Los Alamos County Environmental Sustainability Plan

Updated December 2, 2015

ATTACHMENT C

Introduction

Appreciation and respect of the natural environment of northern New Mexico has long been a cultural value shared by the residents of Los Alamos County. In 2005, the Los Alamos County Council recognized the public's desire to preserve this environmental amenity through the adoption of "maintain environmental quality" as one of its six core goals.

The County created the Environmental Sustainability Initiative (ESI) in March 2008. This initiative narrowed the County's focus from the broad concept of sustainability to eight focus areas:

1) Environmental sustainability policy
2) Waste and recycling
3) Hydrocarbon independence
4) Water
5) Land use
6) Economic development
7) Education and outreach
8) Measurement and reporting

Within these eight focus areas, short and long term programs and activities were proposed to enable Los Alamos County to become a more sustainable community. Since then, the County has made significant progress on a variety of short and long term activities identified in the ESI. Policies were passed to ensure sustainability is at the forefront of decisions made now and into the future, and significant infrastructure improvements have occurred, including the formation of the Environmental Sustainability Board. The County has taken actions to educate all of its employees on the importance of sustainability in internal operations with the formation of the County Green Team and County Fleet Team. These teams help ensure that the County government is leading the way in transitioning Los Alamos into a more sustainable community.

> *"Enhance environmental quality and sustainability balancing costs and benefits."*
>
> *2015 Los Alamos County Strategic Leadership Plan Goal*

In addition, the County Council reinforced the importance of the environment in the 2011 Los Alamos County Strategic Leadership Plan by updating one of the goals to read: "enhance environmental quality and sustainability." Later, at the County Council Workshop on November 16, 2013, County Council asked the Environmental Sustainability Board to consider the definition of environmental sustainability to include the "balance of costs and benefits" in response to the desire to include an evaluation component to the goal. The Environmental Sustainability Board accepted the recommendation. Currently, the 2015 Los Alamos County Strategic Leadership Plan defines the County Council's goal for environmental stewardship as "Enhance environmental quality and sustainability balancing costs and benefits."

With environmental sustainability included in the County Council's Leadership Plan, what remains is the roadmap. In many ways, the County took progressive steps toward the goal, and a cohesive, expanded vision and strategy as laid out in this document, is proposed as the next step.

Definitions

Before laying a framework to work toward the County's environmental stewardship goals, key terms need to be defined as they pertain to the needs of the Los Alamos community. This Environmental Sustainability Plan proposes the following definitions:

Environmental Stewardship refers to management of the environment, with the intent to provide protection or care;
Environmental Sustainability refers to a state in which the demands our community place on the environment can be met without reducing the environment's capacity to support those demands in the future and thereby maintaining the quality of life of the county's residents; and,
Environmental Quality refers to the current state of the natural environment.

The Environmental Sustainability Board used prior plans and County Council's direction to interpret the County's goal, "enhance environmental quality and sustainability balancing costs and benefits," and developed the following vision: "Los Alamos County's approach to Environmental Sustainability is to engage in environmental stewardship to enhance environmental quality by balancing costs and benefits to make decisions that will enable the community to thrive today and well into the future." This vision calls on our county to take action, as environmental stewards, by working toward a set of key measurable goals, developed to enhance environmental quality and the quality of our community.

Purpose

The Los Alamos County Environmental Sustainability Plan establishes a roadmap for accomplishing the Council's goal to "enhance environmental quality and sustainability." This plan outlines a set of quantifiable goals, referred to as sustainability indicators, chosen after balancing the costs and benefits. In addition, the plan outlines a strategy for tracking progress for each of the sustainability indicators and thus measuring Los Alamos' progress toward reaching the Council's goal. The Environmental Sustainability Plan will be updated every two years in order to track progress, evaluate strategies, and when needed modify or develop new strategies based on data and experience, which is important for attaining the sustainability goals outlined in this document.

Scope

All indicators and goals in this plan apply to the community of Los Alamos County; however, Los Alamos National Laboratory (LANL) energy and water usage is not included in the data reported. The decision to exclude LANL energy and water usage from this plan was based on several reasons:

1. Being a Department of Energy Facility, LANL must follow federal mandates that would supersede any local goal developed in this plan.
2. LANL has their own environmental sustainability plan called "Long-Term Strategy for Environmental Stewardship and Sustainability."

On the other hand, LANL waste generation and diversion numbers are included, since LANL is a major commercial customer for Los Alamos County. Almost all waste generated at LANL, excluding radioactive and other special waste, is disposed at the Los Alamos County Eco Station. The County is also responsible for the collection of solid waste and recycling from a few LANL facilities located throughout the community. Given the amount of integration in terms of waste and recycling services, LANL is included in Los Alamos County commercial customer data.

Relation to Energy and Water Conservation Plan by Department of Public Utilities

The Los Alamos County Environmental Sustainability Plan is a separate plan from the Los Alamos County Department of Public Utilities Energy and Water Conservation Plan (DPU Plan). The information presented in the DPU Plan is specific to the utility systems operated by the Department of Public Utilities: water, natural gas and electricity. The DPU Plan is a requirement of operating the utility system and it identifies goals for water, natural gas and electricity usage. The goals and baselines used in the DPU Plan are also used in the County's Environmental Sustainability Plan to demonstrate how the County is reducing energy and water usage. The Environmental Sustainability Plan looks beyond the areas of energy and water usage by establishing goals in other areas crucial to creating a more environmentally sustainable community. For a visual representation of how these plans relate see Figure 1.

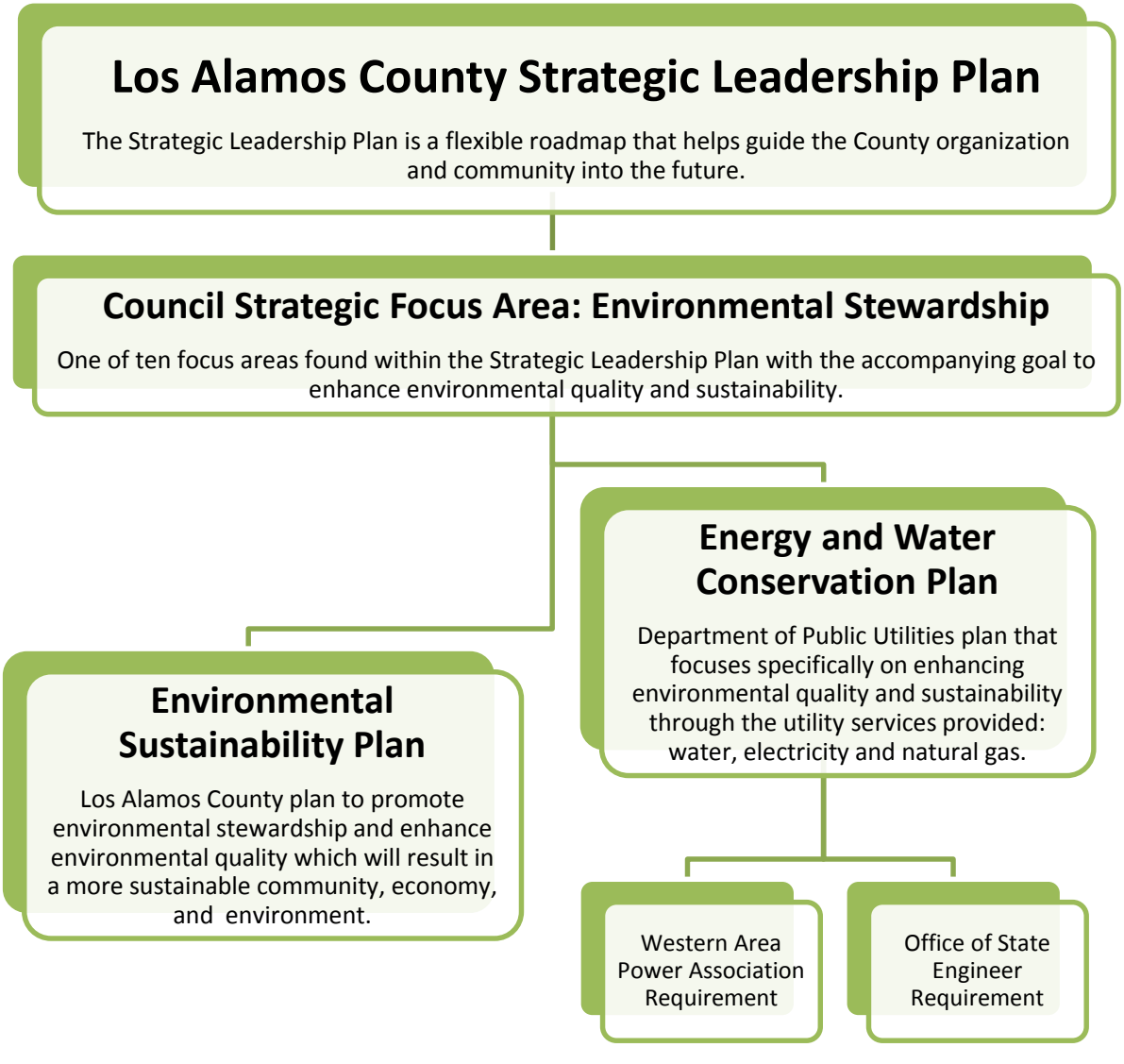


Figure 1: Flow chart showing the relationship of the Environmental Sustainability Plan to Council's Strategic Leadership Plan and the Energy and Water Conservation Plan.

Sustainability Indicators

The Los Alamos County Sustainability plan includes two distinct categories of sustainability indicators: Community Indicators and Local Government Indicators. These indicators will serve as the County's measuring stick, enabling the County to quantify progress in reaching its sustainability goals. The sustainability indicators incorporated into the Los Alamos County Environmental Sustainability plan are identified In **Table 1** below.

Sustainability Indicators
Community Indicators
1. Community Greenhouse Gas Emissions
2. Public Transit Ridership
3. Municipal Solid Waste (MSW) Recycling Rate
4. Construction & Demolition (C&D) Waste Diversion
5. Effectiveness of Environmental Sustainability Program
Local Government Indicators
1. LEED Certified County Facilities
2. County Operations Greenhouse Gas Emissions
3. Energy Usage of County Facilities
4. Water Usage in County

Table 1: Sustainability indicators for Los Alamos County Community and Local Government.

Although the sustainability indicators do not cover all aspects of sustainability, they do represent the major focus areas adopted by Los Alamos County Council in the Environmental Sustainability Initiative. This plan represents these focus areas with the least number of indicators possible to enable easier and more effective understanding of County goals, and increase the ease of public education. The following is an analysis of each sustainability indicator via three sections:

(1) The **goal section** presents the goal that the County is striving to obtain. Goals were selected based upon research on actions being taken by federal, state, and local entities across the country, and input from knowledgeable individuals within the County.

(2) The **performance section** provides quantitative and qualitative information on how the community is performing in each indicator. Community wide indicators have a baseline year of 2006, based on data availability. The local government indicators have a baseline year of 2010. The local government indicators have a different baseline as a result of the major changes that have occurred since 2006 in the County.

(3) The **strategy section** provides a brief description of proposed actions that will enable the community to reach the established goal for each indicator.

Sustainability Indicator	Goal	Metric	Performance (2012)
Community Indicators			
1. Community greenhouse gas emissions	Decrease greenhouse gas emissions based on 2006 – 2012 average.	Metric tons of CO2e from energy and waste	159,431metric tons CO2e (baseline; average of 2006-2012 emissions)
2. Public transit ridership	Increase annual transit total passenger trips per hour of operation to 25 by 2020.	Total passenger trips per hour of operation	20.59 total passenger trips per hour
3. MSW recycling rate	Meet or surpass EPA MSW recycling rate of 40% by 2020.	% of total waste recycled	22% of waste recycled
4. C&D waste diversion	Achieve 75% diversion of construction and demolition (C&D) materials and debris (waste) by 2020.	% of total C&D waste diverted	64% of C&D waste diverted
5. Effectiveness of environmental sustainability program	Receive an excellent or good rating from at least 75% of respondents in 2020 survey.	% of residents rating program as good or excellent in Los Alamos County Customer Survey	73% respondents ranked as excellent or good
Sustainability Indicator	**Goal**	**Metric**	**Performance (2012)**
Local Government Indicators			
1. LEED certified County facilities	100% of total County facilities over 5,000 sq. feet shall meet or exceed LEED Silver certification.	% of total County facilities over 5,000 sq. feet that are LEED Silver (or higher) certified	40% of total County facilities over 5,000 sq. feet meets at least LEED Silver certification
2. County operations greenhouse gas emissions	Reduce greenhouse gas emissions from County operations by 22% or by 2,662 metric tons below the 2012 levels by 2020.	Metric tons of CO2e from energy and vehicle fuel usage	12,100 metric tons of CO2e
3. Energy usage of County facilities	Reduce the energy usage of County facilities by 15% per square foot or 8787 million BTU's below 2012 levels by 2020.	Million BTU's of energy, includes electricity and natural gas usage	58,583 million BTU's
4. Water usage in County	Reduce potable water usage in Los Alamos County by 20% or 8,467 thousands of gallons below 2012 levels by 2020.	Thousands of gallons of water used by County	42,337 thousands of gallons of water

Table 2: List of sustainability indicators with corresponding goals, metrics and performance

Community Indicators

Community Indicator 1: Community Greenhouse Gas Emissions

Goal: Decrease community greenhouse gas emissions based on 2006 – 2012 average.

Performance: This measure includes greenhouse gas emissions from electricity usage, natural gas usage and solid waste generation. **Figure 2** shows total energy usage, including electricity and natural gas, for Los Alamos County by customer class for 2006 to 2012. The emissions that resulted from energy usage for the same time period can be found in **Figure 3.** Greenhouse gas emissions from natural gas usage were determined by utilizing World Resource Institute (2008), GHG Protocol tool for stationary combustion, Version 4.0.

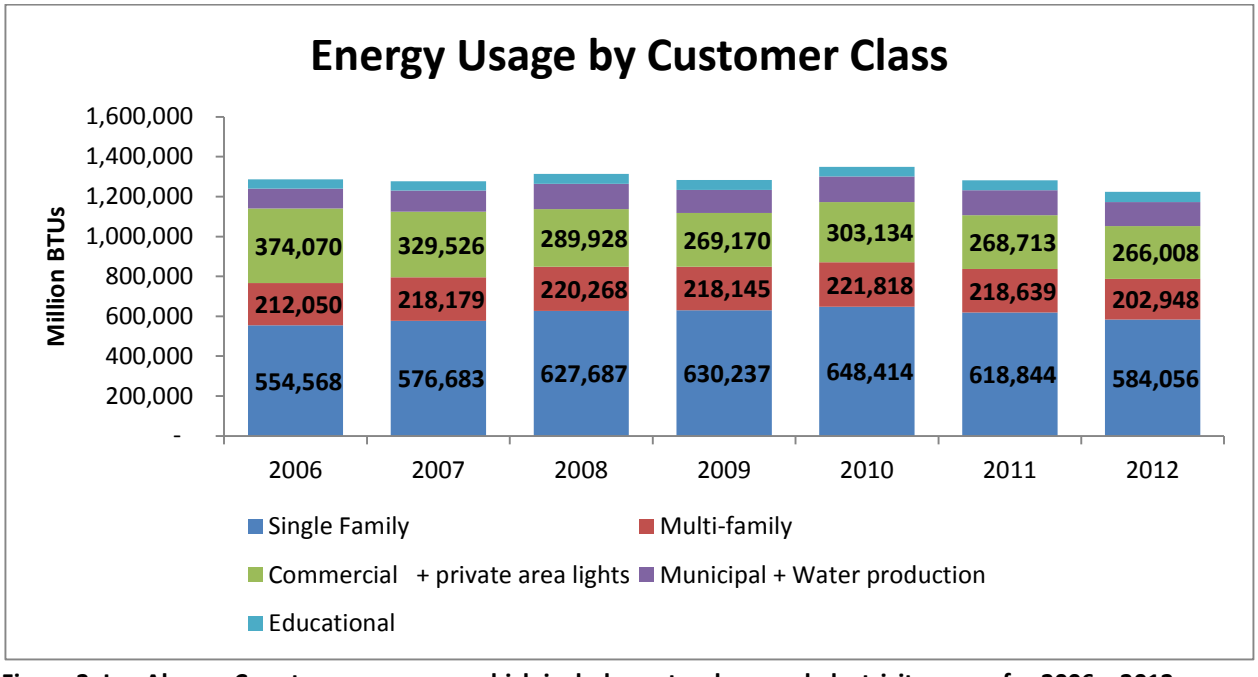


Figure 2: Los Alamos County energy usage which includes natural gas and electricity usage for 2006 – 2012.

Greenhouse gas emissions from solid waste include the emissions from the disposal of municipal solid waste generated by the community and LANL; this does not include the disposal of any secured waste from LANL. When waste is deposited in the landfill it breaks down over a 20-plus year timeframe and emits greenhouse gases, specifically methane.

When determining emissions generated from solid waste stored in landfills there are two commonly used methodologies: (1) ongoing emissions estimation and (2) cumulative emissions estimation.

1) The ongoing emissions estimations use a first-order decay model to estimate the actual greenhouse gas emissions on an annual basis.

2) The cumulative emissions estimation sums the lifetime emissions of waste and assigns it to the year of disposal; therefore, creating one number that summarizes the environmental impact of waste disposal.

This plan utilizes the cumulative emissions estimation methodology. Emissions from solid waste were found using the methodology presented in Chapter SW.4 Community-Generated Waste Sent to Landfills of the ICLEI Community Protocol. The ICLEI is a global network of local governments dedicated to sustainability, resilience, and climate action. Waste from Los Alamos County is currently shipped to landfills in Rio Rancho, NM.

Figure 3 summarizes Los Alamos County greenhouse gas emissions from electricity usage, natural gas usage and the disposal of solid waste. The seven year average usage is 159,431 metric tons of carbon dioxide equivalents.
The County, in conjunction with LANL, has recently undertaken two major renewable energy projects that enable the County to receive electricity without creating harmful greenhouse gas emissions. The first project was the installation of a low-flow turbine at the Abiquiu hydroelectric facility. This turbine generates an additional 6,468 MWH of electricity from a renewable energy source on an annual basis. The other renewable energy project was the installation of a 2 MW solar array on the closed Los Alamos County landfill through a partnership with the Japanese agency NEDO.

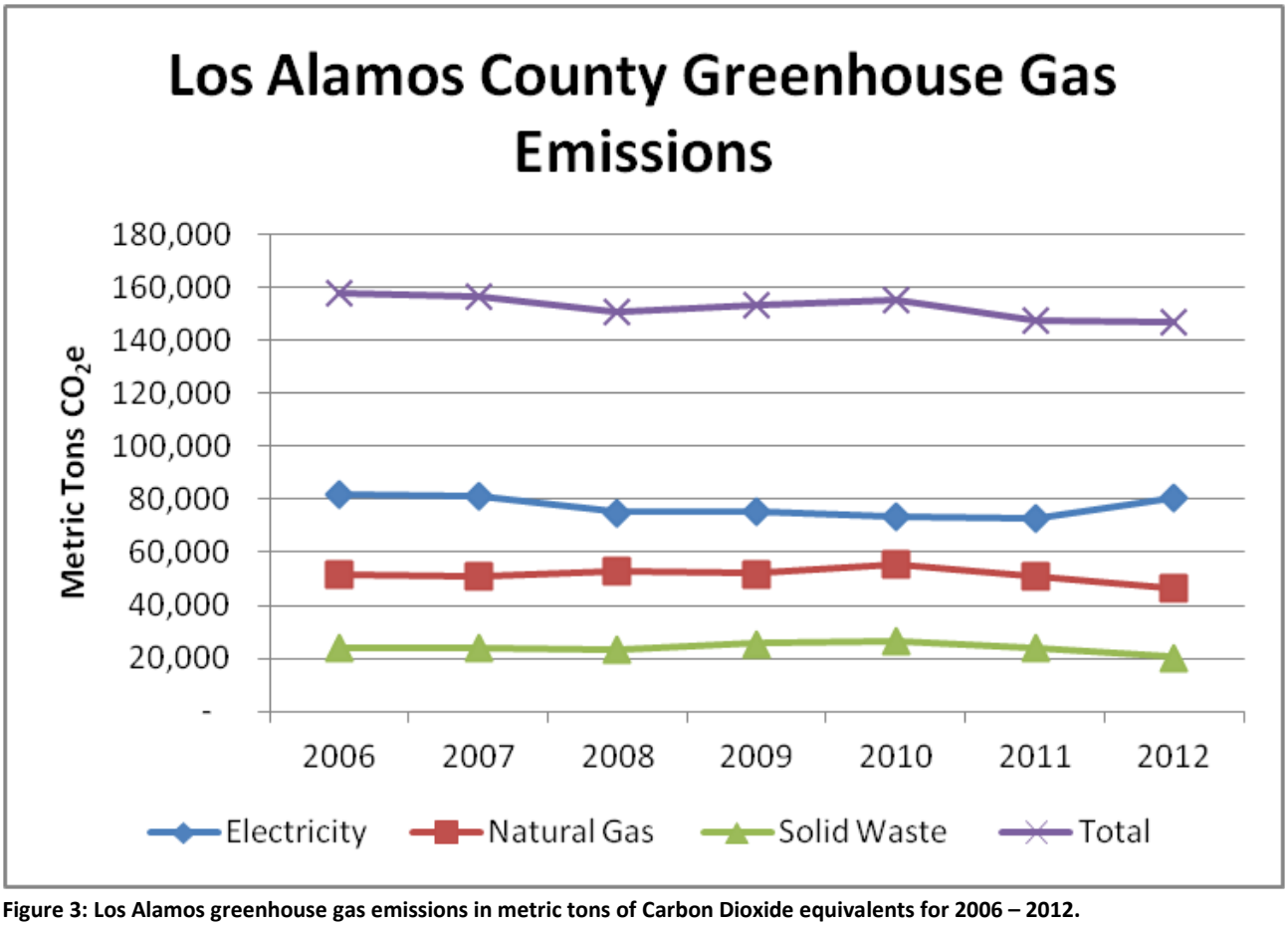


Figure 3: Los Alamos greenhouse gas emissions in metric tons of Carbon Dioxide equivalents for 2006 – 2012.

Strategy: The strategy for decreasing emissions is inherently tied with reducing solid waste creation along with electricity and natural gas usage. Therefore, the strategies discussed previously for these categories apply here. An additional approach is to continue to shift the power supply from hydrocarbon electricity sources toward renewable energy sources.

Community Indicator 2: Public Transit Ridership

Goal: Increase annual transit total trips per hour to 25 by 2020.

Performance: Total trips per hour is an industry standard used to measure the efficiency and impact of public transit systems. It is determined by dividing the annual ridership by the hours the buses are on route. Atomic City Transit began service in October 2007 and has seen a steady increase in its use. Ridership has increased 120% from approximately 255,000 riders in 2007-2008 (the first full year of operation) to over 562,000 in 2011-2012. Services have also expanded with the addition of AM/PM peak service in 2008, the addition of Route 2 to serve the Eastern Area neighborhoods and Pajarito Cliffs Site in 2010, and seasonal shuttle service to Bandelier National Monument. Since the first full year of operation, the number of passenger trips per hour of operation has been approximately 20 (**Figure 4**).

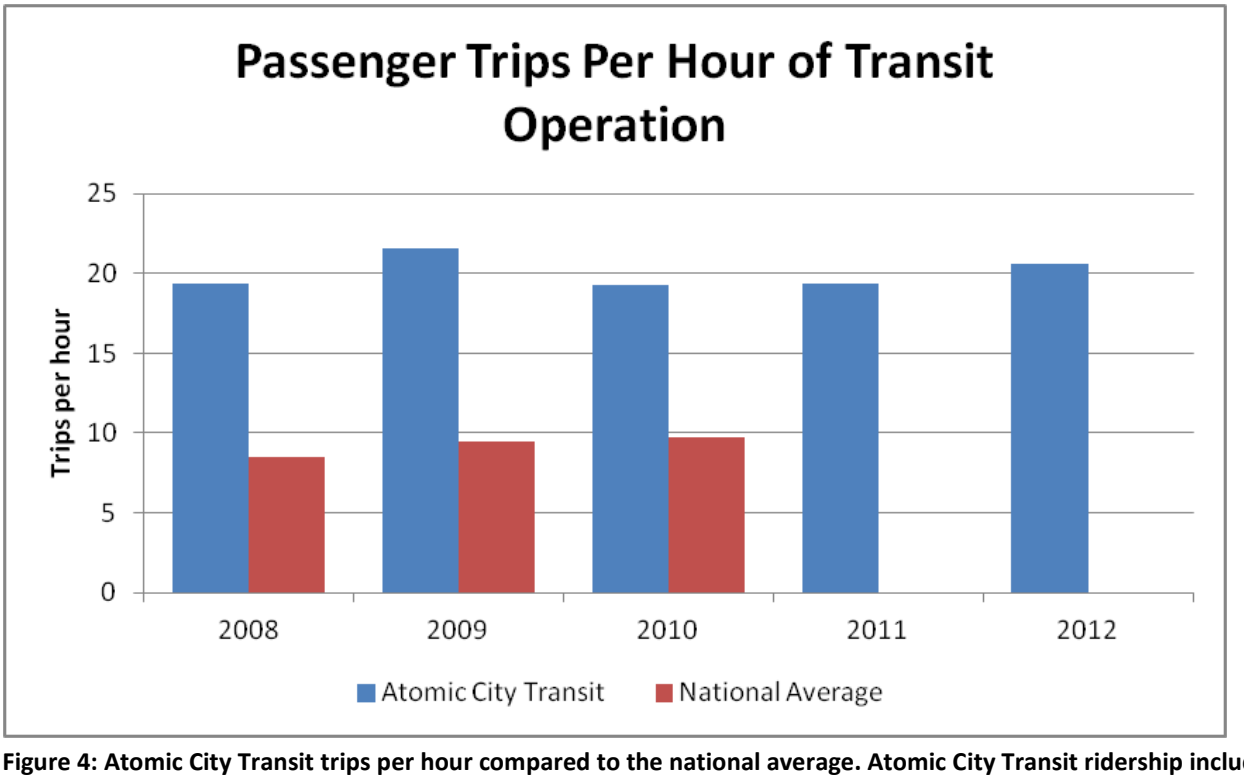


Figure 4: Atomic City Transit trips per hour compared to the national average. Atomic City Transit ridership includes fixed-route and dial-a-ride services. National average comes from the 2012 Transit Fact Book, Small Urban & Rural Transit Center, 2011 and 2012 data not available.

Strategy: In 2014 the County added services that have reduced the amount of personal vehicle miles travelled. The County also partnered with the National Park Service to provide ongoing shuttle service to Bandelier National Monument, which is provided annually from Memorial Day weekend through the end of October. The County is also focused on increasing rider amenities. New bus shelters have been installed throughout the community, with more planned in the future. Automated vehicle location and analytic software was implemented beginning in 2014 to assist transit users in connecting with transit services, as well as transit management in measuring performance and making adjustments to the service where needed – all of which will help increase the passenger trips per hour sustainability indicator. Technology advancements that had been implemented or are coming online in late 2015 include ACTracker on the Atomic City Transit website, which provides real time transit data, including the locations of buses on their routes and a Trip Planner that enables individuals to plan their own trips using a variety of modes; digital message

displays at major transit stops; MyStop mobile app on both Apple and Android devices; QR Code on bus stop signs, which leads users to the website; and, for those who do not have a smart phone, SMS texting capability at bus stop signs to obtain next-bus information at individual stops. The performance indicator from July 1, 2014, through June 30, 2015, is 18.09 passenger trips per hour. Although this is a decrease since 2012 reaching double-digits in passenger trips per hour is considered to be a successful ridership program in the transit industry. The other important factors that can be correlated to this decrease in ridership are lower fuel prices and thus an increase in use of personal vehicles. A comprehensive transit study and five-year plan was completed by an outside contractor and approved by the County Council early in 2015. The plan made recommendations for route and schedule adjustments, as well as vehicle requirements for the service, which will lead to improved performance upon implementation of the plan in early 2016.

Community Indicator 3: MSW Recycling Rate

Goal: Meet or surpass EPA Recycling Rate of 40% by 2020.

Performance: The Los Alamos County Eco Station handles all waste and recycling functions for the community of Los Alamos and captures the majority of routine and non-routine solid waste and recycling from Los Alamos National Laboratory. In 2012 Los Alamos County recycled 17% of all municipal solid waste received. Since 2012 the County has taken action to increase recycling and waste diversion. In 2014 the County expanded the mixed recycle program to include plastics #1 through plastic #7, instead of only plastics #1 and #2. In 2014, the recycle rate was reported to NMED as 21%. The expansion of the mixed recycle program is expected to have a significant impact as now there are more opportunities to recycle plastic products. The County recycle rate is still significantly below the national average recycling rate of 33%.

To determine the recycle rate, the following categories of recycle material are included: residential curbside recycling, commercial recycling, Los Alamos National Laboratory recycling, recycling at the Sullivan Field and Overlook Park convenience centers and recycle received at the Eco Station. The scope of materials included in the standard Municipal Solid Waste (MSW) recycle rate include: routine solid waste, food scraps, glass containers, lead-acid batteries, aluminum/tin/steel cans, other ferrous metals, consumer electronics, household hazardous waste, light bulbs, brush and wood pallets, tires, paper products, plastics #1 through #7, and oil. This measurement does not include Waste Water Treatment Plant (WWTP) sludge, asphalt, concrete, clean dirt, or construction and demolition debris.

Strategy: In order to effectively increase the recycling rate in Los Alamos County it is important to have an understanding of the waste stream. A waste audit should be implemented to better understand the composition of the waste stream and to identify the materials that make up a large percentage of the waste stream that can help direct effective recycling strategies. **Figure 5** is a breakdown of the U.S. waste stream for 2010. More than half of the waste typically generated falls into the categories of paper, food scraps, and yard trimmings; making these materials important areas to focus recycling efforts. Other strategies is to explore incentive based programs such as RecycleBank as well as continue educating the public regarding recycling and reuse.

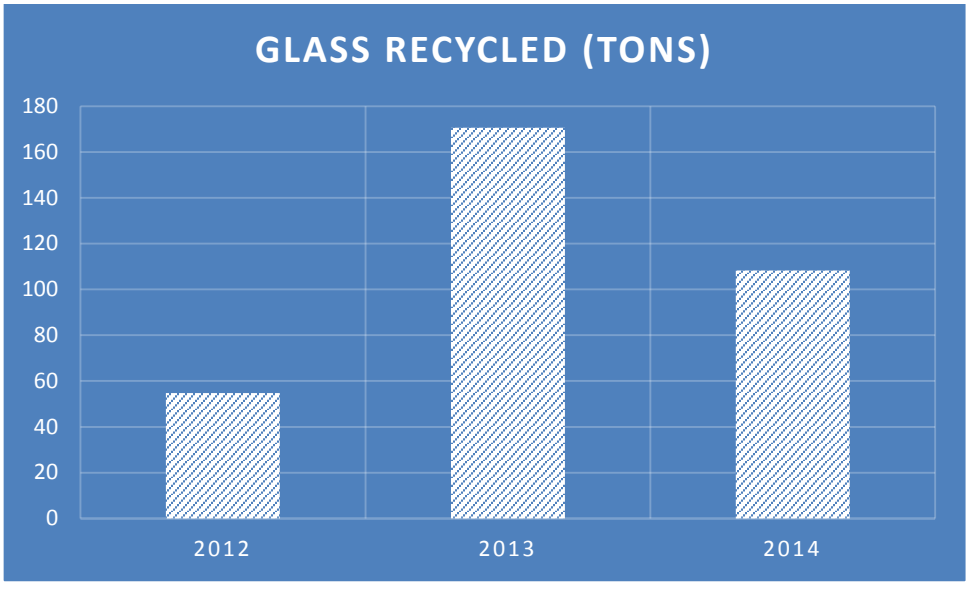
Figure 5: Total U.S. MSW generation by material, 2010. Data from U.S. EPA 2010 Waste Characterization Study.

The reestablishment of a composting program in Los Alamos County has recently enabled the County to better capture green waste (brush, yard trimmings). In 2013 the County implemented a fully functioning windrow composting facility in Bayo Canyon at the site of the old wastewater treatment plant.

The windrow composting facility has the potential to provide opportunities to expand beyond the green waste composting program and accept food waste which will keep more materials out of the landfill and decrease greenhouse gas emissions. The County will investigate the addition of food waste to the composting stream to ensure food waste can be added without negatively affecting the quality of the finished compost product and/or cause operational problems. A feasibility study is to be conducted and finalized in 2017. A food waste composting program could also accept soiled paper, which is not currently being recycled.

The County also worked to increase local business participation in the recycling program. An analysis was performed, identifying a handful of businesses that were estimated to generate a decent amount of recyclables who were not recycling due to cost. In response, the County decreased the commercial recycling rates to incentivize more commercial recycling. Outreach and education to businesses informing them about these adjusted rates and the benefits of recycling will continue.

The new County glass drop-off recycling that started in late September 2012 has certainly helped increase the recycling rate in Los Alamos County. Initially, the new glass recycle program was anticipated to divert 100 plus tons of glass from the waste stream on an annual basis. The glass is crushed and then given away for free for use by residents or non-residents in landscaping and other projects. The County will also use the crushed glass in a variety of different projects. In the first year, the County recycled 54.81 tons of glass, in 2013, there was a dramatic increase to 170.64 tons of glass recycling. In 2014, the County recycled 108.31 tons of glass.



The public was asked to prioritize other possible strategies to reach the goal of a 40% recycling rate by 2020. Input was collected during two public meetings and through an online survey. **Table 3** shows the results.

Rating	Recommended Strategy	Total Score
1	Increase materials accepted in curbside mixed recycling	100
2	County reuse center	96
3	Pay-As-You-Throw (PAYT)	72
4	Curbside organic waste collection	71
5	Mandatory commercial recycling	70
6	Commercial glass recycling pickup	64
7	Landfill ban	19

Table 3: Results of prioritization exercise in which public was asked to rank their three favorite strategies to reach recycling goal.

The County recently pursued the strategies ranked #1 and #2. A new Material Recycling Facility was constructed in Albuquerque that accepts more materials including #3-#7 plastics and paperboard. The County currently expanded the list of materials accepted in curbside mixed recycling including plastics #1-#7, aluminum and tin cans, and mixed paper products. The County also opened a reuse center located at the Eco Station. The reuse center accepts all gently used items and is another opportunity to divert waste from the landfill. Residents can place items for reuse such as tires, old sewing fabric, dishes and furniture. Other residents can collect items from the reuse area free of charge.

Recommendation #3 has been reviewed briefly by the ESB and requires more research and analysis as well as public comment. A PAYT program charges variable rates dependent upon the amount of waste generated by each customer, thereby financially incentivizing waste reduction. PAYT programs have been successfully adopted in cities across the country and around the world and are found to be a very effective means of increasing waste diversion. The cities who have adopted the PAYT strategy have realized a 50% waste reduction. The Environmental Services Division and the Environmental Sustainability Board (ESB) are currently analyzing the option of switching to a PAYT system. The County and ESB will utilize the results of the prioritization exercise in future program planning and development.

Community Indicator 4: Construction & Demolition Waste Diversion

Goal: Achieve 75% diversion of construction and demolition (C&D) materials and debris by 2020.

Performance: Los Alamos County Eco Station receives the majority of the construction and demolition materials generated throughout the County and within the LANL complex. In 2012, the County diverted 64% of construction and demolition materials from the landfill. The concrete and asphalt were crushed and reused in a variety of construction projects including pavement of roads and streets projects. To calculate the C&D waste diversion rate the following materials are included: C&D debris, asphalt, concrete, shingles, gypsum (drywall), and carpet.

Strategy: The County will evaluate the current marketing approach to target construction contractors to expand the customer base and increase all opportunities to capture C&D materials at the County Eco Station. The County Council approved a rate change that became effective August 1, 2015. The rate change will decrease the deposit required from Contractor's who rent roll-off service from $1000 to $650 if the contractor has twelve on time previous payments. This initiative should make the County's commercial roll-off program to become more competitive with neighboring markets. As a result of marketing and financial incentives, the customer base and C&D diversion rate is expected to increase and bring the County closer to achieving a 75% C&D diversion rate.

Community Indicator 5: Effectiveness of Environmental Sustainability Program

Goals: Receive an excellent or good rating from at least 75% of respondents in 2020 survey.

Performance: Performance for this measure is based on responses to the following statement in the community survey conducted every other year: Effectiveness of County environmental sustainability program. 4 shows citizen responses to the statement in the 2010 and 2012 survey.

Do you feel the quality of each item is:	2010		2012	
	Count n = 238	%	Count n = 259	%
Excellent	39	16.4%	31	12.0%
Good	120	50.4%	157	61.0%
Fair	58	24.4%	57	22.0%
Poor	21	8.8%	13	5.0%

Table 4: Responses from 2010 and 2012 community survey question regarding the effectiveness of the environmental sustainability program

Close to half of the respondents were unable to rate the environmental sustainability program due to their unfamiliarity with the program. These results clearly show that much more public outreach and education need to occur on this initiative. However, this table only included the responses of individuals who were familiar with the environmental sustainability program. In 2012, there was an increase in the number of individuals who provided an excellent or good rating.

Strategy: County staff will continue to work collaboratively with community groups to increase awareness and citizen education in terms of sustainability. Over the past several years the County has had great success partnering with community groups to develop new programs and increase the effectiveness of existing programs. The work of county government teams focused on the topic of sustainability will also assist greatly in increasing awareness internally, and

generating more educated employees who can interact with the community. The publication and annual updates to this document and the Department of Public Utility's Energy and Water Conservation Plan will be integral in raising citizen awareness and participation in the community sustainability programs.

Los Alamos County Local Government Indicators

Due to many recent changes to county facilities it was determined that in order to accurately set local government goals 2011 should be used as the baseline year for facilities-related indicators. For non-facility related measures 2006 is utilized as the baseline.

Local Government Indicator 1: LEED Certified County Facilities

Goal: 100 percent of new County facilities over 5,000 sq. feet will meet or exceed LEED Silver certification.

Performance: LEED (Leadership in Energy and Environmental Design), is an internationally recognized green building certification system developed by the US Green Building Council. With the completion of the Judicial Complex and Pajarito Cliffs Site in 2010, approximately 40% of the total square footage of County facilities was at least LEED Silver Certified. The Pajarito Cliffs Site was awarded LEED Gold and the County will continue to strive towards Gold when cost effective. In six years, the County increased the percentage of total building square footage that is LEED certified from 0 to 40%.

Strategy: All new County buildings over 5,000 square feet will meet or exceed the LEED Silver building standards adopted by the County Council. As old buildings are replaced, LEED Silver certified or better facilities will take their place.

Local Government Indicator 2: County Operations Greenhouse Gas Emissions

Goal: Reduce greenhouse gas emissions from County operations by 22% below 2011 levels by 2020.

Performance: This measure includes emissions from fuel usage in County vehicles, and electricity and natural gas use in County operations, **Table 5**. One common measure that was not included is emissions from waste due to the fact that there is no accurate way to ascertain County government waste from total County waste figures.

		Electricity (MWH)	Natural Gas (MMBTU)	Gasoline (Gallons)	Diesel (Gallons)	Total Emissions
2011	Usage	10,084	36,501	163,762	141,594	10,945
	Emissions (Metric Tons)	5,899	2,166	1,443	1,437	
2012	Usage	11,014	37,581	183,378	167,164	12,426
	Emissions (Metric Tons)	6,881	2,233	1,616	1,697	

Table 5: County electricity, natural gas and vehicle usage and the resulting greenhouse gas emissions for 2011.

Through the formation of the Green Team, the County has created a centralized body to work on developing policies and implementing specific sustainability initiatives to reduce energy and fuel usage. The team is comprised of County employees from a wide range of County departments and divisions tasked with creating a more sustainable County government. This team has also spawned a new team focused specifically on greening the County fleet. This internal team, combined with ideas and support provided by the Environmental Sustainability Board will ensure that the sustainability efforts of the county continue to move forward.

Strategy: While buildings play a significant role in energy usage, they also play a significant role in greenhouse gas emissions. Therefore, when focusing on reducing emissions, the County must utilize the strategies mentioned in the previous section focused on the energy intensity of facilities. Another approach the County is pursuing is the installation of on-site renewable energy systems at County facilities. On-site renewable energy systems generate electricity from a renewable source such as sun or wind, and result in no greenhouse gas emissions. These sources can be used in place of carbon intensive electricity that results in high levels of greenhouse gas emissions. On-site renewables in the form of solar thermal panels to generate hot water are currently being installed at the new Justice Center and Animal Shelter, and are already in use at the Eco Station.

Local Government Indicator 3: Energy Usage of County Facilities

Goal: Reduce the energy usage of County facilities 15% per square foot below 2011 levels by 2020.

Performance: Energy usage is a measure of the total annual amount of purchased energy used in County facilities; this includes natural gas and electricity. In 2012, County facilities utilized a total of 66,515 million BTU's of energy; 46% from electricity and 54% from natural gas. This was a 6% increase from the 62,790 million BTU's of energy used in 2011.

One policy that will continue to greatly assist in minimizing emissions resulting from energy usage is the County Green Building Policy. This policy reduces energy usage by ensuring that all new County facilities are built in a way that maximizes energy efficiency and promotes alternative transportation. The County also performed building assessments and energy audits on all county facilities expected to be in operation into the foreseeable future. These audits identified approximately 50 potential modifications and energy management changes that have a simple payback of less than ten years. Implementing these changes will greatly reduce building energy usage and save the County money.

Strategy: The County must ensure that the Green Building Policy continues to be implemented, thereby ensuring new facilities are energy efficient. In terms of existing facilities, the County needs to enact the energy saving measures identified in the recent energy audits. These energy saving measures may come with a high upfront cost, but all identified measures will pay themselves off within ten years and result in more efficient and greener County infrastructure. The implementation of these energy savings measures in conjunction with the building assessment strategy used by the County will ensure existing facilities are performing efficiently.

Creating energy efficient facilities is only part of the solution since it is the behavior of building occupants that leads to a significant portion of energy usage in County facilities. Therefore, the County will continue to educate its employees in order to reduce inefficient behaviors, such as reminding County employees to turn off their computers at the end of the work day in order to help save electricity and money. The amount of education and information disseminated to County employees will increase, spearheaded by the Green Team. Changing wasteful and inefficient behaviors such as leaving the light or computer on when not in the office, or using a space heater during the cooler months, can have a noticeable impact on energy usage, and can also help develop behaviors in employees that will save them energy and money at home.

Local Government Indicator 4: Water Usage by County

Goal: Reduce potable water usage in Los Alamos County by 20% below 2012 levels by 2020.

Performance: In 2012, 42,337 thousands of gallons of potable water were used for irrigation of County parks and other green space. This was a 16% reduction from 2011. The Parks Division is currently taking proactive measures to help minimize the water needs per acre of grass. Frequently aerating grassy areas and planting grass species best fit for the local environment ensure that a beautiful landscape is created while minimizing water use.

Strategy: Reduce the amount of water used by indoor water fixtures and for irrigation through the installation of timers and evapo-transpiration sensors, and expand the availability of an effluent water supply system that will increase the acreage that can be irrigated with effluent water. Reducing water use will require a thorough facility water audits and irrigation audits in order to identify potential areas to be converted from high water use to low water use without negatively affecting community usage of facilities and/or significantly increasing labor requirements.

Plan Update Process

A report will be published every two years collaboratively by the Environmental Services Division and Environmental Sustainability Board, updating the County's progress towards the established goals. The report will contain updates on the sustainability indicators, provide information on accomplishments and cite any necessary adjustments to strategy as a result of unsatisfactory performance. The Los Alamos County Environmental Sustainability Plan is meant to be a very dynamic document allowing for the addition of new goals or significant changes to current goals. Critical analysis of goals and strategies on a biennial basis by the Environmental Services Division and Environmental Sustainability Board will ensure that issues of environmental sustainability are continually at the forefront of importance in Los Alamos County, guiding the community toward a brighter future.