.2.2.1 Program Summary

Table 5-1 summarizes the measures identified in Goal #2 to increase water use efficiency in the residential and ICI sectors. All of the measures in this program address the need for increased water use efficiency by the Village's residential and ICI water users. Single-family residential water use accounts for 47 percent of the Village's total water use; multi-family residential water use totals four percent; and ICI use, 34 percent. Non-revenue water accounts for most of the remaining 15 percent.

Los Lunas' water conservation and water shortage ordinances include prohibitions against wasteful water use practices, irrigation time-of-day schedules, and water shortage response actions to further restrict water use. However, there is some duplication in the two ordinances that needs clarification as to when a requirement is to be implemented. The ordinances, adopted shortly after the Village completed its first water conservation plan in 2006, also need to be updated to include current information on water conservation technology and practices. The current ordinances are contained in Appendix G.

In addition, Village ordinances that govern new development have been amended over time to meet changing needs. However, as part of this conservation planning process, the Village plans to review the ordinances again to determine, based upon current technological developments, if updated indoor and outdoor water conservation requirements should be added.

One important Village ordinance that encourages water use efficiency in new development requires that all new subdivisions transfer enough water rights to the community to meet the water needs of the subdivision. This ordinance also applies to new ICI developments, although the Village does provide an initial allocation of rights for commercial purposes, before requiring additional transfers. The Facebook data center will be required to transfer water rights; and the facility will be built to include water conservation measures to meet LEED efficiency standards, which will also include water-efficient landscaping.

The Village had begun to evaluate options for incentive programs to encourage less water use. Village staff have met with Albuquerque's water conservation manager and obtained information from other communities on the types of incentive programs that these cities have implemented. The Village plans to begin its incentive efforts by creating a toilet rebate program for its residential and small commercial water users. The planned program would provide rebates to replace up to two toilets per customer. EPA Water Sense toilets that use 1.28 gallons per flush (gpf) would be used to replace toilets that use 1.6 gpf or higher (instead of 3.5 gpf as earlier considered). Multi-family accounts and new developments would not be included in the initial rebate program. Los Lunas is also considering the addition of a water-use tracking tool to allow water users to access their consumption data through a web portal on their computers or smartphones.

Although the Village staff has notified water users of unusually high or otherwise abnormal water use through phone calls, there is a need to develop a more formal, written procedure for these notifications. The staff will use more current data now being supplied by real-time meter reads to identify abnormal usage in a more timely manner. In addition to notifying water users of abnormal water usage by phone, Los Lunas plans to contract with a plumbing firm to offer water use surveys and consultations to residential and small commercial customers. These surveys

would check for water leaks and other potential reasons for the unusual usage and educate the customer about repair options. The Village also plans to offer more detailed water use surveys and consultations to large ICI water users to help them make water-efficient improvements in buildings and landscapes.

In addition to a base water rate, the Village's water users are charged according to the volume of water used. However, the volume charge per 1,000 gallons does not change as water use increases. A revision of the water rate to better reward low water use and encourage a reduction in high water use, such as an inclining block rate, is being considered. In addition, as a growing number of large ICI water users locate in Los Lunas, a review of ICI water rates to better encourage water conservation is warranted. Currently, the water rate structure is the same for both residential and ICI water users. Appendix H contains further information on the Village's current water rate structure.

Los Lunas is beginning to review its options for wastewater reuse. These options are somewhat limited because of the high cost involved in transporting treated wastewater through long distances between the wastewater treatment plant and typical points of use, such as parks and industrial facilities. Initial cost estimates for this type of reuse project total approximately $13 million. Also of concern is the effect that an extensive wastewater reuse project could have on the Village's return flows under its water rights permit. Therefore, Los Lunas is considering the feasibility of a smaller-scale project to provide reuse water for construction activities and other potential non-potable uses. This project would include the development of a policy or ordinance to govern effluent distribution.

Educational measures to inform the community about the requirements of the Village's water conservation ordinances and wise water use practices are also planned, primarily through the Village's Facebook page and website, as well as through monthly newsletters included in the water bills. In addition, the Village staff plans to meet with school administrators to encourage the use of educational conservation materials available through the OSE and other agencies. In past years, the Village has accomplished a number of water use efficiency measures in public parks and other community facilities. These include improvements in the efficiency of park

irrigation systems, installation of rainwater harvesting equipment and practices at several municipal buildings, and the creation of a xeriscape demonstration garden at the Village Hall. Los Lunas is continuing to monitor and improve the efficiency of municipal water use at its locations.

5.2.2.2 Targeted User

This program would affect both residential and ICI water users, as well as school students.

5.2.2.3 Saturation of Target User

The conservation measures will affect all water use sectors to some degree. The water conservation and water shortage ordinances apply to all water use sectors. Other measures, such as the ICI water use surveys and requirements for new developments, will affect specific water use categories.

5.2.2.4 Implementation Dates

An estimated implementation schedule for each conservation measure follows.

Ordinance Revisions	2017-2018
Incentive Program	2017-2019
High Usage Response	2017-2021
ICI Water Use Surveys	2020-2021
Village Facilities	2017-2021
State Facilities	2020-2021
New Developments	2020-2021
Wastewater Reuse	2018-2019
Water Rate Study	2020-2021
School Education	2018-2019
Tracking Tool	2020-2021

5.2.2.5 Anticipated Cost from 2017-2021

The Village staff could accomplish some of these measures at a minimal or low cost. However, some contractual assistance will be needed for the water use surveys and consultations, water rate study, and ordinance revisions. In addition, the reuse of wastewater will require infrastructure designed by an engineer and built by a construction company.

The Village currently notifies water users when their water use appears abnormal. In the future, the Village staff plans to offer additional assistance through two types of water use surveys and consultations. Residential and small commercial water users could request a basic survey focusing primarily on finding and repairing water leaks. Larger ICI water users could receive more extensive surveys and consultations.

The basic survey for residential and small commercial customers would be conducted by a plumbing firm. The cost of these basic surveys is estimated at $500 per survey, although the cost would vary somewhat based upon a specific situation. Approximately 12 surveys would be conducted each year at an estimated annual cost of $6,000. This cost estimate is based upon typical fees charged by local plumbing firms.

A professional ICI water survey firm would likely be hired to conduct the larger ICI surveys. The cost of these surveys would vary, depending upon the size and nature of the ICI facility, but would likely range between $3,000 and $6,000 each. Two to three surveys would be conducted annually for two years at an estimated annual cost of approximately $10,000.
The estimated consultant cost for revising the water conservation and water shortage ordinances is approximately $10,000, while the revision of ordinances related to new development is estimated to cost $20,000. Village staff will handle education and enforcement for the ordinances.

Los Lunas is planning to implement a toilet rebate program as its first incentive program. The Village plans to offer a rebate of $40 per toilet for up to two toilets per residential or small

commercial customer. Village staff estimates about 20 percent of these customers might apply for a rebate. If that occurs and rebates are provided to all applicants, the cost of the program would be approximately $103,000. If only 10 percent were to apply, the cost would be about $52,000.

The estimated cost for reuse of wastewater for construction activities and other potential non-potable uses is approximately $120,000. This would cover the cost of obtaining a groundwater discharge permit and for construction of a wastewater loading station. The cost of a water rate study should amount to approximately $30,000.

In summary, the total program costs from 2017-2021 would be as follows.

Water Conservation Ordinances	$10,000
Incentive Program	$52,000
High Usage Response	$30,000
ICI Water Use Surveys	$20,000
Village Facilities	0*
State Facilities	Included In ICI surveys
Reuse	$120,000
Water Rate Study	$30,000
New Development Ordinance	$20,000
School Education	0*
Tracking Tool	0*

*** Implemented by Village staff at minimal or low cost*

5.2.2.6 Anticipated Staffing

The Village's Public Works Director will oversee the implementation of the measures by the water utility staff. Some contractual assistance will likely be needed to conduct the water use surveys and ordinance revisions. In addition, the completion of the wastewater reuse project will

require contracting with an engineering firm for design and a construction company to build the reuse infrastructure.

5.2.2.7 Funding Source

Additional funding will likely be needed to complete a number of the measures, such as a water rate study, the incentive program, water use surveys and ordinance revisions. In addition, state or federal funds may be required to build the infrastructure for the reuse of treated wastewater. If such funds are required, the Village plans to apply for funds from the WTB or BOR.

5.2.2.8 Anticipated Results and How They Align with Goals

All of the measures in this program meet Goal #2 of the plan: to increase water use efficiency in the residential and ICI sectors.

High usage notifications, combined with water use surveys and consultations, will encourage water users to repair leaks and conserve water in both the residential and ICI sectors. Large ICI water users participating in detailed water use surveys and consultations could expect to achieve at least a five percent reduction in water use. The rebate program proposed in this plan should reduce water use by toilets in the homes and businesses of participating customers by about 30 percent. Ordinance revisions and enforcement would likely bring additional savings.

Although these programs would bring noticeable water savings to the customers affected, they would each result in only moderate overall water savings for the community, as each program would include only a small portion of water users. Therefore, the combined savings from these programs is estimated at two percent.

Water savings are expected to occur from the reuse of treated wastewater for construction purposes, depending upon the level of construction activity. Because a reduction in wastewater flows could impact the amount of return flows to the Rio Grande under the Village's water right permit, Los Lunas expects to implement wastewater reuse on a relatively small scale. Therefore,

the water savings estimated for reuse is one percent. An increase in water rates is expected to result in reduced water use, especially by customers with high usage. A water savings of one percent is estimated for this measure.

Educational programs, both for adults and children, have proven to reduce water use. Although it is difficult to directly attribute specific savings amounts to educational efforts, a savings of one percent is anticipated for the educational components integrated into several of the Village's demand management measures.

The total estimated water savings from these demand management programs is five percent.

5.2.2.9 Why the Program was Chosen

The program was chosen to help achieve demand-side improvements in water use efficiency. Although some of the community's residents are efficient in their water use, additional regulatory and educational efforts are needed to educate high water users, both in the residential and ICI sectors, and eliminate wasteful practices, protect the water supply during water shortages related to drought and climate change, and educate school children for the future sustainability of the community's water resources. Water reuse is also being considered to more efficiently meet the water demand for construction projects and potential other cost-effective non-potable uses.

5.2.2.10 Estimated Lifetime Impact of the Program

The Village's water conservation and water shortage ordinances, as well as those covering new developments, contain requirements that are expected to remain in effect for many years and be strengthened over time. Educational efforts, especially those aimed at school children, are also expected to have a long-term impact. Water reuse may initially begin on a small scale but could increase if determined to be cost effective. Water savings from these demand management measures are estimated at five percent. Such savings should remain in place if water conservation program efforts take place at the anticipated level.

5.2.2.11 How the Program Will Be Implemented

The Public Works Director will oversee the implementation of the program by the water utility staff. The program will likely require some contractual assistance for the survey, ordinance and water rate measures. The reuse project will require an engineer to design and a contractor to build the needed infrastructure.

5.2.2.12 Tracking and Evaluation

The Public Works Director, with assistance from the water utility staff, will track and evaluate the program's progress on an annual basis, identify needed adjustments, and implement as needed.

5.2.2.13 Annual Reporting and Updates

The Public Works Director, in coordination with the Village's water resources consultant, will prepare an annual report and updates on the program's status as required by the Village and by the OSE.

5.3 Process of Prioritizing Programs

Both programs chosen for the water conservation plan are important to achieving the community's goal of water use efficiency. Goal #1 was chosen to address supply-side water conservation by improving the operational efficiency of the water supply system by reducing water losses and more accurately accounting for water use. Goal #2 addresses demand-side water conservation by increasing water use efficiency in the ICI and residential sectors. The Village has identified priority actions within each goal.

The program identified as the priority in the supply-side section of the plan is the continued analysis of water use data to improve the accuracy of that information. Obtaining the most

accurate data reasonable will enhance the ability of the Village to operate and maintain its water supply system more efficiently, reduce water losses and identify the most beneficial targets for increasing water use efficiency.

The success of the demand-side program will depend upon the implementation of several conservation measures. Because the ICI water use sector is expected to expand in the coming years, and ICI water users typically have the highest water use, the high-usage notifications and water use surveys for this water use sector are a demand-side priority. A potential increase or restructuring of water rates and strengthening ordinances that affect new developments should also encourage greater water use efficiency in this expanding sector, as well as in the residential sector.

5.4 Current and Past Water Conservation Programs

Los Lunas has initiated a number of water conservation measures during the last 10 years to improve the efficiency of its water system, more accurately account for water use, and reduce water use by residential and ICI water users. The measures include the development of an initial water conservation plan, adoption of water conservation and water shortage ordinances, distribution line replacement, installation of fire hydrant meters for construction water, monitoring of high usage accounts and metering software problems, and completing the transition to an automatic metering system. These actions are covered in more detail in Appendix E.

According to the GPCD Calculator, Los Lunas' 2016 water use was 127 GPCD in 2016. This is well beyond the goal of 140 GPCD established by the OSE in the Village's water right permit. Non-revenue water amounted to 16 GPCD in 2016 (13 percent of diversions).

5.5 Proposed Water Conservation Programs

5.5.1 How Selected Water Conservation Programs Meet Stated Goals and Objectives

There are two program areas identified in the water conservation plan. Each of these programs relate to one of the following goals, which in turn meet the plan's objective in helping to sustain the community's water supply to meet water needs in the coming years.

Goal #1: Improve the operational efficiency of the water supply system by reducing water losses and more accurately accounting for water use.

This goal and its related program include a continuing effort to improve data management functions to ensure more accurate water use data. It also includes leak detection actions for water distribution lines as needed.

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Goal #2: Increase water use efficiency in the residential and ICI sectors.

This goal and its related program include water use notifications and surveys for high water users, incentives to encourage water use reductions, ordinance revisions, reuse of treated wastewater, potential water rate increases, and educational initiatives for both adults and school children.

5.5.2 Overall Timeline of Programs as Related to Objectives

Los Lunas plans to implement these programs during the five-year period of 2017-2021 covered by the water conservation plan. Specific timeframes for each water conservation activity are identified in Section 5.2: Program Components.

5.5.3 Anticipated / Reported Results for the Water Conservation Plan

Table 5-1 lists the water conservation measures to be implemented from 2017 to 2021. These include both supply-side measures, estimated to result in potential water savings of three percent, and demand-side measures, with estimated savings of five percent. The combined implementation of these measures is estimated to reduce water diversions by eight percent.

5.5.4 System Total GPCD Over Time

The Village of Los Lunas serves as a commercial center for a significant number of nearby residents. As a result, there is a larger percentage of ICI use in Los Lunas than there is in communities of similar size. If a very large new ICI development, such as the Facebook data center, locates in the community, with no attendant increase in population, overall per capita water use will rise even with increased conservation efforts. The goal of this Plan is to reduce per capita demand to 117 GPCD over time, based upon an eight percent reduction in diversions. However, to the extent that there is extensive ICI development, that decrease may be offset by an increase in demand for ICI purposes.

5.5.5 Single Family Residential (SFR) GPCD Over Time

If all the demand management measures included in the plan are fully implemented, a projected water savings of up to five percent could be achieved. Based upon the 2016 single-family residential water use of 65 GPCD, the single-family residential GPCD could decrease to 62 GPCD over time.

5.5.6 Non-Revenue Water Over Time

In 2016, non-revenue water represented 13 percent of diversions. With continued data management and possible use of leak detection measures, the Village could reduce non-revenue water to less than 10 percent within the next five years.

APPENDIX A

AMERICAN WATER WORKS (AWWA) WATER AUDIT

Appendix A. Los Lunas Water Audit

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

? Click to access definition
\+ Click to add a comment

Water Audit Report for: Village of Los Lunas
Reporting Year: 2016 — 1/2016 - 12/2016

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<----------- Enter grading in column 'E' and 'J' ---------->

WATER SUPPLIED

Item	Grade	Value	Unit	Master Meter and Supply Error Adjustments: Grade	Pcnt	Value	Unit
Volume from own sources:	8	802.170	MG/Yr	4	-0.50%		MG/Yr
Water imported:	n/a		MG/Yr				MG/Yr
Water exported:	n/a		MG/Yr				MG/Yr
WATER SUPPLIED:		**806.201**	MG/Yr				

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

Item	Grade	Value	Unit	Pcnt	Value	Unit
Billed metered:	9	681.228	MG/Yr			
Billed unmetered:	10		MG/Yr			
Unbilled metered:	9	21.031	MG/Yr			
Unbilled unmetered:	7	0.816	MG/Yr		0.816	MG/Yr
AUTHORIZED CONSUMPTION:		**703.075**	MG/Yr			

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption) **103.126** MG/Yr

Apparent Losses

Item	Grade	Value	Unit	Pcnt	Value	Unit
Unauthorized consumption:	5	0.750	MG/Yr		0.750	MG/Yr
Customer metering inaccuracies:	9	7.094	MG/Yr	1.00%		MG/Yr
Systematic data handling errors:	9	4.000	MG/Yr		4.000	MG/Yr
Apparent Losses:		**11.844**	MG/Yr			

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **91.282** MG/Yr

WATER LOSSES: **103.126** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **124.973** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Item	Grade	Value	Unit
Length of mains:	8	124.0	miles
Number of active AND inactive service connections:	8	6,888	
Service connection density:		56	conn./mile main
Are customer meters typically located at the curbstop or property line?		Yes	
Average length of customer service line:			
Average operating pressure:	3	65.8	psi

(length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

COST DATA

Item	Grade	Value	Unit
Total annual cost of operating water system:	7	$3,389,911	$/Year
Customer retail unit cost (applied to Apparent Losses):	8	$6.37	$/1000 gallons (US)
Variable production cost (applied to Real Losses):	6	$551.11	$/Million gallons

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 79 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Variable production cost (applied to Real Losses)
3: Unauthorized consumption

APPENDIX B

2016 AWWA WATER AUDIT NARRATIVE

2016 AWWA Water Audit Narrative: Village of Los Lunas

VOLUME FROM OWN SOURCES

Grade: 8:

Definition:

100% of treated water production sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted annually, less than 10 percent of meters are found outside of +/-6% accuracy.

Analysis:

The Village has 4 supply wells. All four wells are metered and 100% of the Village's water supply sources are metered. The Village recently installed electronic read meters at the rest of its supply wells. It is our opinion that none of the Village meters is now outside of +/- 6% accuracy. Even though the Village does not conduct annual testing and calibration, since the meter population is so new, we have assigned a grade of 8 to this category. The Village diverted 802.1699 million gallons in 2016.

MASTER METER ERROR ADJUSTMENT

Grade: 4

Definition:

No automatic datalogging of production volumes; daily readings are scribed on paper records. Tank/storage elevation changes are not employed in calculating "Volume from own sources" component. Data is adjusted only when grossly evident data error occurs.

Analysis:

The Village currently has two electronic mag read meters and two manual read meters on its supply wells. At this point, all readings are taken on paper records. We have no information to show that any tank elevation changes are used to calculate the "Volume from own sources". Mr. Ray Vigil, the Village's Water Director, estimates that the diversions may be under-recording by no more than 0.5 percent. This is calculated to be 4,010,000 gallons and is entered it in the Audit.

WATER IMPORTED

N/A

WATER EXPORTED

N/A

BILLED METERED

Grade: 9

Definition:

(8) At least 97% of customers with volume-based billing from meter reads. At least 90% customer meter read success rate; or minimum 80% read success rate with planning and budgeting for trials of Automatic Metering Reading (AMR) in one or more pilot areas. Good customer meter records. Regular meter accuracy testing guides replacement of statistically significant number of meters each year. Routine auditing of computerized billing records for global and detailed statistics; verified periodically by third party.

(10) At least 99% of customers exist with volume-based billing from meter reads. At least 95% customer meter read success rate; or minimum 80% read success rate with Automatic Metering Reading (AMR) trials underway. Statistically significant customer meter testing and replacement program in place on a continuous basis. Computerized billing with routine, detailed auditing, including field investigation of representative sample of representative sample of accounts undertaken annually by utility personnel. Audit is conducted by third party auditors at least once every three years.

Analysis:

The Village generally exceeds the requirements for a grade of 8. The staff maintains good customer meter records with at least 99% of customers with volume based billing reads; customer read success rate is likely above 95%. Five years ago, the Village converted all meters to remote radio read meters. In 2016, the Village replaced 200 older meters. The Village staff does not audit billing records on a scheduled basis; however, in 2015, the Village began to send monthly billing data to its water rights consultant to maintain and analyze water use data. Since virtually 100 percent of the Village water customers are billed for water used, water meters are being replaced as necessary and the data in now being informally audited on a monthly basis, we have assigned a grade of 9 to this category. The Village reports 681,228,382 gallons total for this category (376,250,000 SF + 29,966,000 MF + 275,012,382 ICI).

BILLED UNMETERED

Grade: 10

Definition:

Water utility policy does require metering and volume based billing for all customer accounts. Less than 2% of billed accounts are unmetered and exist because meter installation is hindered by unusual circumstances. The goal exists to minimize the number of unmetered accounts to the extent it is economical. Reliable estimates of consumption are obtained for unmetered accounts via site specific estimation methods.

Analysis:

The Village policy is to meter every water user. Since there are no accounts which are billed, but unmetered, we have assigned a grade of 10 to this category.

UNBILLED METERED

Grade: 9: Conditions between 8 and 10

Definitions:

(8) Written policy identifies the types of accounts granted a billing exemption. Customer meter management and meter reading are considered secondary priorities, but meter reading is conducted at least annually to obtain consumption volumes for the annual water audit. High level auditing of billing records ensures that a reliable census of such accounts exists.

(10) Clearly written policy identifies the types of accounts given a billing exemption, with emphasis on keeping such accounts to a minimum. Customer meter management and meter reading for these accounts is given proper priority and is reliably conducted. Regular auditing confirms this. Total water consumption for these accounts is taken from reliable readings from accurate meters.

Analysis:

The Village grants no exemptions for payment and meter readings for all radio read meters are recorded on a monthly basis. Municipal departments budget for water use and are billed on a monthly basis. Contractors and the Los Lunas Parks and Recreation Department are issued temporary fire hydrant meters and pay for metered use. In 2015, Los Lunas became much more aggressive in obtaining monthly meter readings from contractors and is having success metering their usage with bulk meters. The Village also has a coin-operated water station to sell small amounts of potable water to area residents. Water use at the Water Station averages about 20,000 gallons per month.

The only authorized metered unbilled use is water used for arsenic backwash purposes. This use is included in the Other Metered Category of the GPCD Calculator. In addition, the Village has now implemented a system to calculate adjustments for water leaks. The water use associated with arsenic backwash was 19.27 MGY. Village staff estimates that metered, unbilled use associated with leak adjustments from July 1-Dec. 30, 2016 was 880,568 gallons. We have assumed that this is representative and double it and entered in in the category of unbilled, metered.

UNBILLED UNMETERED

Grade: 7

Definitions:

6. Coherent policies exist for some forms of unbilled, unmetered consumption but others await closer evaluation. Reasonable recordkeeping for the managed use exists and annual volumes to be quantified by inference, but unsupervised uses are guesstimated.

8. Clear policies and good recordkeeping exist for some uses but other uses have limited oversight. Total consumption is a mix of well quantified use, such as from formulae or temporary meters and relatively subjective estimates of less regulated use.

Analysis:

The Village strives to minimize unmetered use. Beginning in 2016, the Assistant Water Supervisor began to maintain a log of leaks, line breaks and tank overflows. Using AWWA guidance, he has estimated loss for these purposes on a monthly basis. The estimated losses in 2016 were 374,000 gallons. There are a few uses which are not metered, including water for firefighting purposes, water use for firefighting training exercises and hydrant flushing. Tony Madrid, Assistant Fire Chief, estimates that in 2016, a private contractor used about 410,000 gallons in the process of hydrant flushing and about 32,000 gallons for fire training and firefighting purposes. We have entered this total in the spreadsheet. The Village will be using a spreadsheet to track such uses on a monthly basis in 2017.

UNAUTHORIZED CONSUMPTION

Grade: 5 (Default)

Analysis:

We have assigned the default of 5 to this component. The Village strives to eliminate unauthorized consumption. The staff issues meters for construction use, has installed locks on fire hydrants that are most vulnerable to theft and has installed a metered coin-operated water station for small amounts of use. Finally, the staff is very vigilant about looking for evidence of water theft. While the Village does not know how much water is lost to unauthorized consumption, Ray Vigil, Water Department Supervisor, estimates that this number is between 500,000 and 1,000,000 gallons per year. We have entered 750,000 gallons in the Audit. In 2017, Scott White, Assistant Supervisor, will be tracking the number of incidents of unauthorized consumption.

CUSTOMER METERING INACCURACIES

Grade: 9

Definitions:

(8) Ongoing meter replacement and accuracy testing result in highly accurate customer meter population. Testing is conducted on samples of meters at varying lifespans to determine optimum replacement time for various types of meters.

(10) Good records of number, type and size of customer meters; ongoing meter replacement occurs. Regular meter accuracy testing gives reliable measure of composite inaccuracy volume for the system. New metering technology is embraced to keep overall accuracy improving.

Analysis:

The Village uses remote radio read meters, which is the most advanced metering system. As described above, none of the meters in the water system are more than seven years old and the Village changed out approximately 200 meters in 2016. The Village has excellent records of number, type and size of meters. However, the Village has encountered problems with the software system associated with the meters. In addition, early in 2016, the Village determined that for a few Park accounts, the software had not been set up to receive readings and bill use for these accounts. The Village has addressed these problems and overall accuracy of the meters is improving. Because of the software problem, we have assigned a 9 to this item. We have assumed that metering inaccuracies account for approximately one percent of metered use and have entered a value of 7.094 million gallons.

SYSTEMATIC DATA HANDLING ERRORS

Grade: 9

Definitions:

(8) New account activation and billing operations policy and procedures are reviewed at least biannually. Computerized billing system includes an array of reports to confirm billing data and system functionality. Checks are conducted routinely to flag and explain zero consumption accounts. Annual internal checks conducted with third party audit conducted at least once every five years. Accountability checks flag billing lapses. Consumption lost to billing lapses is well quantified and reducing year-by-year.

(10) Sound written policy and procedures exist for new account activation and oversight of customer billing operations. Robust computerized billing system gives high functionality and reporting capabilities which are utilized, analyzed and the results reported each billing cycle. Assessment of policy and data handling errors are conducted internally and audited by third party at least once every three years, ensuring consumption lost to billing lapses is minimized and detected as it occurs.

Analysis:

The Village has state-of-the-art remote radio read meters. The software will produce an array of reports to confirm billing data, including a series of accountability check flags. The Village transitioned to a new software billing system in 2014 and the staff is now confident in the functionality of the system. The

problems with billing lapses are considerably reduced as a result of increased training and familiarity with the software. Beginning in 2015, the Village's water rights consultant has reviewed and analyzed water use data on a monthly basis. Through this effort, the staff and its consultants discovered multiplier and coding errors as well as a few meters that were not transmitting meter readings. As a result of discovering multiplier and coding errors, the 2016 meter data is much more accurate than years prior. Because the billing system is robust and staff has a good understanding of it and use it to continually check for billing data errors but they do not do any 3rd party auditing, we have assigned a grade of 9 to this category. We estimate that water lost due to billing lapses in 2016 is approximately 0.5 percent of diversions or 4 MGY.

LENGTH OF MAINS

Grade: 8

Definition:

(8) Sound policy and procedures exist for permitting and commissioning new water mains. Highly accurate paper records with regular field validation; or electronic records and asset management system in good condition. Includes system back-up.

Analysis:

In the opinion of the Village's consulting engineer, Molzen-Corbin and Associates (MCA), the Village meets all criteria for a grade of 8. The Village maintains paper records, which MCA believes to be highly accurate and is converting to electronic records. Currently, all new lines are documented electronically and paper records are being converted. MCA estimates that as of 2017, there are 123.5 miles of water mains that are 6 inches or larger.

NUMBER OF ACTIVE AND INACTIVE SERVICE CONNECTIONS

Grade: 8

Definition:

(8) Permitting policy and procedures reviewed at least biannually. Well-managed computerized information management system and routine, periodic field checks and internal system audits allow counts of connections that are no more than 2% in error.

Analysis:

Although the Village does not currently conduct periodic field checks, they are constantly reviewing and updating policy and conducting internal system audits. In our opinion, the total count of connections is no more than 2 percent in error. Therefore, we have assigned a grade of 8 to this category. There are 6,888 connections in the system.

AVERAGE LENGTH OF CUSTOMER SERVICE LINE

Grade: 10

Definition:

6. Clear policy exists to define utility/customer responsibility for service connection piping. Accurate, well-maintained paper or basic electronic recordkeeping system exists. Periodic field checks confirm piping lengths for a sample of customer properties.

Analysis:

The Audit asks if meters are typically located at the curb stop or property line. The response is Yes, so the Audit automatically assigns a grade of 10 to this category. However, it is likely that some older residences were hooked up under previous policies and field checks are performed upon all new installations. Although 6 is a more appropriate grade, due to record-keeping, the Audit reflects a grade of 10.

AVERAGE OPERATING PRESSURE

Grade: 3

Definition:

(2) Limited telemetry monitoring of scattered sites provides some static pressure data, which is recorded in handwritten logbooks. Pressure data is gathered at individual sites only when low pressure complaints arise. Average pressure is determined by averaging relatively crude data, and is affected by significant variation in ground elevations, system head loss and gaps in pressure controls in the distribution system.

(4) Effective pressure controls separate different pressure zones; moderate pressure variation across the system, occasional open boundary valves are discovered that breech pressure zones. Basic telemetry monitoring of the distribution system logs pressure data electronically. Pressure data gathered by gauges or dataloggers at fire hydrants or buildings when low pressure complaints arise, and during fire flow tests and system flushing. Reliable topographical data exists. Average pressure is calculated using this mix of data.

Analysis:

Pressure is recorded every few months by hand from 8 meters in the system. Different pressure zones are effectively separated by pressure reducing valves (PRVs). MCA indicates average pressure is 65.75 psi by using the data from Village meters and data collected when responding to complaints. Because the system does not have any telemetry monitoring but does have effective control separating pressure zones, we assign a grade of 3 to this category. Note that the Village does plan to upgrade to telemetry in July of this year.

TOTAL ANNUAL COST OF OPERATING WATER SYSTEM

Grade: 7

Definition:

Conditions between 6 and 8.

(6) Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Data audited periodically by utility personnel, not a Certified Public Accountant (CPA).
(8) Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Data audited at least annually by utility personnel, and at least once every three years by a Certified Public Accountant (CPA).

Analysis:
The Village Finance Director maintains an industry standard cost accounting system and audits the data at least on an annual basis. Because the data are not audited by a CPA, we have assigned a grade of 7 to this category. The total annual operating cost for fiscal year 2015-2016 was $3,389,911.

CUSTOMER RETAIL UNIT COST

Grade: 8

Definition:
Effective water rate structure is in force and is applied reliably in billing operations. Composite customer rate is determined using a weighted average composite consumption rate, including residential, commercial, industrial and any other customer classes within the water rate structure.

Analysis:
We believe these conditions are essentially met. The Village has two categories of users: residential and commercial, which includes municipal users however, they have the same rate structure and the only difference is between in-town and out-of-town users. The service charge is designed to reimburse the Village for the fixed costs of operating the system. The commodity charge is $6.37/1000 gallons.

VARIABLE PRODUCTION COST

Grade: 6

Definition:
Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Pertinent additional costs beyond power and treatment (ex: liability, residuals management, etc.) are included in the unit variable production cost. Data audited at least annually by utility personnel.

Analysis:
We believe these conditions are essentially met, except that the only costs included are power and treatment chemicals. The cost of electrical and chemical expenses ($442,081) is divided by the total production (802,169.9 MG) to get a variable production cost of $551.11/MG water produced.

DOCUMENTED WATER LOSSES

Although the Water Audit does not contain a category for calculation of documented losses, we feel that this is an issue that is quite relevant to the overall audit process. Scott White, Assistant Water

Supervisor, has now begun to maintain a work sheet to document water losses due to large leaks in the distribution system and has developed a method for calculating losses.

APPENDIX C

NEW MEXICO OFFICE OF THE STATE ENGINEER (OSE)
GALLONS PER CAPITA CALCULATOR

Census Information Data Table 2.1

Info

Click here to access the Census Web site

OR

Click here for instructions on how to find the data on the Census website

2019 TO 2014

Use the most recent census data

Return to Instructions

DATA

US Census Table	Description		INPUT
DP-1	**Profile of General Population and Housing Characteristics**	**Census Year**	**14,835**
Subject			
Relationship	In group quarters	Total	**147**
Housing Occupancy	Total housing units	Total	**5,916**
	Occupied housing units		**5,463**
	Vacant housing units		**453**
Households by Type	Average household size	Total	**2.69**

Formula: Household Size = Total Population / Total Number of Housing Units

Vacancy Rate %	7.7%

COMMENTS:

DATA INPUT SHEET

Los Lunas

Instructions

3. SINGLE-FAMILY RESIDENTIAL (SFR)

Return to Instructions

MONTHLY DATA

TABLE 3.1 Info

2019 TO 2014

SFR BILLED WATER CONSUMPTION (Gallons (US))

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019												
2018												
2017												
2016	22,678,000	23,144,000	25,218,000	28,388,000	40,696,000	40,172,000	46,271,000	37,197,000	38,195,000	27,555,000	25,243,000	21,493,000
2015	23,251,000	21,336,000	28,057,000	27,014,000	39,197,000	41,690,000	37,868,000	40,966,000	33,014,000	30,281,692	23,396,000	23,244,000
2014	23,602,600	20,701,000	25,696,000	33,760,000	38,098,000	38,098,000	53,212,000	37,756,000	31,841,000	31,912,000	22,837,000	22,624,000
2013												

TABLE 3.2 Info

Active Connections Only

You have chosen to enter Active Connections Only, enter the monthly values below, or enter annual values in table 3.8 Check message above Table 3.3 to see if additional data is required.

NUMBER OF SFR CONNECTIONS (Monthly)

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019												
2018												
2017	6,168	6,185	6,199									
2016	5,647	5,694	5,741	5,788	5,835	5,882	5,929	5,976	6,023	6,070	6,117	6,168
2015	5,490	5,500	5,510	5,520	5,530	5,540	5,550	5,560	5,570	5,580	5,590	5,598
2014	5,452	5,452	5,452	5,452	5,452	5,452	5,452	5,452	5,452	5,452	5,452	5,452
2013												

TABLE 3.3 Info

You have entered Active Connections Only in Table 3.2; leave the cells below blank

INACTIVE (ZERO USE) SFR CONNECTIONS (Monthly)

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019												
2018												
2017												
2016												
2015												
2014												
2013												

TABLE 3.4

Formula = (No. of Connections - No. of Zero Use Accounts) * Ave. Household Size

SFR POPULATION (Monthly)

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2018	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2017	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2016	15,190	15,317	15,443	15,570	15,696	15,823	15,949	16,075	16,202	16,328	16,455	16,592
2015	14,768	14,795	14,822	14,849	14,876	14,903	14,930	14,956	14,983	15,010	15,037	15,059
2014	14,666	14,666	14,666	14,666	14,666	14,666	14,666	14,666	14,666	14,666	14,666	14,666
2013	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data

TABLE 3.5

Formula = Billed Water Consumption (SFR only) / Calculated Population (SFR only)

SFR GPCD CALCULATION (Monthly)

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2018	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2017	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2016	48.16	53.96	52.68	60.78	83.64	84.63	93.59	74.64	78.58	54.44	51.14	41.79
2015	50.79	51.50	61.06	60.64	85.00	93.25	81.82	88.36	73.45	65.08	51.86	49.79
2014	51.91	50.41	56.52	76.73	83.80	86.59	117.04	83.05	72.37	70.19	51.91	49.76
2013	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data

COMMENTS:

As of December, 2015, there were 5598 SFR accounts; we assumed that SFR accounts increased by an average of 10 units per month in 2015. As of 1/1/17, there were 6248 active SFR accounts; however, we deleted 80 accounts to account for homes which have not yet been constructed. We assumed that there were 47 new accounts per month from Dec. 2015-Dec. 2016.

ANNUAL DATA

TABLE 3.6

ANNUAL CONSUMPTION

TABLE 3.7

ANNUAL CALCULATION
N/A
N/A
N/A
376,250,000
369,314,692
380,137,600
N/A

TABLE 3.8

AVG. ANNUAL CONNECTIONS

TABLE 3.9

AVG CONN. CALCULATION
N/A
N/A
N/A
5,906
5,545
5,452
N/A

TABLE 3.10 Info

CALCULATED GROWTH RATE
N/A
N/A
N/A
6.51%
1.70%
N/A

TABLE 3.11

No. VACANT SFR CONNECTIONS

TABLE 3.12 Info

SIZE OF HOUSEHOLD
2.69
2.69
2.69
2.69
2.69
2.69
2.69

TABLE 3.13 Info

SFR POPULATION
N/A
N/A
N/A
15,887
14,916
14,666
N/A

TABLE 3.14 Info

ANNUAL SFR GPCD
N/A
N/A
N/A
64.89
67.84
71.01
N/A

DATA INPUT SHEET

Los Lunas

4. MULTI-FAMILY RESIDENTIAL (MFR)

Return to Instructions

Instructions

MONTHLY DATA

2019 TO 2014

TABLE 4.1 Info

MFR BILLED WATER CONSUMPTION (Monthly) (Gallons (US))

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019												
2018												
2017												
2016	2,283,000	2,145,000	1,922,000	2,001,000	3,143,000	2,687,000	3,276,000	3,066,000	2,547,000	2,264,000	2,529,000	2,103,000
2015	1,659,000	1,549,000	1,751,000	1,428,000	1,943,000	2,098,000	2,021,000	2,146,000	1,787,000	3,698,600	2,044,000	1,989,000
2014	2,073,000	1,967,000	1,639,000	2,294,000	2,311,000	2,311,000	3,266,000	2,954,000	2,468,000	2,000,000	2,000,000	2,000,000
2013												

TABLE 4.2 **If only Current Number of Units is Known, put this number in Table 4.7**

NUMBER OF MFR UNITS (Monthly)

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019												
2018												
2017												
2016	511	511	511	511	511	511	511	511	511	511	511	511
2015	511	511	511	511	511	511	511	511	511	511	511	511
2014	511	511	511	511	511	511	511	511	511	511	511	511
2013												

TABLE 4.3 **Formula = (Number of Units - Vacant MFR Connections) * Ave. Household Size**

MFR POPULATION (Monthly)

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2018	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2017	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2016	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269
2015	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269
2014	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269
2013	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data

TABLE 4.4 **Formula = MFR Billed Water Consumption (Monthly) / MFR Population (Monthly)**

MFR GPCD CALCULATION (Monthly)

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2018	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2017	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2016	58.02	60.35	48.84	52.55	79.87	70.56	83.25	77.92	66.89	57.54	66.41	53.44
2015	42.16	43.58	44.50	37.50	49.38	55.09	51.36	54.54	46.93	93.99	53.68	50.55
2014	52.68	55.34	41.65	60.24	58.73	60.69	83.00	75.07	64.81	50.83	52.52	50.83
2013	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data

ANNUAL DATA

TABLE 4.5

ANNUAL CONSUMPTION

TABLE 4.6

ANNUAL CALCULATION
N/A
N/A
N/A
29,966,000
24,113,600
27,283,000
N/A

TABLE 4.7

No. CURRENT UNITS

TABLE 4.8

ANNUAL UNIT CALCULATION
N/A
N/A
N/A
511
511
511
N/A

TABLE 4.9 Info

MFR POPULATION
N/A
N/A
N/A
1,269
1,269
1,269
N/A

TABLE 4.10

VACANT MFR CONNECTIONS
N/A
N/A
N/A
39
39
39
N/A

TABLE 4.11 Info

ANNUAL MFR GPCD
N/A
N/A
N/A
64.68
52.05
58.89
N/A

DATA INPUT SHEET

5. INDUSTRIAL, COMMERCIAL & INSTITUTIONAL (ICI) AND OTHER METERED

Return to Instructions

Info

Los Lunas

Instructions

MONTHLY DATA

2019 TO 2014

TABLE 5.1

ICI WATER CONSUMPTION (Gallons (US))

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019												
2018												
2017												
2016	12,506,000	13,987,000	16,223,000	21,631,000	26,836,000	33,109,000	34,594,000	30,960,000	29,419,000	20,409,000	15,216,000	20,122,382
2015	11,397,000	12,995,000	17,408,000	19,989,000	21,718,000	30,246,000	28,981,000	33,797,000	27,627,000	21,591,000	17,284,000	17,113,000
2014	12,772,000	11,235,000	18,092,000	22,905,000	28,301,000	28,301,000	39,477,000	32,427,000	29,211,000	25,572,000	16,023,000	12,219,000
2013												

TABLE 5.2

OTHER METERED (Gallons (US))

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019												
2018												
2017												
2016	1,566,000	1,311,000	2,910,000	1,433,000	2,696,000	1,579,000	1,097,000	2,046,000	946,000	848,000	1,486,000	1,352,000
2015	1,077,000	917,000	848,000	1,251,000	1,770,000	2,626,000	1,670,000	2,150,000	2,299,000	1,627,000	1,857,000	1,077,000
2014	301,000	1,115,000	1,115,000	1,055,000	605,000	1,371,000	1,051,000	1,820,000	3,300,000	1,382,000	1,382,000	1,682,000
2013												

COMMENTS:

ANNUAL DATA

TABLE 5.3 ICI ANNUAL CONSUMPTION	TABLE 5.4 ICI GPCD	TABLE 5.5 ICI ANNUAL CALCULATED
	N/A	N/A
	N/A	N/A
	N/A	N/A
	43.54	275,012,382
	43.64	260,146,000
	47.11	276,535,000
	N/A	N/A

TABLE 5.6 OTHER ANNUAL CONSUMPTION	TABLE 5.7 OTHER METERED GPCD	TABLE 5.8 OTHER ANNUAL CALCULATED
	N/A	N/A
	N/A	N/A
	N/A	N/A
	3.05	19,270,000
	3.22	19,169,000
	2.76	16,179,000
	N/A	N/A

DATA INPUT SHEET

Los Lunas

7. TOTAL WATER DIVERTED AND SUPPLIED

Return to Instructions

MONTHLY DATA

TABLE 7.1

TOTAL WATER DIVERTED (Monthly) (Gallons (US))

2019 TO 2014

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019												
2018												
2017												
2016	45,870,200	49,892,800	66,165,300	65,235,600	80,465,200	95,008,800	96,699,000	79,815,000	76,318,000	49,584,000	45,870,000	51,246,000
2015	56,679,000	47,378,000	58,691,000	67,072,000	73,135,000	92,276,000	82,331,000	91,754,000	73,405,000	59,591,000	48,717,000	47,474,000
2014	43,415,000	40,520,000	57,755,000	68,364,000	79,842,000	90,253,000	79,324,000	77,698,000	70,178,000	60,079,000	45,641,000	44,123,000
2013												

TABLE 7.2

IMPORTED WATER (Monthly)(Gallons (US)) Info

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019												
2018												
2017												
2016												
2015												
2014												
2013												

TABLE 7.3

EXPORTED WATER (Monthly) (Gallons (US)) Info

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019												
2018												
2017												
2016												
2015												
2014												
2013												

TABLE 7.4

Formula = Total Water Diverted + Imported water - Exported Water

TOTAL WATER SUPPLY (Monthly) (Gallons (US))

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019	0	0	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0	0	0
2016	45,870,200	49,892,800	66,165,300	65,235,600	80,465,200	95,008,800	96,699,000	79,815,000	76,318,000	49,584,000	45,870,000	51,246,000
2015	56,679,000	47,378,000	58,691,000	67,072,000	73,135,000	92,276,000	82,331,000	91,754,000	73,405,000	59,591,000	48,717,000	47,474,000
2014	43,415,000	40,520,000	57,755,000	68,364,000	79,842,000	90,253,000	79,324,000	77,698,000	70,178,000	60,079,000	45,641,000	44,123,000
2013	0	0	0	0	0	0	0	0	0	0	0	0

ANNUAL DATA

TABLE 7.6

ANNUAL TOTAL DIVERTED

TABLE 7.7

ANNUAL TOTAL DIVERTED CALC
N/A
N/A
N/A
802,169,900
798,503,000
757,192,000
N/A

TABLE 7.8

ANNUAL TOTAL IMPORTED

TABLE 7.9

ANNUAL TOTAL IMPORT CALC
N/A
N/A
N/A
N/A
N/A
N/A
N/A

TABLE 7.10

ANNUAL TOTAL EXPORTED

TABLE 7.11

ANNUAL TOTAL EXPORT CALC
N/A
N/A
N/A
N/A
N/A
N/A
N/A

TABLE 7.12

ANNUAL TOTAL WATER SUPPLY
0
0
0
802,169,900
798,503,000
757,192,000
0

TABLE 7.13

TOTAL POP. EST.
N/A
N/A
N/A
17,303
16,332
16,082
N/A

Table 7.5

SYSTEM TOTAL GPCD (Monthly)

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2018	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2017	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2016	86	103	123	126	150	183	180	149	147	92	88	96
2015	112	104	116	137	144	188	163	181	150	118	99	94
2014	87	90	116	142	160	187	159	156	145	121	95	89
2013	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data

TABLE 7.14

Year	SYSTEM TOTAL GPCD
2019	**NA**
2018	**NA**
2017	**NA**
2016	**127.01**
2015	**133.95**
2014	**128.99**
2013	**NA**

COMMENTS:

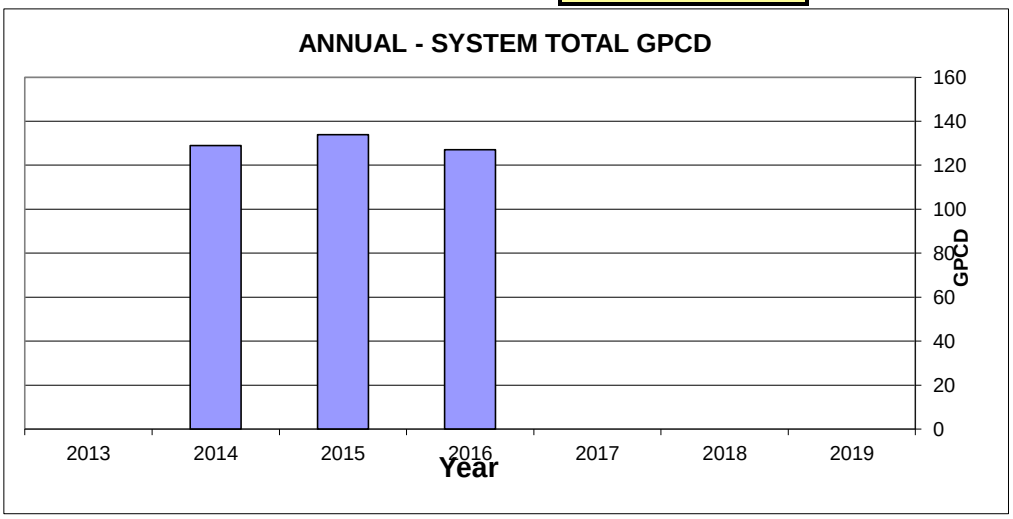
U.S. Census estimates 2015 population was 15,336. We assume that population increased by 323 (120 new homes in 2016). In addition, the Village serves approximately 554 Out-of-town residents. Thus, 2016 population was approximately 16,213 (15,336+554+323). This is within 6 percent of the population estimate calculated by the GPCD Calculator.

8. SUMMARY GPCD REPORTED DATA

Los Lunas		
2019	To:	2014

ANNUAL

Year	SYSTEM GPCD
2019	NA
2018	NA
2017	NA
2016	127.01
2015	133.95
2014	128.99
2013	NA

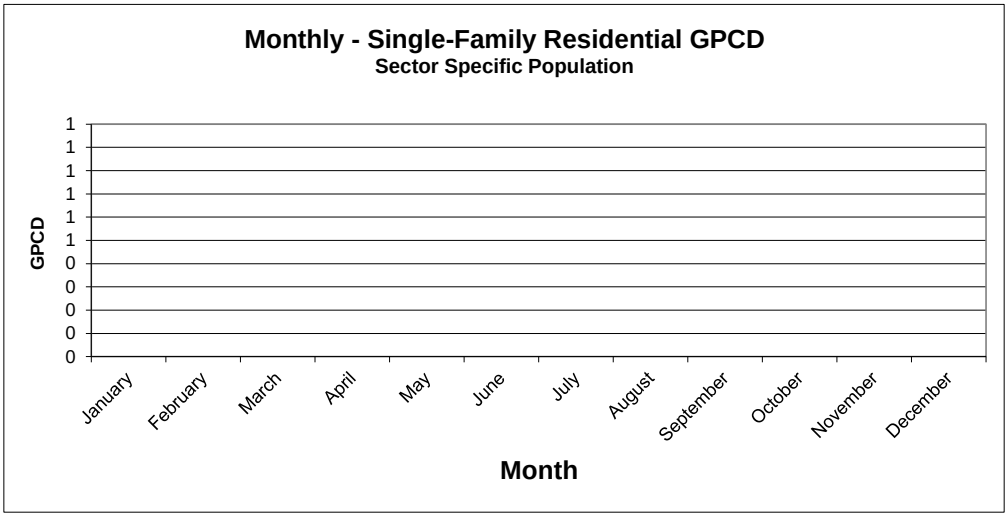


MONTHLY

Month	SFR GPCD
January	#N/A
February	#N/A
March	#N/A
April	#N/A
May	#N/A
June	#N/A
July	#N/A
August	#N/A
September	#N/A
October	#N/A
November	#N/A
December	#N/A

Year	0

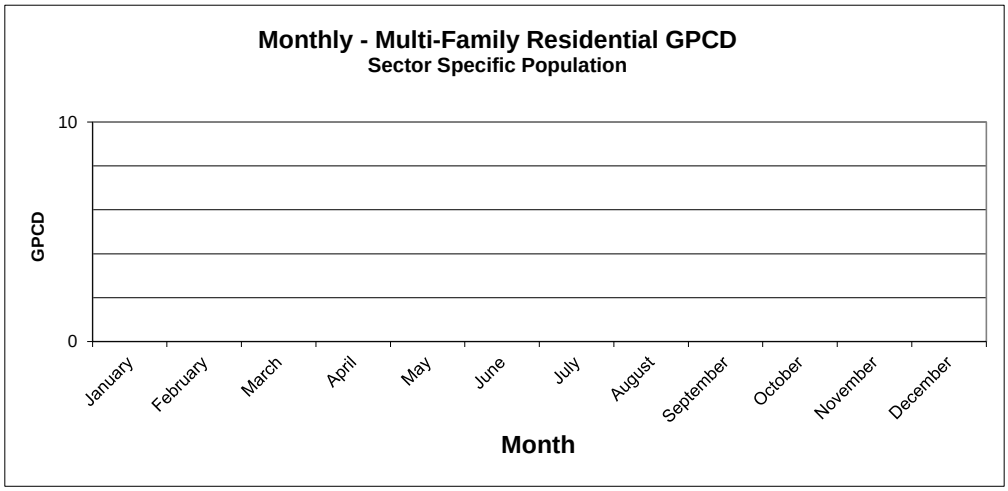
Peak/Ave	#N/A



YEAR **0**

Month	MFR GPCD
January	#N/A
February	#N/A
March	#N/A
April	#N/A
May	#N/A
June	#N/A
July	#N/A
August	#N/A
September	#N/A
October	#N/A
November	#N/A
December	#N/A

Peak/Ave	#N/A



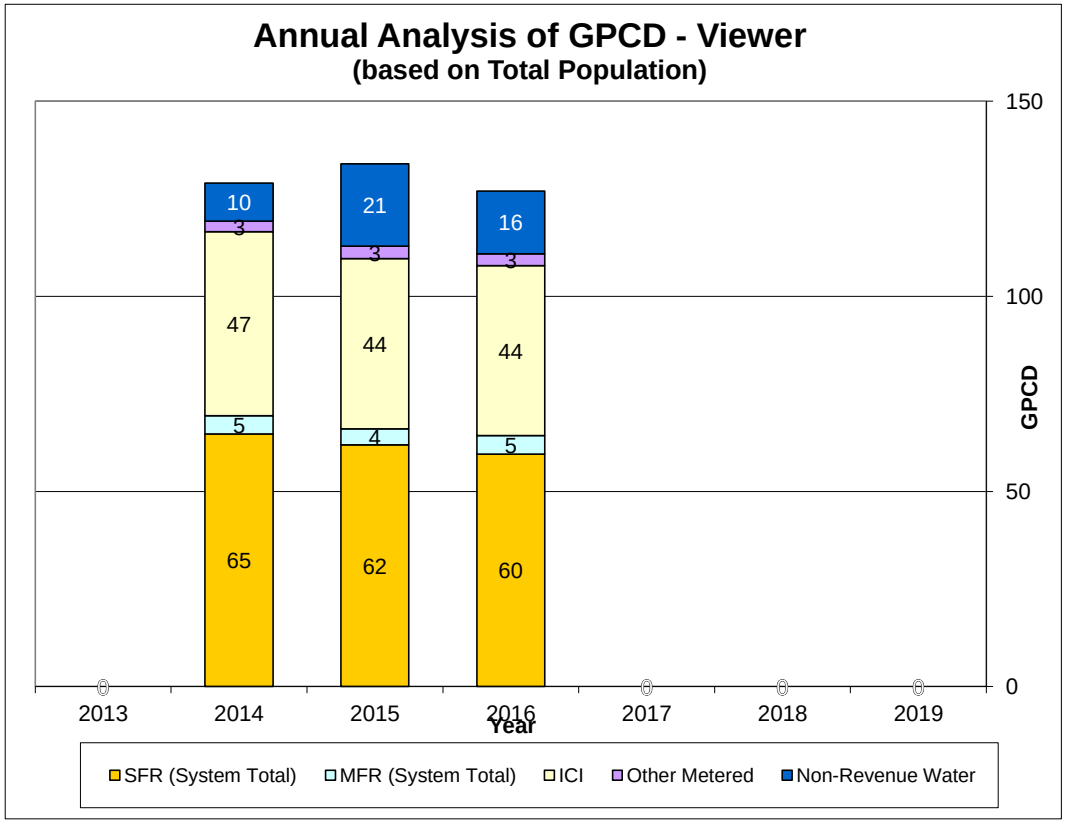
YEAR **0**

9. System Total Annual Reporting Performance

Overall Annual GPCD (based on Total Population)

	SFR (System Total)	MFR (System Total)	ICI	Other Metered	Info Non-Revenue Water	Total Supplied	Non-Revenue Volume Million Gallons (US)
Year							
On Graph?	Yes	Yes	Yes	Yes	Yes		
2019	N/A	N/A	N/A	N/A	######	#VALUE!	-
2018	N/A	N/A	N/A	N/A	######	#VALUE!	-
2017	N/A	N/A	N/A	N/A	######	#VALUE!	-
2016	59.57	4.74	43.54	3.05	16.10	127.01	101.67
2015	61.95	4.05	43.64	3.22	21.10	133.95	125.76
2014	64.76	4.65	47.11	2.76	9.72	128.99	57.06
2013	N/A	N/A	N/A	N/A	######	#VALUE!	-

Los Lunas		
2019	to	2014



APPENDIX D

SUMMARY OF DATA RESULTS FOR AWWA AUDIT AND OSE GPCD CALCULATOR

Appendix D. Summary of Data Results and Analysis for AWWA Water Audit and GPCD Calculator

AWWA Water Audit

2.1.1 Performance Indicators

a. Financial

b. Operational Efficiency

Performance indicators are summarized in the 2016 AWWA Audit in Appendix A.

2.1.2 Data Validity Score.

The AWWA Audit calculates the Data Validity Score at 79.

2.1.3 Priority Areas for Attention

The AWWA Audit indicates that priority areas for attention are Volume from Own Sources and Unauthorized Consumption. However, based upon additional information from the Public Works Director and the Village's water resources consultant, the primary area of concern is ensuring a more consistent water pressure throughout the community. The Village plans to address this issue in 2017 and 2018.

GPCD Calculator

2.2.1 Period of Study

The Village converted to a new water billing system in 2014 and was only able to roughly calculate use in that year. Since then, the Village and its water rights consultant have worked to refine the data, which is entered in an Access database and analyzed on a monthly basis. The GPCD Calculator, which contains data from 2014-2016, is in Appendix C. This calculator was prepared and will be maintained by Ms. Britne Lee of the Village staff, with the assistance of the Village's water resources consultant, Lee Wilson and Associates, Inc.

2.2.2 Average Size of Household

The U.S. Census estimates that there are 2.69 persons per household in the Village.

2.2.3 Annual Single-Family Residential (SFR) Gallons per Capita per Day (GPCD)

Table 3.14 of the GPCD Calculator contains a summary of SFR GPCD from 2014-2016. In 2016, SFR GPCD was 64.88 GPCD.

2.2.4 Monthly SFR GPCD

Table D.1 contains a breakdown of 2016 SFR GPCD by month.

2.2.5 Estimated SFR Indoor Water Use

SFR water use in January and December of 2016 averaged 22.09 million gallons per month. Winter use is assumed to represent indoor use. Thus, indoor SFR use in 2016 was 265.03 million gallons or almost 814 AFY.

2.2.6 Estimated SFR Outdoor Water Use

In 2016, total SFR water use was 376.25 million gallons. The difference between total use and indoor use of 265.03 million gallons is 111.2 million gallons or 341.3 AFY.

2.2.7 Annual Multi-Family Residential (MFR) GPCD

Table 4.11 of the GPCD Calculator contains a summary of MFR GPCD from 2014-2016. In 2016, the MFR GPCD was 64.68 GPCD.

2.2.8 Estimated MFR Indoor Water Use

MFR water use in January and December of 2016 averaged 2.19 million gallons per month. Winter use is assumed to represent indoor use. Thus, indoor MFR use in 2016 was 26.3 million gallons or 80.71 AFY.

2.2.9 Estimated MFR Outdoor Water Use

In 2016, total MFR use was 29.67 million gallons. The difference between total use and indoor use of 26.3 million gallons is 3.37 million gallons or 10.34 AFY.

2.2.10 Monthly MFR GPCD

Table D.2 contains a breakdown of 2016 MFR GPCD by month.

2.2.11 Industrial, Commercial, Institutional (ICI) and Other Metered

ICI water use includes municipal users. The largest current commercial users are the Central New Mexico Correctional Facility, the Walmart Distribution Center and School irrigation accounts. In the future, the Facebook Data Processing Center will likely be the largest consumer, along with Niagara Bottling Company.

2.2.12 Annual System Total GPCD

Tab 9 of the GPCD Calculator contains total GPCD by year. Total per-capita demand has decreased from 128.99 GPCD in 2014 to 127.01 GPCD in 2016, as shown in Figure D.1: Yearly System GPCD 2014-2016.

2.2.13 Monthly System Total GPCD

Figure D.2 shows 2016 Water Use by Month, along with a breakdown of use by category. Figure D.3 shows 2016 Water Use by Type and identifies the percentage of total use by each water use sector.

2.2.14 Non-Revenue Water

Tab 9 of the GPCD Calculator contains the amount of non-revenue water by year. It shows that non-revenue water has decreased from 21.1 GPCD in 2015 to 16.1 GPCD in 2016. Due to more aggressive data management efforts, non-revenue water was less than 10 percent of diversions during the last 6 months of 2016.

Table D.1. 2016 SFR GPCD by Month

Month	Usage	Single Family Residents	Per Capita Use
JAN	22,678,000	15,190	48.16
FEB	23,144,000	15,317	53.96
MAR	25,218,000	15,443	52.68
APR	28,388,000	15,570	60.78
MAY	40,696,000	15,696	83.64
JUN	40,172,000	15,823	84.63
JUL	46,271,000	15,949	93.59
AUG	37,197,000	16,075	74.64
SEP	38,195,000	16,202	78.58
OCT	27,555,000	16,328	54.44
NOV	25,243,000	16,455	51.14
DEC	21,493,000	16,592	41.79
TOTAL	376,250,000	15,887	64.89

Table D.2. 2016 MFR GPCD by Month

Month	Usage	Multi Family Residents	Per Capita Use
JAN	2,283,000	1,269	58.02
FEB	2,145,000	1,269	60.35
MAR	1,922,000	1,269	48.84
APR	2,001,000	1,269	52.55
MAY	3,143,000	1,269	79.87
JUN	2,687,000	1,269	70.56
JUL	3,276,000	1,269	83.25
AUG	3,066,000	1,269	77.92
SEP	2,547,000	1,269	66.89
OCT	2,264,000	1,269	57.54
NOV	2,529,000	1,269	66.41
DEC	2,103,000	1,269	53.44
TOTAL	29,966,000	1,269	64.68

Figure D.1.

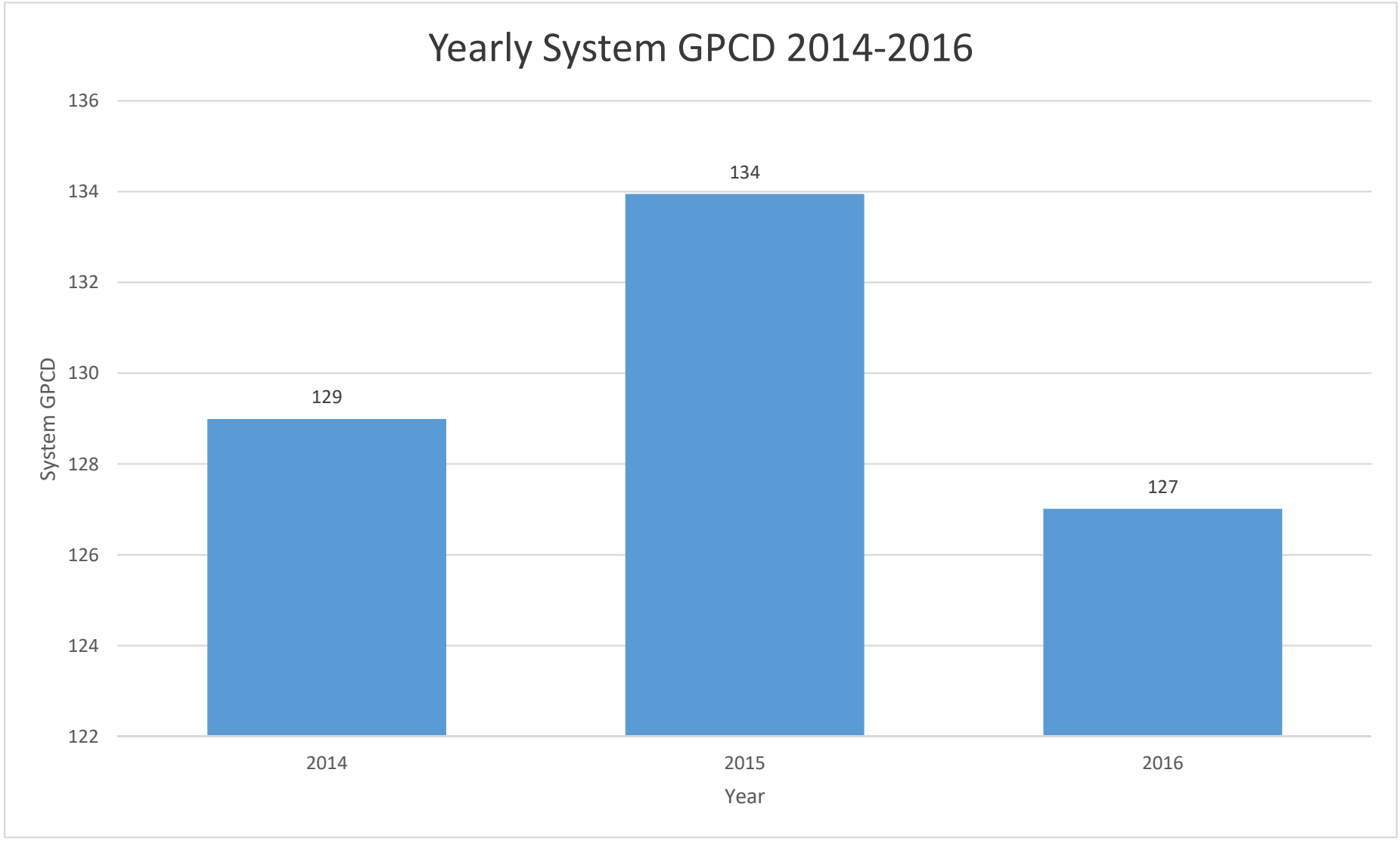

Yearly System GPCD 2014-2016
136
134
132
130
128
126
124
122
System GPCD
129
134
127
2014
2015
2016
Year

Figure D.2.

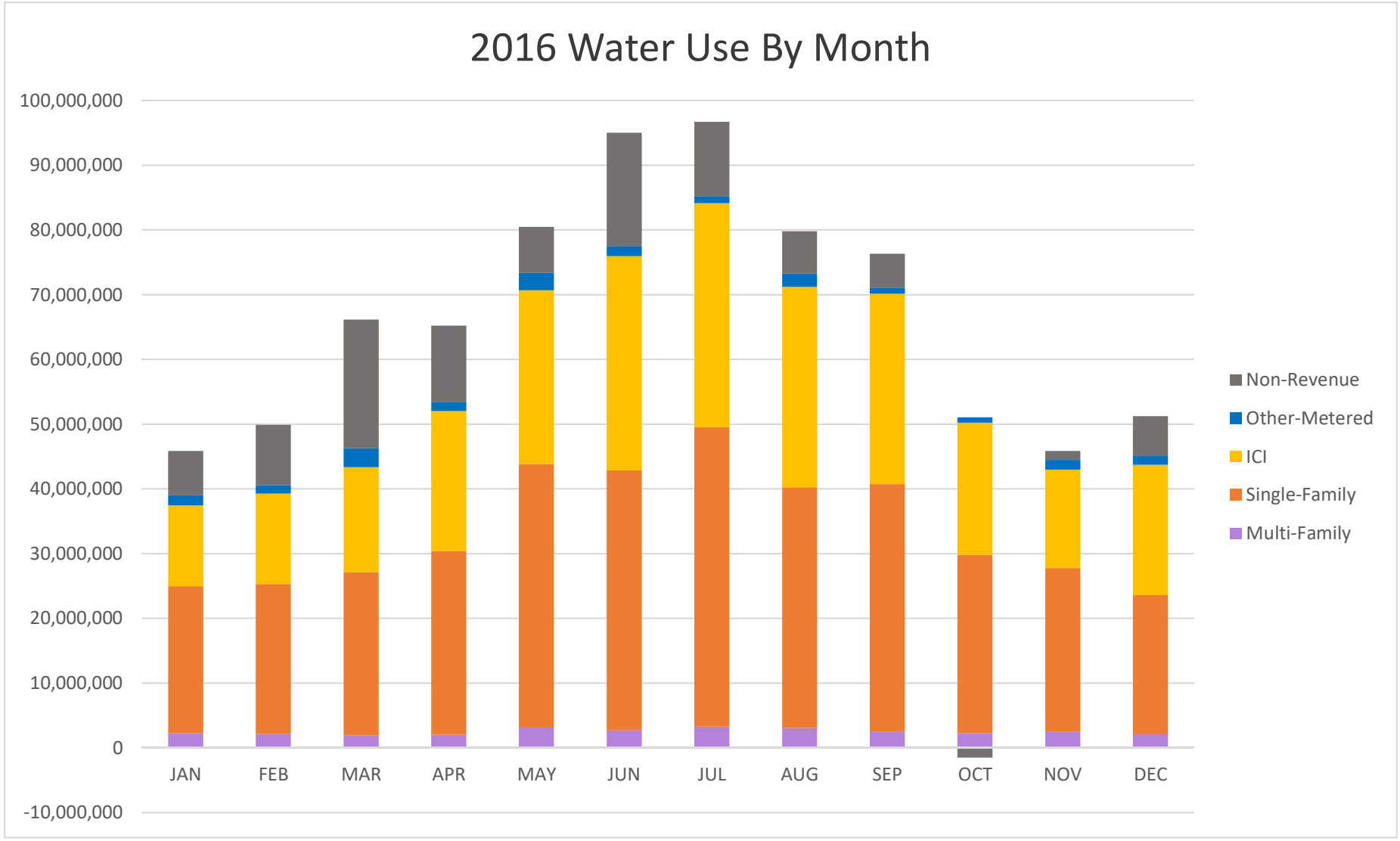
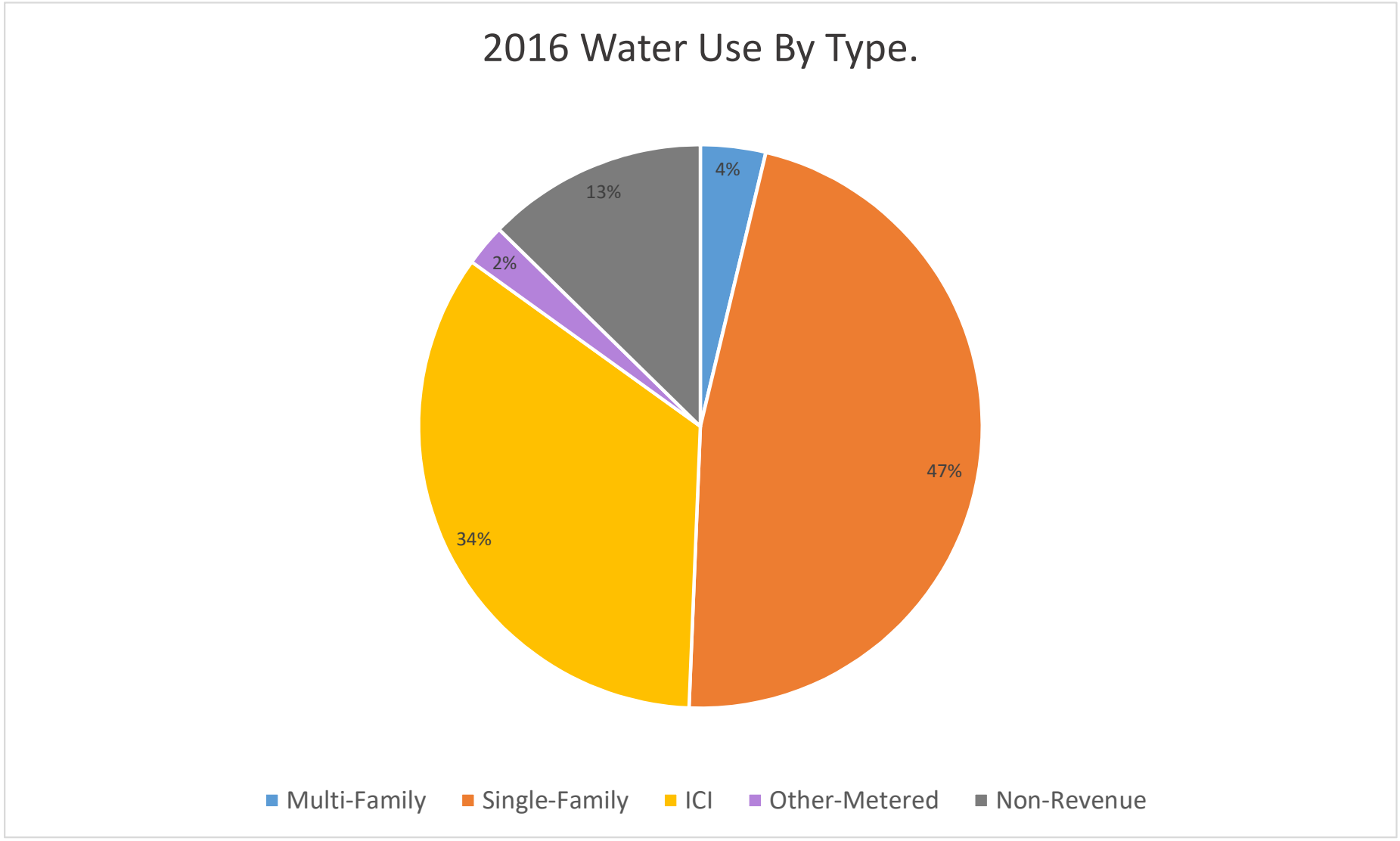

2016 Water Use By Month
100,000,000
90,000,000
80,000,000
70,000,000
60,000,000
50,000,000
40,000,000
30,000,000
20,000,000
10,000,000
0
-10,000,000
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Non-Revenue
Other-Metered
ICI
Single-Family
Multi-Family

Figure D.3.



W:\CCJOBS\774 - Los Lunas Water Conservation Plan\awwa gpcd tables.xlsx

APPENDIX E

CURRENT AND PAST WATER CONSERVATION PROGRAMS

Appendix E.

Village of Los Lunas
Current and Past Water Conservation Programs

Beginning in the 1970s and accelerating since the creation of its first water conservation plan in 2006, the Village of Los Lunas initiated a number of conservation actions that include the following:

Water Rights Ordinance

In 1977, the Village adopted an ordinance which requires that all subdivisions identify and transfer water rights to the Village that are adequate to meet the water supply needs of the subdivision. This ordinance has served as the primary vehicle for Village water rights transfers. It requires that a developer transfer between 0.20-0.336 acre-feet per year (AFY) of consumptive use rights to the Village for each residential unit in a subdivision. In the absence of a water budget, the developer must transfer 0.336 AFY of consumptive use rights for each residential unit. However, the ordinance contains a provision that allows a developer to adopt conservation measures and to provide information that that will demonstrate that a specific development will use less than 0.336 AFY. The Village uses this information to prepare a water budget and recommend to the Village Council a transfer requirement that is less than 0.336 AFY per unit. Almost all subdivisions that have requested a lower water rights requirement have been allowed to transfer 0.23-0.28 AFY of consumptive use per unit. By ordinance, the water rights requirement cannot fall below 0.20 AFY/unit.

This ordinance is a very important conservation measure for the community. If a developer plans a subdivision with water conserving features, the water rights transfer requirement is less and the resulting water use at that subdivision will be less. This ordinance produces a structural change in demand for water. This effect has been pronounced in Los Lunas, a community that has grown so rapidly during the first eight years of this century.

Water Shortage and Water Waste Ordinances

The Village adopted an emergency water shortage ordinance in 2006. The ordinance addresses emergencies or catastrophic events that disrupt the municipal water supply system. It establishes a process by which the governing body declares and administers one of three stages of a water shortage. These range from a Water Shortage Advisory with voluntary compliance to a Water Shortage Alert and a Water Shortage Emergency, both of which require mandatory compliance.

In 2007, Los Lunas adopted a water waste ordinance. From April through September, the ordinance allows sprinkler irrigation only between 6 P.M. and 10 A.M. The ordinance also prohibits non-beneficial use and waste of water at all times. Non-beneficial use includes uses of water that run off onto other properties or public rights-of-way, as well as use of water to clean vehicles, equipment or hard surfaces, such as parking lots or other pavement.

Landscape Ordinance

The Village changed its landscaping ordinance to require commercial users to reduce lawn size and follow certain planting directives, including incorporation of xeriscape principles and standards for irrigation efficiency. This ordinance applies to all subdivision plats, new commercial construction, and remodeling of commercial structures that disturb more than 1,000 square feet of land. It requires that the developer submit a detailed landscaping plan as a condition of plat approval or issuance of a building permit.

Data Collection and Management

In 2013, Los Lunas contracted with a new vendor to provide meter-billing software. As a result of this transition, from 2014 to mid-2015, the Village encountered numerous problems with its water metering and water use and billing software. This resulted in metering and water use data that needed adjustment before an accurate GPCD calculator and AWWA water system audit could be prepared. Los Lunas hired employees to fill vacant positions in the Utility Division and enlisted the assistance of its water resources consultant to help resolve the data collection and management problems. The Village has made significant progress in addressing the data issues and a designated staff member now works with the water resources consultant to develop and maintain a metered use database on a monthly basis.

Metering Replacement

In 2008, the Village completed the replacement of all existing residential and commercial meters with wireless automatic-read meters. This metering system allows the staff to record use and generate bills without the meters having to be read on site. In addition, because the meters provide more accurate and frequent meter readings, leaks within the distribution lines and at customer locations can be detected and addressed quickly. The availability of this data also allows the Village's customer service staff to better respond to customer inquiries about water bills and use. When the staff identifies unusually high water usage by a customer, they notify the customer.

Water Rates

Los Lunas adopted its most recent water rate increase in 2014, which became effective in January, 2015. The base rate increased by eight percent per year for five years through January 2019, while the volume rate went from $3.25 per 1,000 gallons to $4.25 per 1,000 gallons for usage over 2,000 gallons.

Village Facilities

The Village has 14 parks in which areas that are landscaped and irrigated have been reduced from 70 percent to 35 percent of the total area. The formerly landscaped areas are now in mulch or hardscape. The Village has installed a highly efficient central irrigation control system that tracks rainfall and evapotranspiration and includes a variety of specific zone controls. It shuts down within two minutes if the system exceeds its programmed water budget.

Los Lunas' schools have implemented several water conservation measures at their educational facilities. The school system employs an irrigation consultant; and the schools' landscape maintenance staff uses water conserving fertilizers and polymers for landscaped areas and sports fields. The staff also uses soil moisture probes to help determine watering times for irrigation controllers. In addition, the school system is converting all evaporative air conditioners to refrigerated models. For any new construction, the number of trees and plants is limited, bathroom fixtures with automatic shutoff sensors are required, and water conserving products, such as the fertilizers and polymers mentioned above, are specified.

Many of the public buildings, such as the Village Library, have xeric landscapes; and some, such as the Fire Department and Recreation Center, use rainwater harvesting systems, with no other supplemental water, for landscape irrigation. The Village has retrofitted most of its public buildings with low-flow or highly efficient toilets and faucets. There is also a xeric demonstration garden at the Village Hall.

Leak Detection

The Village has contracted with a private firm to conduct leak detection surveys for older parts of the water system every two years. The last survey, conducted in 2006, detected no leaks; and, because of budgetary constraints, Los Lunas has not scheduled a survey since that time. The Village is planning to resume the surveys after further evaluation.

Education

The Village sends out a monthly newsletter with water bills. It contains information about the water waste ordinance in Spring issues and is also posted on the Village website, which includes a water conservation page. The website page contains links to OSE publications regarding efficient irrigation practices and other sources of water conservation information, such as the Los Lunas Plant Materials Center and Tree New Mexico.

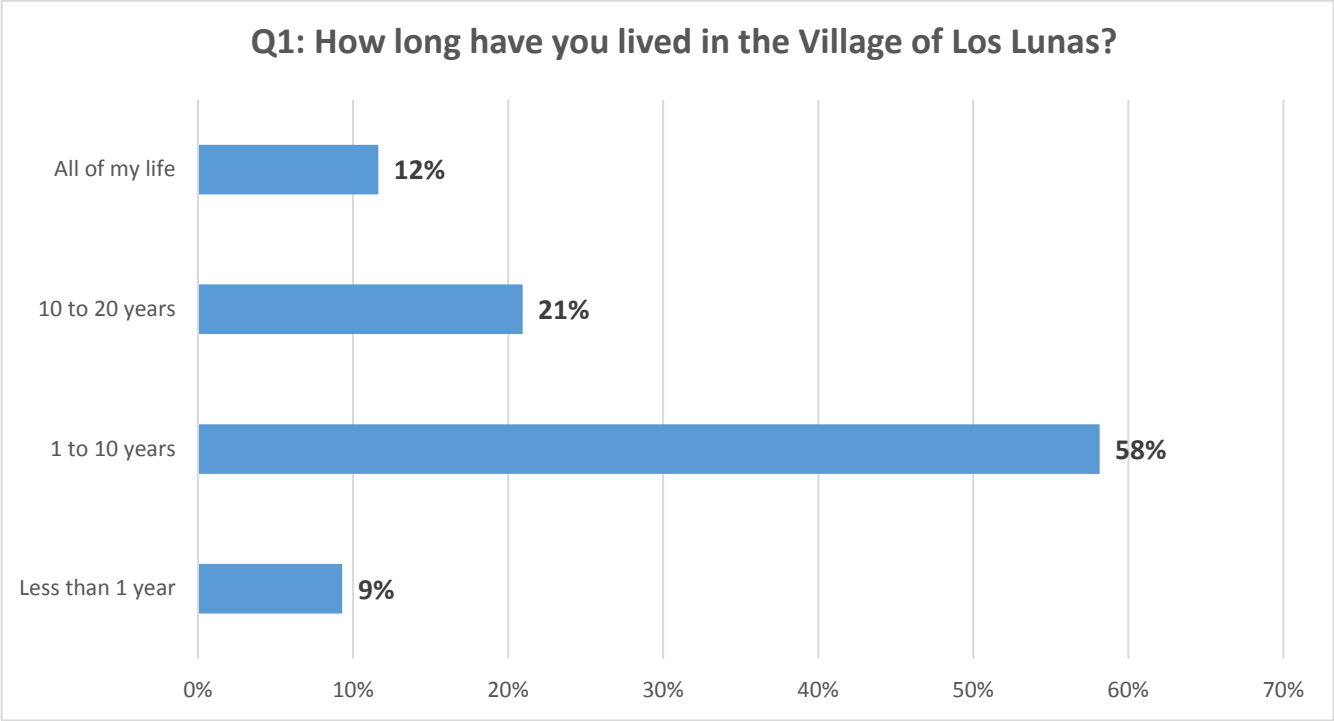
Calculations of Water Loss

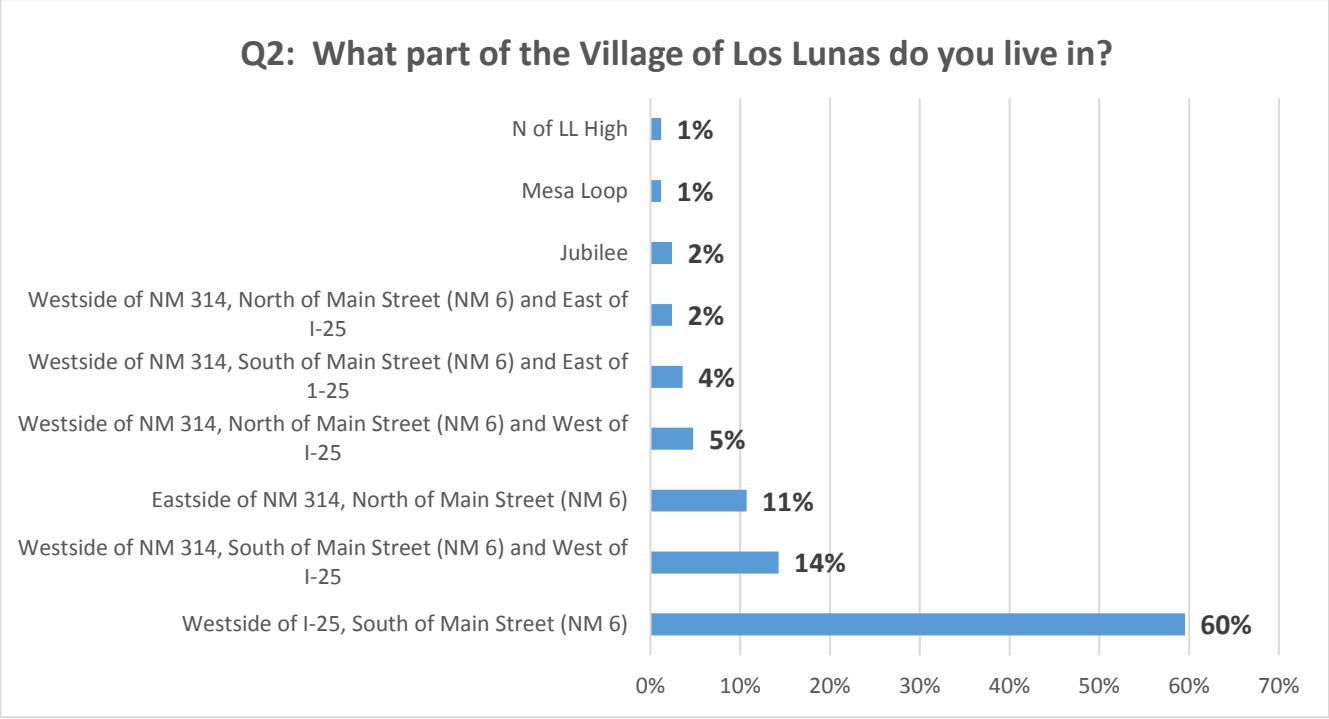
In January of 2016, the Village staff began to log incidents of water loss. Using formulae provided by the American Water Works Association, the Assistant Supervisor of the Water Department has calculated the annual loss from leaks, line breaks and other incidents. The staff continues to maintain the log and calculate losses on a quarterly basis.

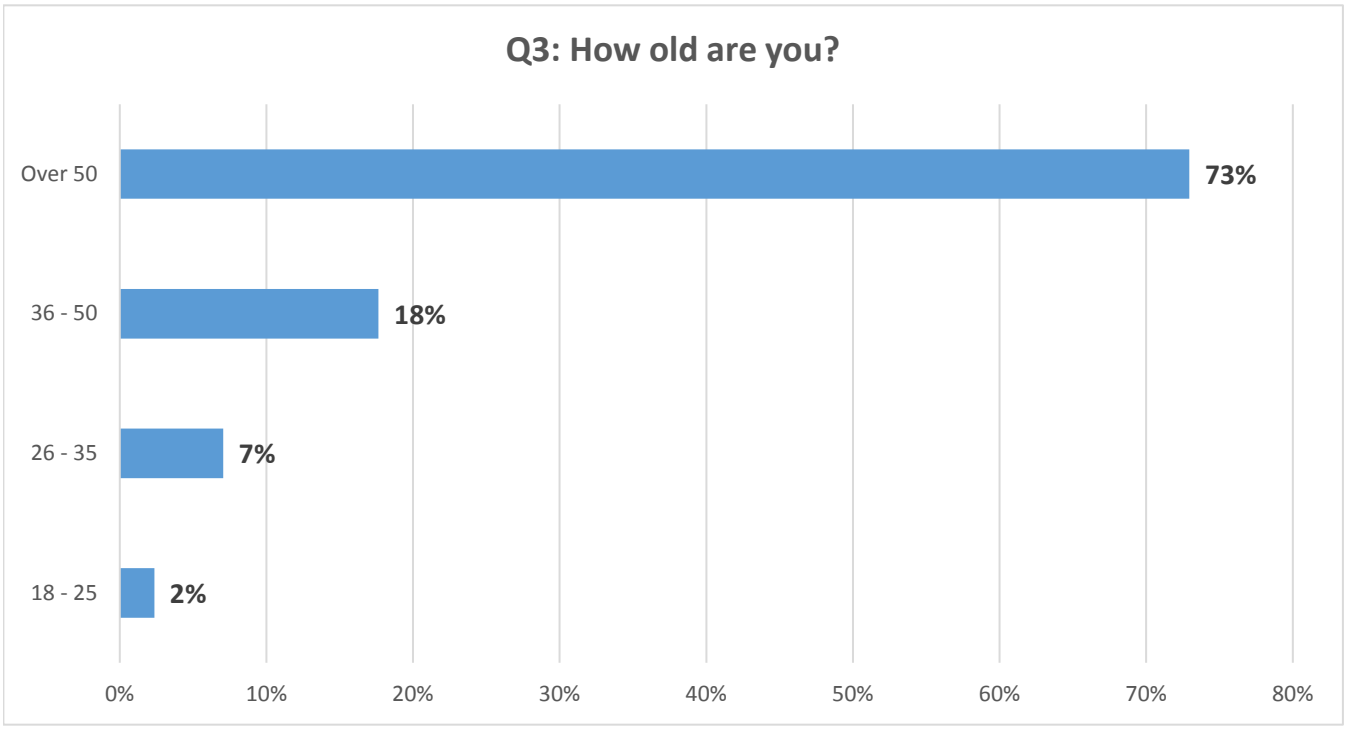
In addition to these initiatives, the Village has continued to administer existing programs, such as enforcement of stringent water and wastewater system construction standards and ongoing monitoring and management of water infrastructure to minimize system loss.

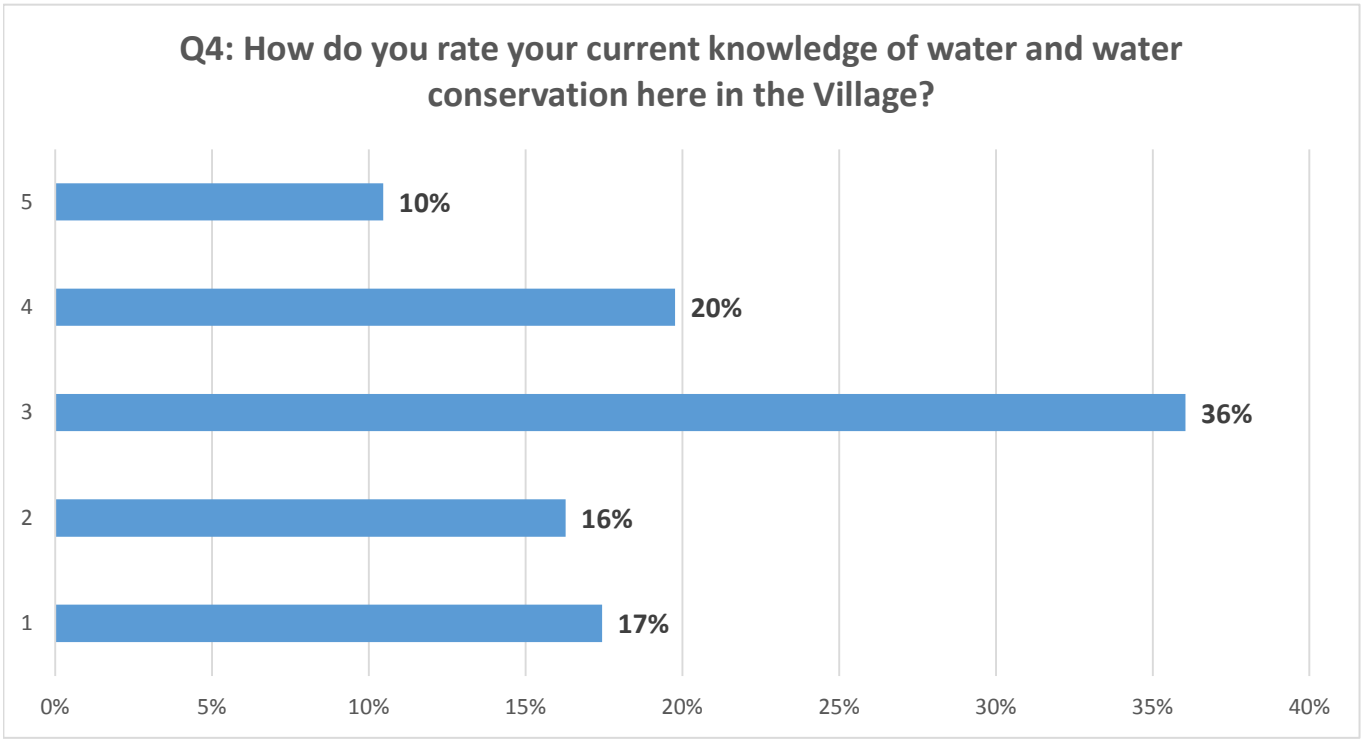
APPENDIX F

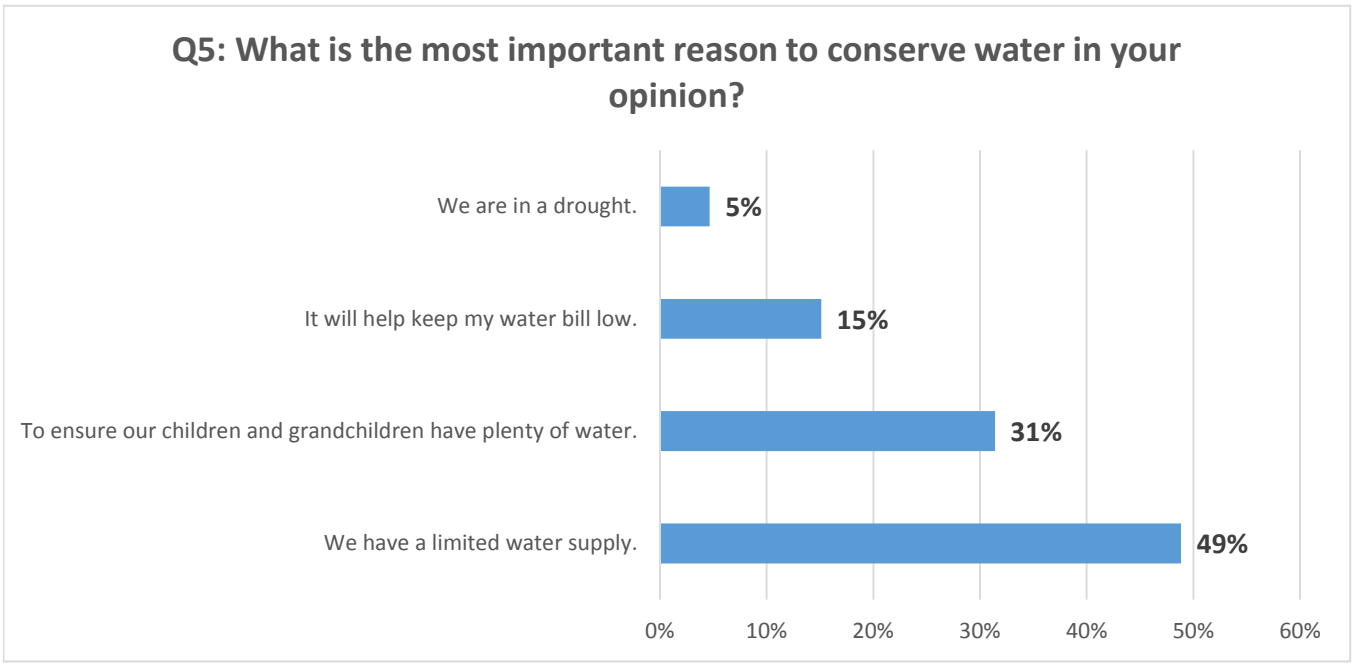
PUBLIC INVOLVEMENT RESULTS

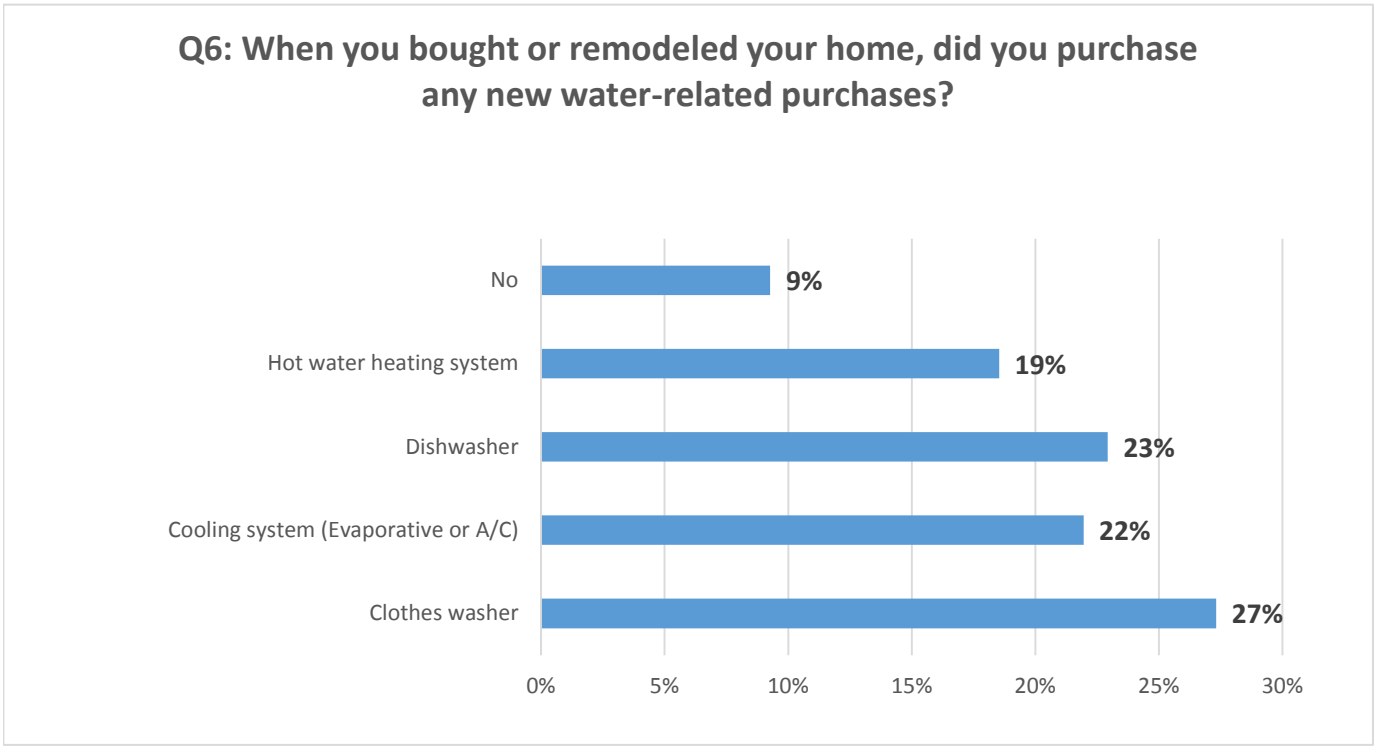

Q1: How long have you lived in the Village of Los Lunas?
All of my life
12%
10 to 20 years
21%
1 to 10 years
58%
Less than 1 year
9%
0%
10%
20%
30%
40%
50%
60%
70%

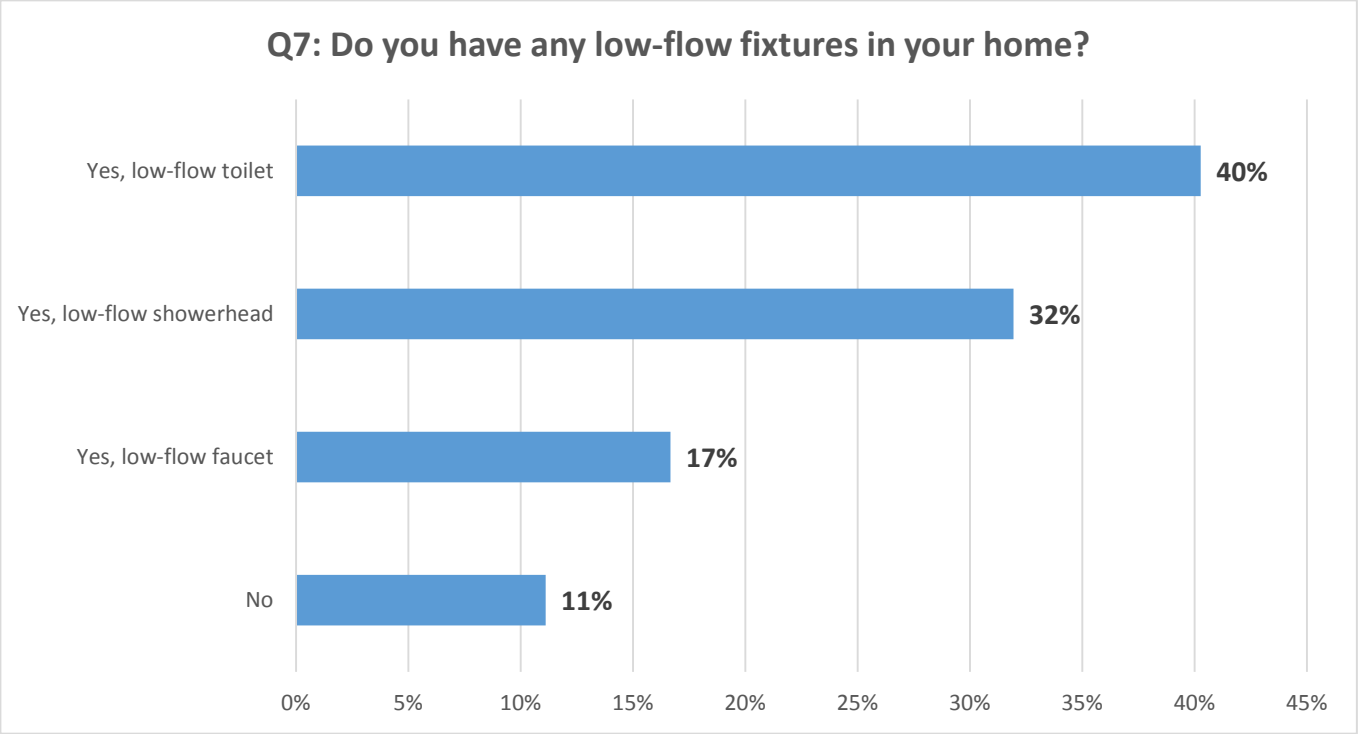

Q2: What part of the Village of Los Lunas do you live in?
N of LL High
1%
Mesa Loop
1%
Jubilee
2%
Westside of NM 314, North of Main Street (NM 6) and East of I-25
2%
Westside of NM 314, South of Main Street (NM 6) and East of 1-25
4%
Westside of NM 314, North of Main Street (NM 6) and West of I-25
5%
Eastside of NM 314, North of Main Street (NM 6)
11%
Westside of NM 314, South of Main Street (NM 6) and West of I-25
14%
Westside of I-25, South of Main Street (NM 6)
60%
0%
10%
20%
30%
40%
50%
60%
70%

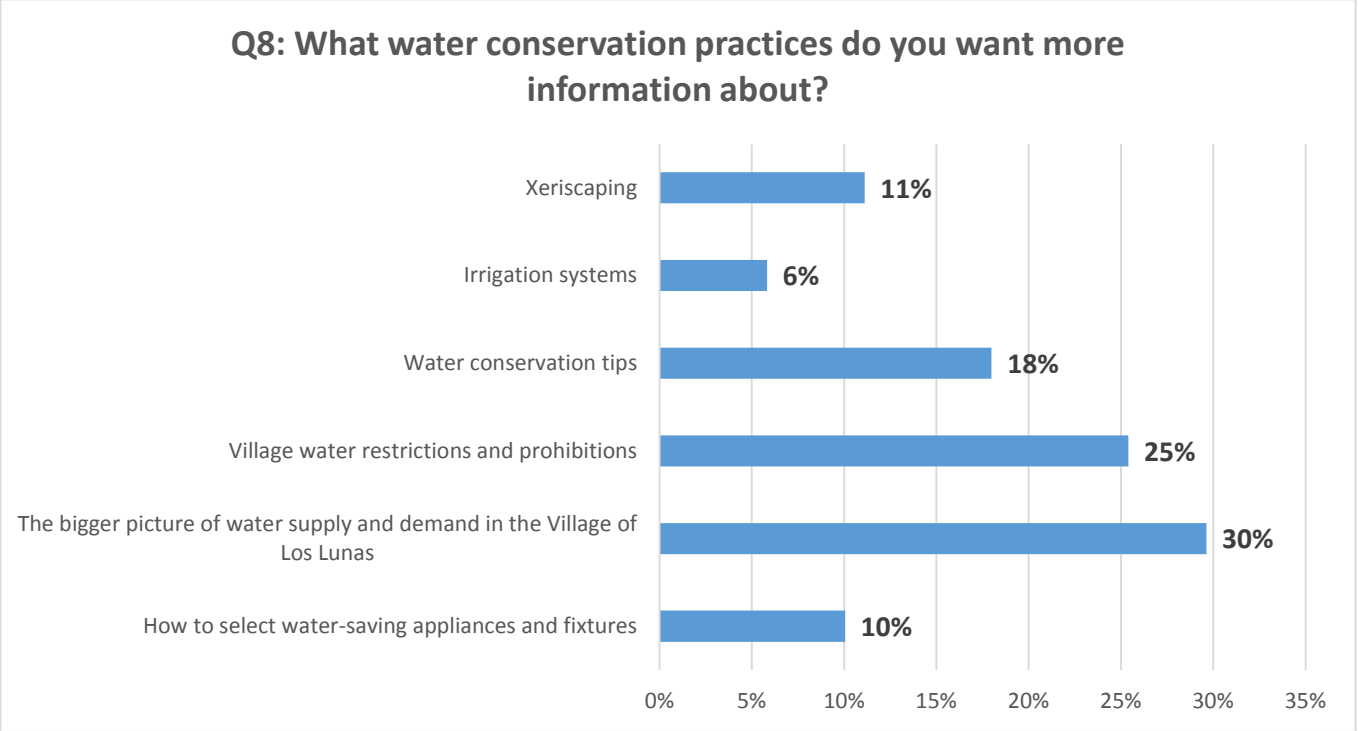

Q3: How old are you?
Over 50
73%
36 - 50
18%
26 - 35
7%
18 - 25
2%
0%
10%
20%
30%
40%
50%
60%
70%
80%


Q4: How do you rate your current knowledge of water and water conservation here in the Village?
5
10%
4
20%
3
36%
2
16%
1
17%
0%
5%
10%
15%
20%
25%
30%
35%
40%


Q5: What is the most important reason to conserve water in your opinion?
We are in a drought.
5%
It will help keep my water bill low.
15%
To ensure our children and grandchildren have plenty of water.
31%
We have a limited water supply.
49%
0%
10%
20%
30%
40%
50%
60%


Q6: When you bought or remodeled your home, did you purchase any new water-related purchases?
No
9%
Hot water heating system
19%
Dishwasher
23%
Cooling system (Evaporative or A/C)
22%
Clothes washer
27%
0%
5%
10%
15%
20%
25%
30%


Q7: Do you have any low-flow fixtures in your home?
Yes, low-flow toilet
40%
Yes, low-flow showerhead
32%
Yes, low-flow faucet
17%
No
11%
0%
5%
10%
15%
20%
25%
30%
35%
40%
45%


Q8: What water conservation practices do you want more information about?
Xeriscaping
11%
Irrigation systems
6%
Water conservation tips
18%
Village water restrictions and prohibitions
25%
The bigger picture of water supply and demand in the Village of Los Lunas
30%
How to select water-saving appliances and fixtures
10%
0%
5%
10%
15%
20%
25%
30%
35%

Q9: How do you think the Village of Los Lunas should conserve water?

- appropriate planting
- Better wastewater treatment practices: effluent reuse, groundwater injection, etc.
- By informing the public about water conservation and incentives for residences and businesses being under a certain amount of usage.
- By not giving subsidies on tax breaks to large water users, like Facebook and the new water bottling plant. They should pay a much higher price for water and should be restricted to the amount they can use.
- by not giving to Data Centers and bottle watering companies
- Can't answer without more details about current usage throughout the village
- continually informing citizens
- Continue to manage its water use through irrigation, water breaks and enforcement of water restrictions.
- Don't have facebook and water bottling company use our water
- Don't know any further means
- EDUCATE THE RESIDENT CITIZENRY AS MUCH AS POSSIBLE ABOUT HOW TO CONSERVE WATER.
- Encourage precipitation capture and greywater use.
- Encourage water conservation by business/restaurants. More visible enforcement overall.
- encourage xeriscape and natural look
- Enforce outside watering restrictions during daylight hours in summer; promote xeriscaping thru community outreach and education
- Ensure economic development is realistic in terms of water needed to sustain growth.
- Ensure piping and irrigation systems for homes and businesses do not leak or waste water
- Force companies that want to build here to have some sort of recycling program in place.
- Give credits for customers who use under the normal amount for their household.
- Giving credit for those who buy water efficient appliances and shower heads, etc, those who have Xeriscape.
- Grass lawns are a big waste of water. Ban grass lawns.
- HELP HOMEOWNERS FIX LEAKS AND EDUCATE THEM.
- Hopefully by using low-flow fixtures in village facilities, timers on sprinklers, more xeriscaping for new projects. Please keep grass in front of village offices.
- I can't see the entire question to answer appropriately
- i am not sure
- I think water should not be so expensive, I understand the need to charge, but increasing prices on consumers sucks
- Information as the village news where I found this survey in other places or maybe just stickers in public places to conserve water.
- Institute grey water recycling policies for builders and the city. Offer rebates on in home recirculating hot water pumps (reduce water waste waiting for hot water to arrive at a faucet).
- landscaping at Parks and Village buildings
- Limit high water users
- Limit watering lawns to certain days.
- low water grass at parks

Q9: How do you think the Village of Los Lunas should conserve water?

- Make sure leaks are repaired quickly.
- maximum penalties for water wasters. Limit what people are allowed to use. Allocate limits for residential and business use.
- Monitor leaking infrastructure
- My problem right now is not water conservation, wallet conservation; your water rates quickly approaching the "outrageous." Enough already!
- N/A
- No grass should be allowed. Irrigation of fields should be extremely limited.
- not allowing a water bottling plant to open in the village
- Not give it all away to Facebook and Niagra.
- Not let a bottling company like Niagra come in and drain our aquifer and waste millions of gallons of water. (They don't have ANY kind of recycling or repurposing plan) Plus they are taking the already good, clean, healthy water that the LL Water department is providing for our community and depleting it of any and all vitamins and minerals.
- Offer lower rates based on time of day usage
- Pay close attention to wasted water usage for landscaping.
- Protect and conserve current supplies. Public education on home water use. I do not favor selling a precious and limited water resource to a commercial bottler of water (Niagara) for the sake of a few jobs--surely there are other communities in other states with abundant water who would welcome a commercial bottler, and that is where such companies belong.
- Since we are new residents, we would need to know what the village is currently doing before we can make any recommendation. However, residential use won't improve if you use 1400 gallons but still get billed for 2000 gallons. Why conserve if you aren't going to get a financial break for conserving.
- stop watering high grass areas (homes, police station, etc)
- Stringent guidelines for commercial & residential usage, with monitoring and accountability
- Through charging for excessive usage and honoring conservationists with lower prices. I live alone and use minimum supplies of water yet am charged the basic rate which is more than my consumption.
- Through it's residents, change in habits, behavior, attitude.
- Toilets faucets but don't understand the water bottleing plant in los lunas and very concerned that it is taking from our water table.
- Unsure, as I am not that active in the Village, just in Jubilee where we live.
- use recycled water for landscaping
- Use responsibly.
- Use water recycling technology for waste water and use recycled water for irrigation of public places such as parks.
- Water-saving strategies, such as watering at night, coupons for low-flow toilets, etc
- Xeriscape parks as much as possible, enforce runoff from private watering
- Xeriscaping
- Yes, but new deals with Facebook and Niagara water will use a lot of our surplus

Q10: The Village of Los Lunas is putting together a water conservation plan. What do you think should be in the plan?

- A recycling program.
- ANY AND ALL OPTIONS AND MEANS TO FURTHER CONSERVE WATER USAGE.
- Anything that helps conserve water for this and future generations.
- Assessment of water reserves - aquifer
- Charge high users at a higher rate
- Create rain water capture systems for all Civic facilities. Design and develop grey water capture and recycle in all new residential communities. Work with the Isleta casino golf course to learn how their system works. Provide policies for construction dust control to utilize water other than processed drinking water. Identify preferred trees and plants for planting to save water yet provide carbon dioxide filtration, bee havens, etc.
- Get two more tanks
- Governmental, industrial, business and property owner activities to meet the village goals.
- Growth restrictions, graduated rates.
- Guidelines with an eye toward saving water and money...maybe more use of "grey" water where possible
- Hard to say - hopefully the Village is taking a lot more time to think about it than the few minutes that I am putting into this survey!
- Have not thought about it.
- Help people verify piping and irrigation systems for homes and businesses do not leak or waste water
- Historical use, future use plan, estimates based on village growth of commercial usage and expanded housing
- Home water conservation such as roof collection
- HOW MUCH WASTER WE HAVE NOW AND HOW MUCH WILL WE BE BUYING RIGHTS TO MAKE SURE WE HAVE ENOUGH
- how to tell citizens to conserve
- i am not sure
- Implement low-flow water saving devices where ever and when ever possible. Keep village sprinklers on timers.
- Implementation of drinking water treatment from surface water
- Incentives for efficient appliances/utilities (toilets, faucets, etc); educational materials for landscaping, gardening, etc.
- Incentives for homeowners to conserve water such as a rebate for xeriscape or water harvesting.
- information about how the village obtains its water (i.e., doesn't come from the river), the projected water availability from wells the village has or projects to have in the future
- landscaping for new areas using xeriscape as much as possible, using drip watering systems, limited hours for watering grass,
- limit water usage from data center and bottle water companies
- Long-term infrastructure improvements and maintenance plans. Drought tolerant landscaping requirements.
- Long-term strategy for preserving and increasing availability of water, conservation tips, prohibitions.

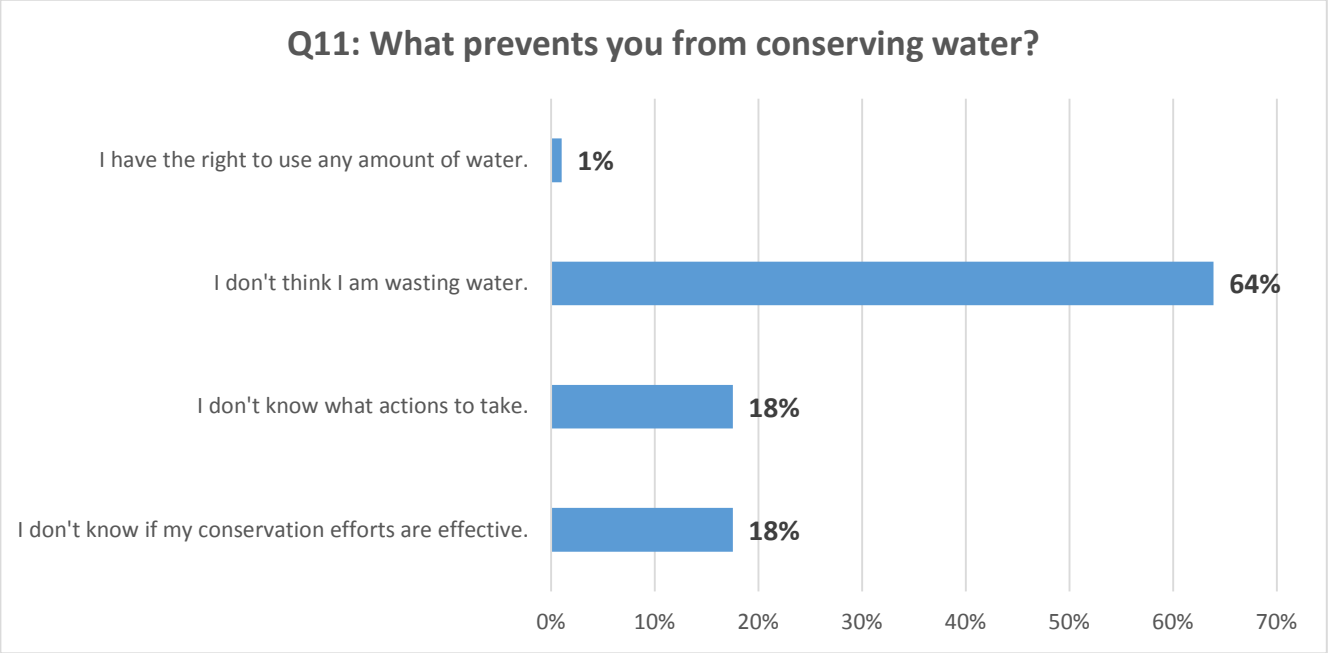
Q10: The Village of Los Lunas is putting together a water conservation plan. What do you think should be in the plan?

- Lower our residential rates a d charge big businesses more
- Make and model of water conserving appliances.
- methods of enforcement, public education, residential and commercial water audit support services.

- No comment
- no idea
- not bringing in businesses that use water unnecessarily, like a water bottling plant
- Not letting Niagra be a part of our community, OR mandate them to have a recycling operation.

- Not sure
- not watering sidewalks, only watering at night and when not raining
- Planned investments to maintain state of the art water and sewage treatment plants, water storage and distribution facilities over time.
- Reasonable and affordable water rates. My water bill is now nearly twice the rate of my electric and gas bill combined.
- Rebates for purchasing water conserving appliances/water heaters
- Rebates/incentives for water conservation hardware/equipment. Offer designs/suggestions for precipitation capture and greywater use systems.
- replace in municipal building facets, toilets, etc. to water conserving types, limit lawn watering number of days based on season (like ABQ)
- Require new construction to use reclaimed water for landscaping
- safe and clean water, water has changed I understand but I think that a water plan is a good thing to do.

- same answer as last question
- Schedules for non-agricultural uses;
- Similar to Las Vegas, SF and Abq
- Specific limits on water usage for farms and irrigation.
- Stringent assessment of how much money and how much water we promise developers.
- water usage from large companies in the area to residences to determine waste factors.
- Ways to lower Water bills, How to landscape our yards better to conserve water
- Which water users take priority for the limited supply of water available?
- Xeriscaping


Q11: What prevents you from conserving water?
I have the right to use any amount of water.
1%
I don't think I am wasting water.
64%
I don't know what actions to take.
18%
I don't know if my conservation efforts are effective.
18%
0%
10%
20%
30%
40%
50%
60%
70%

APPENDIX G

WATER CONSERVATION AND WATER SHORTAGE ORDINANCES

Appendix G. Water Conservation and Water Shortage Ordinances

- **8.24.040 - Water Waste Restrictions.**

A. No person, firm, corporation, or government facility or operation shall cause, or permit to occur any water waste or the flow of fugitive water onto adjacent properties or public right-of-way whether served by the municipal water utility or by a private well.

B. The following restrictions apply to all properties that use spray irrigation within the municipal limits or are served by the municipal water utility:

1. Beginning April 1st through September 30th, spray irrigation is allowed only from six p.m. to ten a.m. on all properties.
2. Shut-off nozzles are required on any hoses used for hand watering, vehicle or equipment washing, or other outdoor uses.
3. Additional scheduling or restrictions may be applied during declared drought or emergency events.

C, The water waste restrictions do not apply to the following:

1. Outdoor watering performed with permanent drip irrigation system, sub-surface irrigation, harvested water, or greywater is exempt;
2. Watering of containerized plants and nursery plant stock is exempt;
3. Repair and maintenance of irrigation systems;
4. Single-day irrigation needed for application of chemicals for maintenance of existing or new landscape;
5. Use of potable water for dust control or soil compaction when no alternative source is available;
6. Nonprofit car washes held as fund raisers, if vehicles are washed using hand held buckets and hoses equipped with shut-off nozzles.

(Ord. 342 § 4, 2007)

- **8.24.050 - Violations and penalty fees.**

A. Any responsible party who violates any of the provisions of this chapter shall be subject to progressively higher penalty fees until the violation ceases, an extension of time for corrective measures is granted, or an appeal is initiated in accordance with the provisions of this chapter.

B. A citation issued by a code enforcement officer shall be mailed to the responsible party by certified mail within three days following discovery of a violation of this chapter. The responsible party must correct the violation or may request an extension of time to take corrective measures, or initiate an appeal in accordance with this chapter within thirty days following receipt of the notice of violation. If the violation is not corrected within the time allowed by this chapter, unless an extension of time or an appeal is pursued in accordance with this chapter, then the assessed penalty fee must be paid within thirty calendar days following the date of receipt of the certified mail notification. In the event that the responsible party fails or refuses to pay the assessed penalty, then the village shall disconnect said water service and the responsible party shall be required to pay the assessed penalty and a reconnect fee before water service is restored. A warning citation shall be issued for the first violation with no assessed penalty fee.

C. The assessment of penalty fees for violations defined by this chapter shall be as follows:

1. First observed violation: warning: no penalty fee;
2. Second observed violation: fifty dollars;
3. Third observed violation and all subsequent violations: one hundred dollars;
4. For purposes of assessing penalty fees, any violation prior to the effective date of this chapter shall not be considered if a period of two years has elapsed since the violation occurred, or the property has been transferred to a new owner.

(Ord. 342 § 5, 2007)

- **8.24.060 - Extension of time and appeals.**

A. The municipal court judge may grant an extension of time to allow the responsible party to take corrective measures, provided that the general intent of this chapter has been met, but compliance with this chapter will cause practical difficulties or unnecessary hardship.

B. An extension of time to take corrective measures as provided for in subsection A of this section may be granted for a period not to exceed six months and shall stipulate both short-term corrective measures and a schedule for completion of long-term corrective measures.

C. Any responsible party may appeal a written notice of violation to this chapter to the municipal court and a hearing shall be scheduled as soon as possible. An appeal of a written notice of violation must be made no later than thirty calendar days from the date of the receipt of a notice of violation of this chapter, and it shall be the responsibility of the appellant to obtain a hearing on said appeal within thirty calendar days of its filing unless the appellant requests an extension of time from the municipal court. An extension of time to commence the hearing on appeal shall only be granted upon a showing of good cause for the extension. If the municipal court's decision is adverse to the appellant, the appellant may appeal that decision to the Thirteenth Judicial District Court.

(Ord. 342 § 6, 2007)

- **Chapter 13.20 - EMERGENCY WATER SHORTAGE PLAN**

Sections:

- **13.20.010 - Statement of policy.**

A. The governing body has determined that the public health, safety and welfare requires maximum beneficial use of its available water resources to the extent to which it is capable, and that the conservation and most efficient use of water is in the best interest of the community.

B. The purpose of this chapter is to provide a means for the governing body to implement measures to manage water use in response to emergencies or catastrophic events that may disrupt the municipal water supply system.

C. As a basis for initiating actions pursuant to this chapter, the governing body finds that water shortages may exist due to one or more of the following conditions:

1. A general water supply shortage due to a sudden increase in demand or a reduction or at the source of supply;
2. The distribution system or storage facilities of the water utility are inadequate to meet the current or anticipated demands of the water service customers;
3. The water supply system is unable to maintain the minimum water quality standards in accordance with all applicable laws and regulations; or
4. A mechanical or structural breakdown of the supply, storage and/or distribution facilities of the water supply system.

(Ord. 331 § 1, 2006)

- **13.20.020 - Authorization.**

A. The governing body may determine and declare that a water emergency exists within the municipal water service area and, upon such determination, to promulgate regulations, rules and conditions relative to the use of water in order to relieve the water shortage.

B. The village administrator, following public notice, is authorized to implement the emergency water shortage plan through the applicable provisions of this chapter.

(Ord. 331 § 2, 2006)

- **13.20.030 - Application.**

A. The provisions of this chapter shall apply to all persons, customers and property served by the municipal water utility system. With the exception of temporary water emergency surcharges, these provisions shall also apply to all water users within the corporate limits of the municipality.

B. All domestic wells within the jurisdiction of the municipality shall be governed by this chapter as authorized by state law [3-53-1, 3-53-1.1, and 3-53-2 NMSA 1978].

(Ord. 331 § 3, 2006)

- **13.20.040 - Water emergency stages.**

Any of the following water emergency stages may be declared by the governing body following a determination regarding the severity of conditions leading to a water shortage. Such determination shall be based on the best available information and data regarding the water supply and distribution system.

There are three water emergency stages which are triggered by an impending shortage of water estimated to occur during a specified period of time. If the severity of the water emergency lessens, the governing body may downgrade the water shortage to a lower stage or discontinue the water emergency. The water use restrictions and regulations of each stage are added to all higher level stages, unless the higher stage has a more stringent requirement.

A. Stage 1: Water Shortage Advisory—Voluntary Compliance. Whenever the estimated demands on the water system exceed the estimated supply such that it appears that there will be a substantial shortage of water over the next twelve-month period, a stage 1 water shortage advisory will be declared. The following requirements shall be in effect, and unless otherwise noted, are voluntary but strongly encouraged:

    1. The village administrator shall make public announcements through the local news media and any other means available that an impending water problem exists, explaining the water conservation requirements of the stage 1 water shortage advisory;
    2. All residents are encouraged to minimize indoor water use by utilizing high efficiency fixtures and appliances, decreasing water use for eating and cleaning purposes, and eliminating all on-site water leaks;
    3. Restaurants and banquets are requested to discontinue serving nonbottled drinking water, except upon request;
    4. Hotels and motels are urged to implement water conservation measures, including less frequent changing of towels and bed linens during short stays, except upon request;
    5. With the exception of hand watering, drip, or subsurface irrigation, all spray irrigation shall be prohibited between ten a.m. and six p.m. daily from the first day of April to the last day of September of each calendar year;
    6. The use of potable (drinking) water for dust control and washing down sidewalks, driveways, parking areas, tennis courts, patios or other paved areas shall be prohibited;
    7. Routine fire hydrant flushing shall be curtailed except to alleviate specific complaints;
    8. Commercial and industrial water users are urged to implement water conservation plans for their facilities and decrease water consumption;
    9. All municipal facilities will go on reduced water budgets and outdoor watering of parks, landscaping and recreational areas shall implement nighttime watering schedules;
    10. The use of harvested (stored) rainwater and household greywater for outdoor watering is recommended and encouraged; and
    11. All domestic well operators are urged to reduce water use to the minimum levels of absolute necessity.

B. Stage 2: Water Shortage Alert—Mandatory Compliance. Whenever the estimated demands on the water system exceed the estimated supply such that it appears that there will be a substantial shortage of water over the next six-month period, a stage 2 water shortage alert will be declared. The following mandatory requirements, in addition to the requirements of the stage 1 water shortage advisory, shall be in effect:

    1. The village administrator shall make public announcements through the local news media and any other means available that an immediate water problem exists, explaining the water conservation requirements of the stage 2 water shortage alert;
    2. With the exception of hand watering, drip or subsurface irrigation, use of reclaimed or greywater, all spray irrigation shall be prohibited between ten a.m. and six p.m. daily. Landscape watering will be limited to no more than three days a week per following schedule. The last number of the street address shall determine watering days. Odd numbers

may water only on Monday, Wednesday, or Friday. Even numbers may water only on Tuesday, Thursday, or Saturday;

3. No new in-ground landscaping shall be planted except for xeriscapes which utilize drip or subsurface irrigation;
4. The use of potable (drinking) water for washing of vehicles, equipment, trailers or boats shall be prohibited, except by use of a handheld bucket or hoses with shut-off nozzles; and
5. A temporary water emergency surcharge shall be instituted as an overlay onto the existing water rate structure on the first billing cycle following declaration of a stage 2 water shortage alert or a stage 3 water shortage emergency. A water emergency surcharge for residential customers shall be applied at a rate of five dollars for every thousand gallon increment above twelve thousand gallons. All industrial and commercial users will be surcharged one dollar per thousand gallons for all water billed during the stage 2 water shortage alert or stage 3 water shortage emergency.

C. Stage 3: Water Shortage Emergency—Mandatory Compliance. Whenever a major failure or disruption of the municipal water supply system occurs, or whenever the estimated demands on the water system exceed the estimated supply such that it appears that there will be a substantial shortage of water over the next two-month period, a stage 3 water shortage emergency will be declared. The following mandatory requirements, in addition to the requirements of the stage 1 water shortage advisory and the stage 2 water shortage alert, shall be in effect:

1. The village administrator shall make public announcements through the local news media and any other means available that a severe water shortage problem exists, explaining the water conservation requirements of the stage 3 water shortage emergency;
2. Subject to certain exceptions, outdoor watering of any lawn, garden, or landscaped area shall be prohibited. Watering performed with permanent drip irrigation system, sub-surface irrigation, reclaimed or greywater is exempt from these requirements. Using a handheld bucket or hose to water trees, shrubs and containerized plants is also permitted;
3. Nurseries watering container plant stock shall be exempt from the restrictions of this chapter;
4. Fire hydrant flushing shall be prohibited except for firefighting, or emergency potable water supply for human or animal consumption;
5. Use of potable water for recreational or aesthetic purposes such as water slides, fountains or yard play shall be prohibited;
6. All commercial and industrial water users shall implement a water conservation program to reduce water use to the minimum levels of absolute necessity;
7. Depending on the expected severity of the water emergency situation, the governing body shall not be limited to the defined requirements of this chapter. Should the water emergency be of such magnitude to demand more stringent action such as closure of facilities and services, the governing body shall have the authority to impose more severe restrictions or actions.

(Ord. 331 § 4, 2006)

- **13.20.050 - Violations and penalties.**

A. The village administrator or designee shall be responsible for the enforcement of this chapter and may prescribe policies, rules or regulations to carry out the intent and purposes of this chapter.

B. Following a determination by the village administrator or designee that a violation of any mandatory requirement of this chapter has occurred, the responsible party shall be issued a written warning citation to abate such violation immediately.

C. If the responsible party continues to violate the stated mandatory requirement, then that party shall be cited to municipal court by the village administrator or designee. Every person convicted of a violation of this chapter shall be punished by a fine not exceeding five hundred dollars or imprisonment for a period not exceeding ninety days, or both such fine and imprisonment. The conviction and punishment of any person for a violation shall not excuse or exempt such person from the payment of any fee due or unpaid at the time of such conviction and nothing in this chapter shall prevent a criminal prosecution of any violation of the provisions of this chapter. Each violation of any mandatory requirement of this chapter shall be considered a separate offense.

D. Disconnection of Service. For repeated violations of this chapter, the village may disconnect the violator's water service and refuse to provide water service to the violator until assurances satisfactory to the village are provided by the violators that such violations shall cease.

(Ord. 331 § 5, 2006)

- **13.20.060 - Severability.**

The provisions of this chapter shall be deemed to be severable, and should any part of this chapter be declared by the courts to be unconstitutional or invalid, such holdings shall not affect the validity of this chapter other than the part so declared to be unconstitutional or invalid.

(Ord. 331 § 6, 2006)

APPENDIX H

2015 WATER RATE ORDINANCE

ORDINANCE 398

AN ORDINANCE AMENDING ORDINANCE NO. 332 WHICH ADOPTED INCREASES IN WATER AND SANITARY SEWER RATES.

WHEREAS, The Village of Los Lunas is responsible for and committed to the provision of water and sewer facilities at levels necessary to deliver service to residents of the Village; and

WHEREAS, The Village of Los Lunas ensures the Village generates adequate revenue to meet existing water and sewer operational and maintenance costs, increasing costs for water supply treatment, sanitary sewer treatment, water distribution and sanitary sewer collection system maintenance and proactive management for planned water and sewer system capital improvements projects; and

WHEREAS, The Governing Body, after careful consideration of the matter, hereby finds and declares that the proposed water and sanitary sewer rate increase is in the best interest of the general welfare of the Village and its residents.

NOW, THEREFORE, BE IT ORDAINED THAT SECTION 13.04.050 (A), (B) AND (C) ARE HEREBY AMENDED AS STATED HEREIN; SECTION 13.04.050 (F)(3) IS HEREBY DELETED AND SECTION 13.12.030 (A)(1),(A)(2), (C)(1) , (C)(2) AND (E) OF THE VILLAGE OF LOS LUNAS MUNICIPAL CODE IS AMENDED TO READ AS:

13.04.050 - Service charges.

A. The minimum monthly charge for all metered users inside the Village limits shall be eighteen dollars and thirty-seven cents per unit beginning on January 1, 2015. This minimum monthly charge shall be increased annually by eight percent beginning on January 1, 2016, and continuing on the first day of every January for the next three years thereafter ending on December 31, 2019. Each July of every year, the minimum monthly charge contained in this section, in addition to the eight percent annual increase as stated herein, shall be adjusted automatically to reflect the increase in the cost of living as determined by the Consumer Price Index.

B. The minimum monthly charge will entitle any water user inside the Village limits to two thousand gallons of water per month per unit without additional charge. All water taken through the meter after the volume allowance for the minimum charge shall be billed at the rate of four dollars and twenty-five cents per one thousand gallons of usage or fraction thereof prorated at the rate of forty-two and one-half cents for every one-hundred gallons of usage above the two thousand gallons per month volume allowance.

C. The minimum monthly charge for water taken through a meter by a user outside the Village limits shall be twenty-seven dollars and three cents per unit beginning on January 1, 2015. This minimum monthly charge shall be increased annually by eight percent beginning on January 1, 2016, and continuing on the first day of every January for the next three years thereafter ending on December 31, 2019. Each July of every year, the minimum monthly charge contained in this section, in addition to the eight percent annual increase as stated herein, shall be adjusted automatically to reflect the increase in the cost of living as determined by the Consumer Price Index. The minimum monthly charge will entitle any water user outside the Village limits to two thousand gallons of water per month per unit without additional charge. All water taken through the meter after the volume allowance for the minimum charge shall be charged at the

rate of four dollars and twenty-five cents per one thousand gallons or fraction thereof prorated at the rate of forty-two and one-half cents for every one-hundred gallons of usage above the two thousand gallons per month volume allowance.

(Ord. 398 (part), 2014; Ord. 332 (part), 2006; Ord. 282 (part), 2001; Ord. 226 (part), 1995; Ord. 192 (part), 1993; Ord. 175, 1991; Ord. 155-1990-1, 1990; Ord. 155-1988 § 5, 1988)

13.12.030 - Sewer rates.

The following sewer user fees shall be assessed monthly for the use of the village sewer services:

A. 1. Zero to two thousand gallons, a service charge of twenty-three dollars and twenty-two cents, which shall become effective January 1, 2015 for all single-family homes. This fee shall be increased annually by eight percent each year beginning on January 1, 2016, and continuing on the first day of every January for the next three years thereafter ending on December 31, 2019. Each July of every year, the service charge contained in this section, in addition to the eight percent annual increase stated herein, shall be adjusted automatically to reflect the increase in the cost of living as determined by the Consumer Price Index.

2. Two thousand and one gallons and above, a service charge of twenty-three dollars and twenty-two cents plus three dollars and seventy-five cents per one thousand gallons or fraction thereof prorated at the rate of thirty-seven and one-half cents for every one-hundred gallons of usage above two thousand gallons per month volume allowance shall be charged.

C. All Other Users.

1. Zero to two thousand gallons, a service charge of twenty-three dollars and twenty-two cents, which shall become effective January 1, 2015. This fee shall be increased annually by eight percent each year beginning on January 1, 2016, and continuing on first day of every January for the next three years thereafter ending on December 31, 2019. Each July of every year, the service charge contained in this section, in addition to the eight percent annual increase stated herein, shall be adjusted automatically to reflect the increase in the cost of living as determined by the Consumer Price Index.

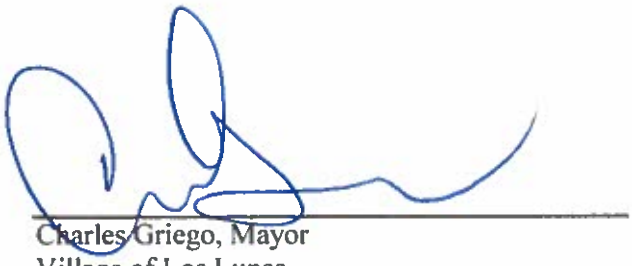
2. Two thousand and one gallons and above, a service charge of twenty-three dollars and twenty-two cents plus three dollars and seventy-five cents per one thousand gallons or fraction thereof prorated at the rate of thirty-seven and one-half cents for every one-hundred gallons of usage above two thousand gallons per month volume allowance shall be charged.

E. Users Outside the Village Limits. All connections outside the Village limits shall pay a service charge of thirty-one dollars and eighty-six cents for zero to two thousand gallons, which shall become effective January 1, 2015. This fee shall be increased annually by eight percent each year beginning on January 1, 2016, and continuing on the first day of every January for the next three years thereafter ending on December 31, 2019. All water taken through the meter after the volume allowance for the service charge shall be billed at the rate of three dollars and seventy-five cents per one thousand gallons or fraction thereof prorated at the rate thirty-seven and one-half cents for every one-hundred gallons of usage above the two thousand gallons per month volume allowance stated in this section. All current metered users outside the Village limits shall be billed the outside Village limits fee in this chapter. Each July of every year, the service charge contained in this section, in addition to the annual eight percent increase stated herein, shall be

adjusted automatically to reflect the increase in the cost of living as determined by the Consumer Price Index.

(Ord. 398 (part), 2014; Ord. 332 (part), 2006; Ord. 282 (part), 2001; Ord. 192 (part), 1993; Ord. 176, 1991; Ord. 130 § 5, 1983)

Passed, approved, signed and adopted this 18th day of December, 2014.



Charles Griego, Mayor
Village of Los Lunas

ATTEST:

Gregory D. Martin, Administrator
Village of Los Lunas

APPENDIX I

RESOLUTION # 17-14

ADOPTION OF MUNICIPAL WATER CONSERVATION PLAN FOR THE VILLAGE OF LOS LUNAS

RESOLUTION # 17-14

Adoption of Municipal Water Conservation Plan for the Village of Los Lunas

WHEREAS, water is a valuable resource that should be used wisely and as efficiently as possible; and

WHEREAS, water resources within the Village limits and within the Village's water utility service area should be managed to ensure a permanent adequate supply; and a water conservation program is an effective component of sustainable water resource management; and

WHEREAS, the Village of Los Lunas supports the State of New Mexico's Forty-Year Planning Statute, which requires that municipalities "utilize the highest and best technology available to ensure conservation of water to the maximum extent practical," and

WHEREAS, the Village's Water Waste Restrictions Ordinance and the Emergency Water Shortage Plan Ordinance were adopted by the Village of Los Lunas in 2006 and 2007;

WHEREAS, the resulting Municipal Water Conservation Plan contains a water audit of the water distribution system and information about existing water use patterns that identify where conservation can be most beneficial, a set of water conservation goals, and recommends a variety of water use efficiency projects and programs;

NOW, THEREFORE, BE IT RESOLVED that the governing body of the Village of Los Lunas has reviewed and approves the resolution regarding the Adoption of the Municipal Water Conservation Plan.

PASSED, APPROVED AND ADOPTED THIS 13th DAY OF JULY, 2017

Charles Griego, Mayor

ATTEST:

Martin Callahan, Municipal Clerk