Sustainability Plan

PREPARED FOR THE CITY OF RIO RANCHO BY

Executive Summary

The City of Rio Rancho (City) laid the groundwork for this Sustainability Plan (Plan) by passing **Resolution 23, Enactment No. 09-023,** which recognizes the need to reduce the City's environmental footprint and establishes a stated policy for the City to be a sustainable community, starting with municipal operations. Furthermore, the City leadership developed a Strategic Plan to establish priorities for City government from 2009 to 2014. Goal 5, Government Services, Strategy E calls for the City to, *"Develop and promote a culture of sustainability,"* and that the, *"City of Rio Rancho is dedicated to achieving sustainability by conducting daily operations through balanced stewardship of human, financial and natural resources."*

A sustainability plan is, in essence, a road map that lays a foundation for planning and action. It defines and illustrates an organizational philosophy toward sustainability through an established vision and policy, goals, strategies, and metrics to improve practices associated with energy use, transportation, solid waste, water consumption, and other areas.

This Plan integrates a top-down vision and goals with bottom-up strategies and practices that can provide both early near-term benefits for Rio Rancho as well as tools for continual and long-term progress toward sustainability. Broadly speaking, this Plan is a vehicle that will help move Rio Rancho systematically toward sustainability in its operations. It creates efficiencies and standardization among programs and provides a shared decision-making and problem-solving framework. It is the logical first step for an organization that is serious about tangible and measurable long-term sustainability practices. In addition to the direct resource efficiency improvements and cost savings Rio Rancho can expect from more sustainable practices, the Plan offers many other operational benefits:

- Provides a framework for decision-making
- Provides the foundation for sustainability planning and action
- Drives change in the workplace
- Inspires commitment to common goals
- Creates visible management support and a unifying theme
- Reflects a future-focused organizational style and responsible culture
- Provides opportunities for leadership and recognition
- Improves management of natural resources

The Plan was developed using a collaborative process of interviewing and surveying staff members, facilitating staff workshops, assessing City buildings, and identifying purposeful goals. This process was designed to build off a platform of existing City practices and work toward continuous improvement with regard to effectively managing energy, resource use, waste production, and other practices to reduce impacts and generate cost savings. The Plan is dynamic in that it will evolve over time as goals are achieved and new challenges are addressed.

The Plan is anchored by the City's vision for sustainability and supported by a City policy that reflects the priorities and values of Rio Rancho and that will be the driving force for implementing the Plan.

Vision

"The City of Rio Rancho will be an environmentally sustainable, fiscally healthy, and productive organization that integrates sustainability into all of its decision making processes for the benefit of present and future generations. Through involvement, learning, and innovation, City employees from across all departments will actively contribute to this vision. The City of Rio Rancho will be recognized for the practice of sustainability across all of its municipal operations."

Policy

"The City of Rio Rancho is dedicated to achieving sustainability by conducting daily operations through balanced stewardship of human, financial, and natural resources. The City of Rio Rancho will serve as a community leader in sustainability by conducting operations in a manner that increases energy and resource efficiency, reduces the City's ecological footprint, saves money, and provides a supportive and productive working environment for its employees."

With top-down guidance from the vision and policy, a number of goals were developed for the Plan as shown in the following table. These include both 5-year, time-bound, and measureable goals, as well as stretch goals – long-term goals intended to keep the City looking aspirationally forward in its progress toward sustainability.

The goals identified in this Plan have been developed around five focus areas identified by City staff:

- Energy/Facilities
- Transportation
- Water
- Materials
- Employees

To work toward these goals, 18 specific strategies form the core components of this Plan. These strategies are the product of review and analysis of building assessments, input from City staff, and review of best practices from other cities and organizations. They were developed keeping a number of identified City priorities and themes in mind:

- Economic considerations
- Doing better instead of doing more
- City guidelines
- Consolidation
- Partnerships

Strategies were also evaluated and prioritized with consideration to a number of other factors listed below. Specifically, City staff identified the first two (economics/cost effectiveness and management support) as the most important in the screening process:

- Economics/cost effectiveness
- Management support
- Employee well-being
- Environment
- Ease of implementation
- Visibility
- Timeliness
- Multiple benefits

Ultimately, if the energy and water strategies detailed in the report are implemented, the City could potentially save more than $106,000 in operating costs annually at a total cost of $390,000 for a 4-year simple payback. These estimates do not include savings related to transportation (vehicle miles traveled reduction and fuel efficiency), materials, and others that are more difficult to quantify but equally important to the City's overall approach to sustainability.

Finally, the Plan lays out a path for implementation. Implementation efforts will include staffing and organization considerations, such as identifying a leader or ongoing green team to manage the Plan's implementation. Partnerships with organizations, local universities, and companies, which are supported by the City's Strategic Plan, can provide valuable opportunities for sharing resources and technical expertise. The City can also pursue a number of funding opportunities, from an Energy Services Contract to rebates, a revolving fund, or a Qualified Energy Conservation Bond. Finally, monitoring progress and reporting to staff and the community through a regularly issued sustainability report can help ensure the City's progress toward sustainability is measured and implementation is tracked over time. Developing a greenhouse gas inventory would be one method for creating a composite metric to monitor energy use, transportation, solid waste, and other factors. Monitoring and reporting efforts will also inform future updates to the Plan, including re-evaluating goals and potentially expanding planning efforts to the broader community.

Vision and Policy						
		Focus Areas				
		Transportation	**Water**	**Materials**	**Employees**	**Facilities and Energy (Includes Parks and Open Space)**
Long-Term	Stretch Goals	Reduce total fuel consumption for city fleet vehicles.	Maximize water conservation at all City facilities and landscapes through operations, technology, and behavior change.	Follow best green purchasing practices when it is in the best interests of the City.	Maintain 100% employee awareness and participation in adopted sustainable practices.	Acquire 20% of energy for City operations from renewable energy sources by 2020. Design all new buildings and renovate existing buildings to achieve high energy efficiency standards.
Short-Term	5-Year Goals	Reduce fuel consumption of fleet by 5% per non-public safety employee by end of fiscal year 2015 and 10% by fiscal year 2017. Reduce fuel consumption by Public Safety fleet by 5% per call by end of fiscal year 2015 and 10% by fiscal year 2017. Create a city-wide GPS Enterprise System.	Reduce per capita water use at City facilities by 10% by 2013. Reduce average gallons per irrigated park acre water use by 5% by 2013.	Develop a City Green Purchasing Policy and decision tool by 2012. Implement green purchasing by fiscal year 2013.	Create city-wide employee sustainability training plan by 2012 where all employees obtain minimum training requirements for sustainable practices tied to daily work.	Work with PNM in calendar year 2011 to develop a plan showing how the City can use renewable energy. Conduct an inventory of all City buildings for energy efficiency opportunities by February 2011.
	Strategies & Actions	Section 7	Section 7	Section 7	Section 7	Section 7
Annual	Opportunities	Appendix E	Appendix E	Appendix E	Appendix E	Appendix E
	Existing Practices	Section 4, Appendix D	Section 4, Appendix D	Section 4, Appendix D	Section 4, Appendix D	Section 4, Appendix D
	Metrics					
Ongoing	**Implementation Platform: Monitoring and Reporting**					

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1. Background

The City of Rio Rancho, located in the mid-Rio Grande region of New Mexico about 10 miles north of Albuquerque, was incorporated in 1981 and adopted a municipal charter as a home rule City in 1991. The City has a hybrid Council/Manager form of government in which the Mayor is a member of the Governing Body. The City Manager is responsible for the day-to-day operations of the City, conveying Governing Body policy to department staff. The City has nine different departments, including (1) Human Resources; (2) Financial Services; (3) Information Technology; (4) Parks, Recreation, and Community Services; (5) Library and Information Services; (6) Development Services; (7) Public Works; (8) Police; and (9) Fire and Rescue. These departments are staffed by approximately 700 total employees and housed in 23 different buildings throughout the City. Rio Rancho currently has a population of 82,574.

This Energy and Sustainability Plan (Plan) and six additional projects were funded by the Energy Efficiency and Conservation Block Grant Program (EECBG). The EECBG projects, as originally funded, are outlined in the table below.

Table 1. Energy Efficiency and Conservation Block Grant Projects

	Project	Jobs Created	Jobs Retained	Energy Saved or Generated (kWh/yr)[1]	GHG Reduction (CO_2e)[2]	Funds Leveraged	EECBG Budget
1	Developing City Energy and Sustainability Plan	0.55	0.25	4,635,710	3,328	$16,298	$55,000
2	Implementing The City Energy and Sustainability Plan	0.55	0.2	undetermined	0	$30,420	$51,006
3	Comprehensive Bicycle/Pedestrian Transportation Master Plan	1.25	0	undetermined	0	$3,917	$115,500
4	Server Virtualization and Consolidation	0	2	334,581	240	$72,134	$220,000
5	Building Inspector Training	0	13	1,231,650	874	$2,668	$11,944
6	Building Lighting Retrofits	0.82	0	153,597	110	$1,000	$75,391
7	Event Center Cool Roof	1.83	0	96,967	70	$0	$168,159
	Total	**5**	**15.45**	**6,452,505**	**4,622**	**$126,437**	**$697,000**

[1] kWh/yr = kilowatt hours per year
[2] CO_2e = metric tons carbon dioxide equivalent

2. Introduction

The City of Rio Rancho finds itself in a time of rapid change – and challenge – not only in the capacity of the City's own resources, but also in the changing world around it, from economic and energy security to water supply concerns. Recent economic challenges have pushed the City to seek ways to be more resourceful, while rising energy prices and resource limitations paint an uncertain future.

Yet amid these challenges and uncertainties there are great opportunities for the City of Rio Rancho. In many respects, they have already prompted the City to become more energy and resource efficient and to cut operating costs while doing so. The City also can seek new ways to partner and collaborate with the community to educate and involve City staff in energy, water, and resource saving opportunities. Not only can these and other strategies help reduce Rio Rancho's impact on the environment, they can provide many additional benefits to the City, from cost savings to sustaining a healthy and productive working environment.

This Plan has been developed to take stock of Rio Rancho's progress toward sustainability to date and create a road map for the City to effectively manage energy, resource use, waste production, and other practices to reduce impacts and generate cost savings. The goals of this Plan are to create a road map of sustainability for Rio Rancho and to provide an overall direction for sustainability that includes key goals, strategies, and actions to support sustainability in City facilities and operations.

The remainder of this Plan provides an overview of the Plan development process, a snapshot of the City's current sustainability practices, and a framework for action to further sustainability in the City's operations. The goals and strategies identified in Sections 6 and 7 of this Plan have been developed around several focus areas identified by City staff and facilitated by the project consultant team. The focus areas in the Plan are listed below:

- Energy/Facilities
- Transportation
- Water
- Materials
- Employees

In addition, the Plan outlines strategies within each focus area for achieving goals. Finally, the Plan presents an approach to implementation that looks at staffing, partnering, funding, measurement and reporting, and avenues for moving beyond City operations to the community as a whole.

2.1 THE CASE FOR A SUSTAINABILITY PLAN

A sustainability plan is, in essence, a road map that is a foundation to planning and action. It defines and illustrates an organizational philosophy toward sustainability through established goals, strategies, and metrics. Many local governments, institutions, organizations, and companies have embarked on efforts to develop sustainability plans to improve practices associated with energy use, transportation, solid waste, water consumption, and other areas. While the driving forces for many of these efforts have been to reduce energy consumption and environmental impacts as well as save money, implementing a sustainability plan offers many other benefits to Rio Rancho's staff and community. Below is a list of some of the benefits that Rio Rancho can expect from implementing the strategies in this Plan:

- Reduce City energy costs for heating, cooling, and lighting
- Reduce City motor vehicle fuel costs
- Reduce use and diversify fuel sources
- Reduce vulnerability to energy price increases and volatility
- Reduce peak energy demand
- Reduce waste and increase landfill diversion rates
- Reduce vehicle miles of travel
- Reduce water consumption
- Help employees to be involved and productive
- Serve as an example for the entire Rio Rancho community

This Plan integrates top-down concepts (e.g., vision, policy, and management commitment) with bottom-up practices (e.g., lighting retrofits, water efficiency, solid waste practices, etc.) that can provide both early near-term benefits for Rio Rancho as well as tools for continual and long-term success. Broadly speaking this Plan is a vehicle that will help move Rio Rancho systematically toward sustainability in its operations. It serves to focus attention and action at all levels on critical environmental, economic, and social issues. It creates efficiencies and standardization among programs and provides a shared decision-making and problem-solving framework. It is the logical first step for an organization that is serious about tangible and measurable long-term sustainability practices. In addition to the direct resource efficiency improvements Rio Rancho can expect from more sustainable practices, the Plan offers many other operational benefits the City can realize:

- Provides a framework for decision-making
- Provides the foundation for sustainability planning and action
- Drives change in the workplace
- Inspires commitment to common goals
- Creates visible management support and a unifying theme

- Reflects a future-focused organizational style and responsible culture
- Provides opportunities for leadership and recognition
- Improves management of natural resources

2.2 SCOPE OF THE PLAN

This Plan focuses exclusively on sustainability in Rio Rancho's municipal operations, from its energy and water consumption to fleet vehicles and solid waste. Its goals and strategies help identify opportunities for the City as an organization to become more efficient, reduce costs, and serve as an example to the broader community.

3. Plan Development Process

This Plan was developed using a variety of tools and methodologies, from assessments of City buildings for energy and water efficiency and conservation opportunities to research and review of best practices in operational sustainability from other communities nationwide. The Plan also is a reflection of extensive input from City staff using surveys, a staff open house, one-on-one interviews, and workshops.

At the City's request, this Plan was developed with general guidance from the U.S. Environmental Protection Agency's (EPA's) *Planning for a Sustainable Future - A Guide for Local Governments*. While this guide primarily focuses on community planning, many aspects of it can also be applied to internal City operations. Specifically, the multi-month process to develop this Plan included seven different key activities, each of which aligns with at least one of the steps outlined in the EPA's Guide (Table 2).

Table 2. Alignment of EPA Guide Steps and Project Activities

	Project Activities							
EPA Steps	**Building Assessments**	**Utility Bill Analysis**	**Staff Interviews**	**Group Workshops**	**Community Survey**	**Best Practices Research**	**Develop Partnerships**	**Sustainability Plan**
Assess the Challenges	x	x	x	x				
Identify Vulnerabilities			x	x				
Work Through Existing Resources			x	x	x	x		
Build Coalitions							x	
Educate Colleagues			x	x	x			
Secure Funding, Reduce Costs							x	x
Use a Framework								x

3.1 BUILDING ASSESSMENTS

The consultant team conducted high-level assessments of Rio Rancho's buildings to document existing City practices and to inform the strategy development process for the Plan. These assessments involved walkthroughs of 23 City buildings to assess energy and water efficiency and conservation opportunities (Appendix A). As part of the assessment process, the following information was collected and used to establish the overarching themes and strategies identified in this Plan:

- Information on projects/work completed to date (e.g., lighting updates, mechanical equipment replacements, etc.)
- Building operation schedules
- Heating and cooling equipment information
- Lighting and water fixture inventories
- Information on IT
- Staff training

Table 3 outlines the common opportunities that were identified in each topic area. These opportunities are addressed in more detail in Section 7 of this Plan.

Table 3. Summary of Opportunities from Building Assessments

Topic	Themes/Opportunities
Lighting	Retrofit T12 fluorescents with high-efficiency T8 fluorescents
IT	Implement computer power management throughout the City
Building Operations	Implement a central energy management system
	Develop building operation guidelines
	Provide staff training on HVAC and building operations
General	Conduct building retro-commissioning
	Install low-flow water fixtures
	Replace traditional space heaters with radiant space heaters
	Purchase Energy Star™ appliances and office equipment at time of replacement

Assessment activities included analyzing utility records for each of the buildings assessed to evaluate usage patterns for electricity, natural gas, and water; identifying indicators for potential savings opportunities; and quantifying the anticipated savings for identified opportunities. Outdoor water information was provided by Parks and Recreation. Table 4 summarizes total consumption, cost, and unit cost for Rio Rancho during 2009, which is the baseline year used to calculate savings. Appendix A includes additional utility data information.

Table 4. Summary of Utility Costs for Rio Rancho Buildings, 2009

Resource	Quantity	Cost	Unit Cost
Electricity	5,570,00 kWh	$480,000	$0.09/kWh
Natural Gas	13,100 MMBtu	$90,000	$6.90/MMBtu
Water (indoor)	10,000,000 gal	$55,000	$5.48/kgal
Water (outdoor)[1]	110,083,000 gal	$414,000	$3.76/kgal

[1] Excludes four parks with partial or unreliable data. Does not include water/waste water facility electricity, natural gas, or water usage.

Electricity and natural gas data for 2007-2009 were reviewed to determine baseline energy use overall, as well as use by individual buildings. The 2007-2009 data were the most recent available, and multiple years were used to establish an average baseline, reduce the impact of missing data, and identify relevant trends. Comparison metrics, such as an energy utilization index (EUI, Btu/square feet) and cost index ($/square feet), were used to identify facilities with relatively high energy use in advance of the on-site building assessments. For example, the review identified that the Aquatic Center and pools have a high EUI as might be expected from energy intensive operations, such as pumping and heating. Loma Colorado Library was also identified as potentially having higher natural gas use than other City buildings of similar space type.

Indoor water use for 2007-2009 was reviewed to determine an overall water use baseline as well as water use by building. The City's four pool facilities have the highest water use; data for Esther Bone Library also indicated higher water use, which is believed to be related to irrigation on the same meter.

3.2 FLEET FUEL EVALUATION

In addition to building energy use, fuel use data were also collected relative to the City's fleet of approximately 600 (see Appendix B). From June 2009 to June 2010, the City consumed approximately 367,400 gallons of fuel for a total cost of $851,000. Fuel consumption per employee for cost centers expensing fuel averaged 550 gallons annually, with a range of just over 6 gallons per employee to 1,300 gallons per employee. The large range in gallons per employee takes into account the difference among departments with relatively low use, such as Loma Colorado Library (6 gallons per employee), and those whose functions require dedicated vehicles and considerable travel, such as law enforcement (1,300 gallons per employee) and Fire and Emergency Services.

3.3 STAFF INTERVIEWS

A series of one-on-one interviews was conducted with City staff and outside vendors and contractors to obtain more detailed information on specific topic areas, such as HVAC equipment maintenance and operation, IT equipment and procedures, park irrigation, recycling, and the City Hall building automation system and geothermal system. This information was used to inform recommendations and savings calculations provided in Section 7.

3.4 STAFF WORKSHOPS AND OPEN HOUSE

To leverage the knowledge and insight of City staff, the project team held two rounds of workshops with department heads and other department representatives to solicit input on what Rio Rancho is already doing with respect to sustainability; identify opportunities for

improvement; develop draft vision and policy statements; establish draft long- and short-term goals; and develop strategies. These two rounds of facilitated workshops (detailed in Table 5) provided a framework that the City department heads subsequently used to finalize Rio Rancho's vision and policy, goals, and strategies through additional internal meetings.

In conjunction with the second workshop, a staff open house was held to so that any interested employees could learn about the project and provide their input on the Plan.

Table 5. Schedule of Staff Workshops

	Date	Objectives
Round 1 Workshops	April 2010	• Introduce and outline project • Identify existing best practices • Brainstorm vision and policy ideas
Round 2 Workshops	August 2010	• Review draft vision and policy statements • Develop draft goals • Identify strategy priorities • Identify potential strategies

3.5 CITY STAFF SURVEY

In addition to the workshops, staff interviews, and the staff open house, a web-based survey was administered to all City staff to collect their input on current best practices, challenges, and opportunities for improvement for sustainability in City operations. Data from the survey were used to frame plan strategies and to identify opportunities and challenges for implementation, from how best to motivate and involve staff to specific ideas for implementation.

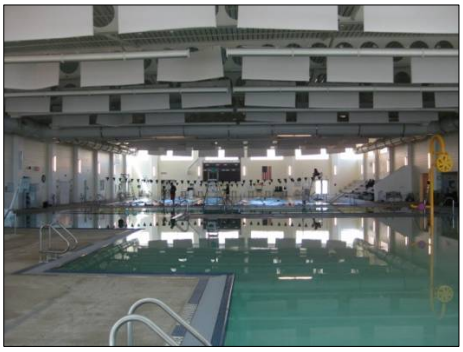
In total, the 75 survey respondents spanned all but one of the City departments. The survey focused on two key areas: strategies and staff involvement. In the strategies section, questions were framed to gain a better understanding of the current situation in Rio Rancho with regard to sustainability as well as the key areas for opportunity and improvement. Survey results are summarized in Table 6. More detailed documentation of survey results are provided in Appendix C.

With regard to staff involvement, most respondents noted that they would be willing to participate, at least occasionally, in sustainability efforts, with over five percent interested in taking leadership roles in sustainability efforts for City operations. Many respondents, however, also noted the current strain on staff resources and lack of time as potential challenges for adequate staff involvement in any proposed sustainability efforts. To address these challenges, the staff survey respondents suggested including use of City resources efficiently in staff position descriptions, creating incentives, recognizing staff efforts, and hosting training seminars as the most appropriate and effective solutions. The need for staff education and training as well as the need for identified leadership on the issue of sustainability were key themes in survey responses.

Table 6. Summary of Existing Practices and Opportunities from Staff Survey

Topic	Survey Responses
Current Areas of Best Sustainability Performance	- Indoor water use - IT equipment - Landscaping - Building lighting - Green purchasing
Greatest Opportunities	- Outdoor water use, including use of native grasses - City vehicle use, including fuel efficient vehicles - Building heating/cooling systems, including thermostat programming - Building lighting systems, including programming - Staff training and guidance

4. Existing City Sustainability Practices



Prior to initiating the Sustainability Plan process, the City has undertaken a variety of sustainability efforts. The City already has established policy and a set of activities underway that provide a foundation for this Plan:

- **Resolution 23, Enactment No. 09-023:** In 2009, the City passed Resolution 23, Enactment No. 09-023 establishing a City of Rio Rancho policy and establishing a sustainability initiative. The Resolution recognizes the need to reduce the City's environmental footprint and establishes a stated policy for the City to be a sustainable community. It also directs the City manager to pursue a sustainable future for the citizens of Rio Rancho by establishing a continuous review of City policies, programs, and procedures using EPA's Guide (see Section II, Plan Development Process). While Resolution 23, Enactment No. 09-023 focuses on sustainability in the community as opposed to municipal operations, this Plan has been developed with reference to the EPA Guide, as outlined in Table 2.
- **City of Rio Rancho Strategic Plan:** In 2009 the City leadership developed a Strategic Plan to establish priorities for City government from 2009 to 2014. The Strategic Plan contains a number of goals and strategies that address topics from development and fiscal health to public safety and government services. Goal 5, Government Services, Strategy E calls for the City to, *"Develop and promote a culture of sustainability,"* and that the, *"City of Rio Rancho is dedicated to achieving sustainability by conducting daily operations through balanced stewardship of human, financial and natural resources."*
- **Recycling:** The City has an active recycling program in place, engaging youth workers to collect recyclables from City buildings and deliver them to the City collection site.
- **Water:** The City has had water audits completed for Meadowlark Senior Center and Rio Rancho City Hall.
- **EECBG Projects:** In addition to this Plan, the City has allocated its federal EECBG funds to a number of projects that support sustainability, including implementation of this Plan, building inspector training, a cool roof for Star Center, server virtualization, and building retrofits for 500 Quantum and the Senior Center.
- **Employee Survey:** In 2009, the City conducted a Rio Rancho "Green Employee Survey" to gauge concern about the environment, existing practices, and perceptions of the City's commitment to green practices.
- **Best Practices Compilation:** In 2009, the City compiled best practices and opportunities from staff across City departments identifying resources used and saved as well as potential "sustainable outcomes."

Other existing practices being implemented by various City departments are summarized in Table

7, with further detail provided in Appendix D.

Table 7. Highlights of Existing Sustainability Practices in Rio Rancho Departments

Electrical/HVAC
Reduced light fixtures and reduced light use in hallways
Reduced use of swamp coolers and heaters in older buildings
Computer and monitor shut down at end of day
Training on energy codes through federal funds
Bathroom light motion sensors, power management on public personal computers
Manual lighting controls
Utilities participates in PNM Peak Saver (ENERNOC) program
Select buildings to participate in PNM Power Saver demand reduction program
IT/Equipment
Annual performance benchmarks to support new technology deployments
Focus on reliability and performance while reducing down time
Federal grant for server virtualization
Employee awareness (i.e., equipment shutdown at night) via city-wide emails, department meetings, and city manager endorsement
Desktop monitor sleep mode after 20 minutes of idle time for many units
Hard disk idle after 20 minutes for many units
Standardization of printer types to streamline cartridge use and support reduced paper use
Water
Automated shutoff for rainy days
Xeriscape in place of non-essential grass
Procurement/Supplies
Multipurpose green products
Good green cleaning products
Recycling/Solid Waste
Recycling available
Reports saved as PDFs to reduce paper and toner use
Bulk purchasing
Waste trimming disposal with Sandoval County Landfill (composting green waste, fertilizer applied to turf)
Reuse room for office supply exchange of surplus materials and Office Exchange Day
Staples Reward Dollars for printer cartridges to buy office supplies
Grant funded youth recycling
Centralized trash demo
Centralized recycling
Transportation/Vehicles
Route optimization for inspectors; double up inspectors to cut down on fuel
Re-districted beats to cut down on travel by police/fire/EMS vehicles
Provided document scanner at Fleets facility to decreases trips, fuel, wear and tear
Codes/Standards
City has adopted development standards
General
Vested interest of City Manager
Member of International City/County Management Association and application of its standards and best practices
Reusable Office Supply Exchange (ROSE)

5. The Sustainability Plan Framework

Central to this Plan is the framework presented on the following pages. This framework brings together the various Plan components – from its vision and policy to goals and supporting strategies – into one cohesive road map for sustainability in Rio Rancho's municipal operations.

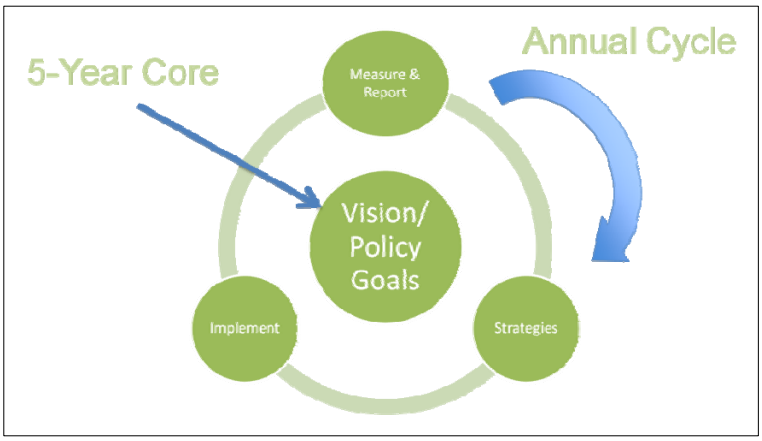
5.1 FRAMEWORK FOCUS AREAS

Table 8 summarizes the Plan in a framework that organizes the City of Rio Rancho's approach to operational sustainability into five main focus areas that were identified through a facilitated process. The framework offers a snapshot of these focus areas, along with short-term (5-year) and long-term (stretch) goals, strategies, funding, and external partnerships that will enable the City to achieve these goals. These five focus areas are defined as follows:

- **Facilities and Energy:** Energy efficiency and conservation in City buildings and operations; integrating sustainability into managing additional City facilities, such as Parks and Open Space
- **Transportation:** City vehicle fleet mix, vehicle use, and vehicle maintenance practices; public transit maintenance and use (to the extent applicable to Rio Rancho)
- **Water:** Indoor and outdoor water efficiency and conservation, including irrigation practices, landscape maintenance/xeriscaping, end-use water fixtures, indoor process water use, and pools
- **Materials:** The purchase, use, and disposal of a variety of goods used by the City, from office supplies to IT equipment, cleaning supplies, furniture, and other categories; includes solid waste diversion and recycling practices and green purchasing guidelines
- **Employees:** Involvement of employees in implementing the Plan, strategies to integrate sustainability into staff operations and practices, education and training of employees on sustainable practices

It is also important to note that this initial version of the Plan was developed using a linear process of conducting building assessments, developing a vision and policy, and crafting goals and strategies. The Plan, however, is intended to be maintained using a cyclical process of continuous improvement, which involves annually measuring and reporting progress, as well as re-evaluating short-term goals and strategies and making refinements as needed (Figure 1).

Figure 1. Annual Update Process for the Plan



5.2 FRAMEWORK TERMS

To provide for a common and shared understanding of the framework among City staff, the following definitions are provided:

Focus Areas: Priority areas determined by City directors as themes under which goals and strategies are organized.

Stretch Goals: Long-term goals that embody achieving true sustainability within the City.

Short-term Goals: Goals that are actionable and that can be achieved relatively easily over the short term.

Strategies: The main paths for achieving goals in each focus areas; for example, building efficiency improvements (under *Facilities and Energy Focus* Area).

Actions: A more specific subset of a strategy taken from the list of opportunities that the City is committed to implementing within a set period of time (see Table 8).

Opportunities: Ideas that have and will continue to emerge as a result of implementing the Plan over time.

Existing Practices: Sustainability actions already underway in the City.

Metrics: Quantitative indicators that are used to track and report progress and to understand the important factors contributing to the City's impacts.

Table 8.The City of Rio Rancho's Sustainability Plan Framework

Vision and Policy						
		Focus Areas				
		Transportation	**Water**	**Materials**	**Employees**	**Facilities and Energy (Includes Parks and Open Space)**
Long-Term	Stretch Goals	Reduce total fuel consumption for city fleet vehicles.	Maximize water conservation at all City facilities and landscapes through operations, technology, and behavior change.	Follow best green purchasing practices when it is in the best interests of the City.	Maintain 100% employee awareness and participation in adopted sustainable practices.	Acquire 20% of energy for City operations from renewable energy sources by 2020. Design all new buildings and renovate existing buildings to achieve high energy efficiency standards.
Short-Term	5-Year Goals	Reduce fuel consumption of fleet by 5% per non-public safety employee by end of fiscal year 2015 and 10% by fiscal year 2017. Reduce fuel consumption by Public Safety fleet by 5% per call by end of fiscal year 2015 and 10% by fiscal year 2017. Create a city-wide GPS Enterprise System.	Reduce per capita water use at City facilities by 10% by 2013. Reduce average gallons per irrigated park acre water use by 5% by 2013.	Develop a City Green Purchasing Policy and decision tool by 2012. Implement green purchasing by fiscal year 2013.	Create city-wide employee sustainability training plan by 2012 where all employees obtain minimum training requirements for sustainable practices tied to daily work.	Work with PNM in calendar year 2011 to develop a plan showing how the City can use renewable energy. Conduct an inventory of all City buildings for energy efficiency opportunities by February 2011.
	Strategies & Actions	Section 7	Section 7	Section 7	Section 7	Section 7
Annual	Opportunities	Appendix E	Appendix E	Appendix E	Appendix E	Appendix E
	Existing Practices	Section 4, Appendix D	Section 4, Appendix D	Section 4, Appendix D	Section 4, Appendix D	Section 4, Appendix D
	Metrics					
Ongoing	**Implementation Platform: Monitoring and Reporting**					

6. Vision, Policy, and Goals

6.1 VISION AND POLICY

Vision

To provide a defining vision for sustainability that supports not only this Plan but the City's current Strategic Plan and resolutions relating to sustainability, the following is the vision for the Sustainability Plan:

"The City of Rio Rancho will be an environmentally sustainable, fiscally healthy, and productive organization that integrates sustainability into all of its decision making processes for the benefit of present and future generations. Through involvement, learning, and innovation, City employees from across all departments will actively contribute to this vision. The City of Rio Rancho will be recognized for the practice of sustainability across all of its municipal operations."

This vision anchors the remaining components of the Plan and provides direction for developing goals, implementing strategies, creating partnerships, and involving the entire City in moving the Plan forward.

Policy

Policy becomes the driving force for a program or plan, providing both top management support and a unifying theme for staff members. Elements of a strong policy statement that provide guidance for moving forward include the following:

- Shows visible management support
- Reflects organizational culture and style
- Is consistent with other organizational policies
- Applies to all major operations
- States beliefs and intentions (what), not ways for meeting intentions (how)
- Provides direction for decision-making
- Provides a foundation for planning and action
- Is documented and clearly communicated to all employees
- Drives change in the workplace
- Inspires commitment
- Serves as a unifying theme

The City has developed the following policy statement, which reflects the priorities and values of Rio Rancho:

"The City of Rio Rancho is dedicated to achieving sustainability by conducting daily operations through balanced stewardship of human, financial, and natural resources. The City of Rio Rancho will serve as a community leader in sustainability by conducting operations in a manner

that increases energy and resource efficiency, reduces the City's ecological footprint, saves money, and provides a supportive and productive working environment for its employees."

6.2 GOALS

This Plan also includes a number of both shorter-term goals and longer-term, or stretch, goals for the focus areas identified in the framework. These goals, developed by City staff through a facilitated process, are intended to serve as yardsticks for both the near term as well as into the future. Together, these goals helped guide the development of specific strategies for the five focus areas. As goals are revisited in the future, additional topics can be added to the framework.

Specifically, goals were distinguished between 5-year goals and stretch goals that would embody achieving true sustainability in City operations. While stretch goals may not conceivably be reached in the foreseeable future, they are intended to keep the City on a continual path of improvement toward sustainability, employing new methodologies and technologies as they evolve.

The 5-year goals for this Plan were developed to capitalize on and build momentum from early wins. All of the goals outlined in the Plan are designed to be in place before the end of calendar year 2015 or are considered expansions of ongoing activities.

These short-term, 5-year goals follow a SMART format, ensuring that each goal contains **s**pecific, **m**easurable, **a**chievable, **r**ealistic, and **t**imely elements. SMART goal guidance is designed to facilitate goals that are actionable and that can be achieved relatively easily over the short term.

S* = *Specific. Specific goals are more likely to be achieved than general goals. Answer *who*, *what* (to be accomplished), *where* (location, if applicable), and *why* (specific reasons or purpose of goal).

M* = *Measurable. Establish concrete criteria for measuring progress toward each goal. Answer *how much, how many,* and/or *how will I know when it is accomplished?*

A* = *Attainable. Set goals within reach in order to garner commitment and to increase the likelihood of success**.**

R* = *Realistic. Goals should fit with the overall strategy and priorities of the organization, and the tools needed to accomplish the goals should be available.

T*= *Time-bound. Set a time frame for each goal that is measurable, attainable, and realistic (e.g., next month, in 3 months, by 2015, etc.).

7. Strategies

Core components of this Plan are a number of specific strategies. These strategies are the product of review and analysis of building assessments, input from City staff, and review of best practices from other cities and organizations. Within each focus area, strategies have been developed to support the goals outlined in the Plan framework.

To help identify top-tier strategies, department representatives were asked to prioritize strategy ideas using a facilitated process led by the consultant team. Many opportunities that relate to potential strategies were collected throughout the Plan development process; prioritization was then used to help focus efforts on the most relevant topics. This approach involved taking into consideration the overall mix of strategies and keeping a number of emerging themes in mind:

- Economic considerations
- Doing better instead of doing more
- City guidelines
- Consolidation
- Partnerships

Before examining the initial list of potential strategies, department representatives determined the most important criteria to use in ranking the strategies. Of the following criteria, department representatives identified the first two (economics/cost effectiveness and management support) as the most important in their screening process:

- Economics/cost effectiveness
- Management support
- Employee well-being
- Environment
- Ease of implementation
- Visibility
- Timeliness
- Multiple benefits

Once economics/cost effectiveness and management support were identified as the primary guiding factors for prioritization, department representatives broke into three groups that focused on the primary topic areas of transportation, energy/water, and materials. (The fourth topic, employees, is considered a cross-cutting topic that can support the other three topic areas.) Using the screening priorities previously mentioned, these breakout groups ranked potential (non-building assessment) strategies within their focus areas from one to three, with one being the highest and three being the lowest. The strategies that emerged from the breakout group rankings were further refined on the basis of the consultant team's previous experience and are presented in Table 9 and the following subsections. They are organized by the focus areas of the Plan framework using the codes outlined below and are presented with general strategy

descriptions, sub-level actions, benefits and costs, and goals and metrics. Additional opportunities not included in priority strategies are listed in Appendix E.

Table 9. Summary of Strategies

Code	Strategy	Description
E.1	Retro-commissioning	Optimize buildings systems so they operate efficiently
E.2	Lighting Upgrades	Retrofit T12 fluorescent fixtures with T8 fluorescent fixtures
E.3	Low-flow Water Fixtures	Install low-flow fixtures in City restrooms and locker rooms
E.4	IT/Power Management	Reduce power requirements through education and software
E.5	Building Operations Training and Guidelines	Train staff in energy conservation and provide resources, including guidelines, to enable greater efficiencies
E.6	Central Energy Management System	More efficiently manage equipment scheduling in all City buildings
E.7	Energy Management Capacity	Build in staff capacity to manage City energy programs and projects and to measure results
E.8	City Hall Geo-exchange System	Manage building systems scheduling closely and optimize systems
E.9	Pool Efficiencies	Manage circulation pump use and control furnace temperatures
E.10	Sustainable Design and Construction	Establish sustainable design guidelines on the basis of accepted green building standards
E.11	Renewable Energy	Investigate solar and thermal energy use and generation opportunities
T.1	City Fleet Fuel Efficiency and Consumption	Increase fleet fuel efficiency and reduce vehicle miles traveled
W.1	Outdoor Water Use Efficiencies	Revise current policies/guidelines to address use of low water use landscaping and turf, irrigation practices and systems, water reuse, etc.
M.1	Procurement Guidelines	Consolidate and enforce green Citywide purchases
M.2	Solid Waste Reduction	Develop guidelines for source reduction and waste management
M.3	Recycling Consolidation	Developing a plan for improving efficiencies for City efforts
S.1	Training	Develop sustainability training and internal technical capacity
S.2	4-Day Work Week Pilot	Pilot a demonstration to determine the feasibility of reducing the duration of daily operations for key facilities

E=Energy/Facilities, T=Transportation, W=Water, M=Materials, S=Employees

When applicable, context on benefits and costs was pursued for all strategies to inform City decision making. For those strategies where high-level quantification was possible on a city-wide basis, the global estimated information is listed in Table 10. (Other strategies present

examples to demonstrate benefit and cost information.) Appendix F contains resources that may be helpful in implementing recommended strategies.

Table 10. Summary of Energy and Water Saving Strategies

#	Strategy	Electricity [kWh/yr]	Natural Gas [MMBtu/yr]	Water [kgal/yr]	CO_2e Emissions [metric tons]	Cost Savings [$/yr]	Implementation Cost [$][1,2]	Payback [yr]
1	Retro-commissioning	197,000	400	0	139	$20,000	$84,000	4
2	Lighting Retrofit/Upgrade	45,000	0	0	27	$4,400	$27,100	6
3	Water Fixture Retrofits	0	80	400	4	$3,000	$6,100	2
4	Computer Power Management	35,000	0	0	21	$2,100	$3,000	1
6	Centralized Energy Management System	176,500	300	0	121	$17,000	$150,000	9
9	Pool Circ Pump VFD & Motors	146,000	0	0	87	$8,500	$18,700	2
10	Turf Replacement	0	0	5,500	0	$20,000	$34,000	2
11	Training	283,000	830	0	213	$30,000	$64,000	2
12	4-Day Work Week	2,600	40	0	4	$500	-	<1
	Grand Totals	**885,100**	**1,650**	**5,900**	**616**	**$106,200**	**$386,900**	**4**

[1] Costs are one-time implementation costs with the exception of training, which could be recurring if City elects to implement annual training.
[2] Applicable rebates included in implementation cost

Details on costs and savings can be found in the corresponding strategy sections below.

7.1 FACILITIES AND ENERGY STRATEGIES

It is widely accepted that buildings consume 40 to 50 percent of the energy used in the United States. The City's 20+ buildings, both old and new, have the opportunity for greater efficiency, both with energy and water. This section includes 12 strategies related to facilities and energy that will reduce overall consumption, optimize existing equipment and systems, and capitalize on renewable energy for more sustainable building operations.

E. 1 Retro-Commissioning

Description

Commissioning is a quality assurance process that takes place after construction of a new building is complete. This definition is based on the critical understanding that the owner must have some means of verifying that functional needs are rigorously addressed during design, construction, and acceptance. Essentially, commissioning verifies that building systems perform

as intended. Commissioning also provides a communications conduit from the design team to the facilities staff charged with the day-to-day operation of a building.

Retro-commissioning, or commissioning of existing buildings for the first time (as opposed to re-commissioning), optimizes building systems so that they operate efficiently and effectively, resulting in reduced energy use and increased occupant comfort. Retro-commissioning may include testing and rebalancing of heating/cooling/ventilation systems, particularly in buildings with laboratory space and/or where internal loads and space layouts change. The purpose of testing, adjusting, and rebalancing such systems is to assure that an HVAC system is providing proper airflow with maximum occupant comfort at the lowest energy cost possible.

Building envelope and weatherization are not typical parts of commissioning for standard commercial buildings. The City does have many very small commercial buildings and thus could consider weatherization, a practice more typical for residential scale buildings, within the commissioning scope if deemed appropriate. During retro-commissioning, Rio Rancho may be able to identify and address buildings that have low-cost weatherization opportunities (See Appendix I).

Actions

It is important to develop an approach to commissioning that is adjustable based on the size and complexity of the City's buildings. That is, a more traditional approach is recommended for buildings with complex HVAC (including building automation systems) and lighting control systems and a streamlined approach is recommended for buildings with less complex systems for greater cost effectiveness.

For Rio Rancho, the recommended approach by building is noted in Table 11 (buildings with pools are excluded, as well as buildings less than 2,000 square feet).

Table 11. Buildings Recommended for Retro-Commissioning

Traditional Retro-commissioning Approach	Streamlined Retro-commissioning Approach
City Hall	Esther Bone Memorial Library
Loma Colorado Library	Meadowlark Senior Center
Police Headquarters and Municipal Court	Motor Vehicle Division
	Animal Control
	Fire Stations 1, 2, 3, 5, 6
	Haynes Recreation Center
	Sabana Grande Recreation Center
	Sabana Grande Art Center
	Star Heights Recreation and Learning Center
	Building Maintenance Yard
	Fleet Maintenance Yard
	Operations and Maintenance Yard

Benefits and Costs
A Study on energy savings and payback conducted by Lawrence Berkley National Laboratory indicates energy savings of about 15 percent in new and existing buildings as a result of commissioning activities, with paybacks from 1 to 4 years (http://cx.lbl.gov/2009-assessment.html). On this basis, it is estimated that the City could conservatively expect to save 5 percent of the utility costs for the buildings listed above for a total estimated cost savings of $20,000 per year.

Costs for traditional retro-commissioning range up to $0.40 per square foot, while pilot studies of streamlined retro-commissioning suggest a $0.26 per square foot cost. For the buildings outlined above, the costs are estimated to be $84,000.

Goals and Metrics
The Plan goal related to this strategy is:

- Design all new buildings and renovate existing buildings to achieve high energy efficiency standards.

Potential metrics for this strategy include the following:

- Percent energy reduction

E.2 Lighting Upgrades

Description
The City recently retrofitted the lighting at Police Headquarters and Municipal Court and Meadowlark Senior Center from T12 fluorescent lamps and magnetic ballasts to high-efficiency T8 fluorescent lamps and electronic ballasts. Other City buildings would benefit from a similar retrofit that would have a relatively short return on investment in terms of energy and cost savings.

T8 fixtures use 30 to 40 percent less electricity than the older T12s, while providing better light quality, lumen maintenance (consistent light levels over time), and considerably longer lamp life. In most cases, replacing T12 fluorescents with high-efficiency T8 fluorescents produces approximately 4 percent higher light levels. The T8 lamps also have a higher color-rendering index than standard T12 lamps, making people and surroundings look better. Light output can be adjusted during the retrofit based on the number of lamps and the ballast factor. For example, existing T12 fixtures with 4 lamps likely can be replaced withT8 fixtures that have fewer lamps. If current light levels are adequate or high, the existing magnetic ballasts can be replaced with low-ballast-factor electronic ballasts. High intensity discharge (HID) metal halides at the Motor Vehicle Department and some of the fire stations can also be replaced with T8 fixtures. Incandescent lamps/bulbs can be replaced with compact fluorescent lamps or LEDs.

Another consideration is that high-performance T8 retrofits are eligible for current rebates through PNM. These fixtures will need to be replaced at some point in the future because of the 2010-phase out of magnetic ballasts and T12 lamps under the Energy Policy Act of 2005, and it makes sense to perform the upgrade while rebates are available.

Actions
Suggested actions include the following:

- Perform a full inventory of buildings with T12 fixtures and interior HIDs. Buildings identified in preliminary assessments include Sabana Grande, Motor Vehicle Division, Star Heights, Haynes, Rainbow Pool, Fire Stations, Public Works Operations and Maintenance, and Maintenance and Fleet.
- Contact at least three lighting contractors to get bids on the equipment and potentially on installation.
- Contact PNM for rebate requirements prior to installation.
- Establish a timeframe for ordering and installing T8 fixtures in all affected buildings.

Benefits and Costs
The estimated cost to retrofit existing T12 and HID fixtures (estimated count of 480 for this analysis) with T8 fixtures is $33,600 including labor and materials. These installed costs are estimated from regional market information and may be more or less depending on whether or not internal City staff can provide the labor. The lighting retrofits would be eligible for an estimated $6,500 in rebates from PNM reducing the total project cost to approximately $27,100. Estimated annual savings are $4,400 for a 6-year payback.

E.3 Low-flow Water Fixtures

Description
While water fixtures in some City buildings (Esther Bone Library and Cabezon Community Center) are low-flow models, there is an opportunity to reduce indoor water and energy use by installing additional water conserving fixtures in all City buildings. Low-flow fixtures use considerably less water and also less energy to heat the water used in sinks and showers.

Actions
Suggested actions include the following:

- Starting with the building assessments conducted this year of lavatory faucet aerators, toilets, urinals, and showers, develop a working inventory for retrofit or replacement of this equipment in each building if it is not already low flow.
- Retrofit all lavatory faucet aerators with 0.5-gallons per minute (gpm) aerators. These are already in use at Esther Bone Library and Cabezon Community Center.

- Verify internal valve ratings on flush valve toilets and urinals to determine whether the valves are standard or low-flow models. Using this inventory, replace 3- to 3.5-gallons-per-flush (gpf) toilet and urinal valves with low-flow 1.6-gpf and 1.0-gpf valves, respectively.
- Replace the few remaining 3- to 5-gpf tank toilets with low-flow 1.28-gpf models.
- Replace showerheads at the Aquatic Center, pools, and fire stations with 1.5-gpm showerheads.

Benefits and Costs

The anticipated costs and benefits for implementing these opportunities are outlined below and are based on an estimated 95 aerators at an installed cost of $30 each, 4 toilets at an installed cost of $600, and 26 shower aerators at an installed cost of $30. These installed costs are estimated from regional market information and may be more or less for the City depending on whether or not internal staff can provide the labor.

- Lavatory Aerators: $2,900 cost and $1,900 annual savings
- Flush Valves and Tank Toilets: $2,400 cost and $130 annual savings
- Showerheads: $800 cost and $1,000 annual savings

The estimated payback on these opportunities combined is 2 years.

E.4 IT/Computer Power Management

Description

There are a number of software and hardware IT power management opportunities that may apply to the City, which has approximately 700 computers. Energy Star™ recommends turning off computers and office equipment at night, setting computers to enter system standby or sleep mode after 30 to 60 minutes of inactivity, and setting monitors to enter sleep mode after 5 to 20 minutes of inactivity. Many fax machines, printers, and copiers also include these features. Depending on manufacturer, equipment age, and configuration, these settings use 90 percent less power than regular settings, resulting in a greater than 60 percent reduction in overall energy use. In addition, the City would benefit from adopting HVAC guidelines for server rooms, as well as minor server room modifications.

Actions

Suggested actions include the following:

- Computer Power Management: An inexpensive combination of education and software management would save an average of $10 per year for each computer not currently using appropriate power management settings.
    - The education component consists of informing users of the energy impacts of leaving on computers, combating myths about the impact of powering on and off computers (it does not harm them), and training users how to adjust software settings to save energy.
    - Often, software that can reduce a computer's energy use resides on the computer but has not been enabled or has not been fully implemented. Some power

management features can be installed and managed over networks. Furthermore, there are strategies that will allow power management features to function without interfering with backup and updates that may be scheduled. Energy Star™ has some good resources on available tools and strategies that may help with this.

- Energy Efficient Equipment: Define and implement guidelines for purchasing Energy Star™ computers and office equipment.
- Server Room Cooling: The City's main servers are housed in a small room at City Hall that has its own independent cooling system. Cooling energy use could be reduced by implementing a hot aisle containment strategy to prevent mixing of hot and cold air. The current supply and return grille arrangement poses a challenge for hot aisle containment but this could be addressed with some creativity. Additional energy savings can be achieved by raising the temperature set point according to the latest American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) specifications.

Benefits and Costs

The estimated savings for implementing computer power management settings on 200 computers is $2,100. Savings estimate based on 10 hours of sleep mode each night. If an enterprise network software solution is used, the cost is estimated at $3,000 to $6,000. Payback would be in the range of 1 to 3 years.

E.5 Building Operations Guidelines

Description

Buildings and their systems are complex and there are a lot of misconceptions about how to operate and maintain them in the most efficient and cost effective manner. For this reason and because buildings are expensive to operate, there is value in standard guidelines to systematically inform trained staff, improve building operations, and decrease costs.

Actions

Suggested actions include the following:

- Building Operation Guidelines: Develop a set of guidelines that documents City policies and recommendations for greater efficiency including, but not limited to, the following:
  - Lighting replacements
  - Water fixture repair and replacements
  - Temperature set points and schedule programming
  - Building shutdown procedures
  - Building weatherization procedures and practices including caulking windows, air sealing, door gaskets, insulation, etc.
  - Roof-top unit efficiency, sizing, options (economizers, etc.)
  - Standardization of equipment (for example, which programmable thermostat or toilet to stock for repairs and replacements)
  - Alternatives to traditional space heaters

Benefits and Costs
The benefits and costs of building-specific training are accounted for in the training strategy outlined in Section 7.5 (Employee Strategies).

E.6 Central Energy Management System

Description
The City has additional opportunity to control building energy consumption related to heating and cooling by implementing a centralized energy management system (EMS or building automation system – BAS) to tightly control heating and cooling temperatures in its buildings. This opportunity moves beyond local programmable thermostat control and involves installing a centralized control system that uses software to schedule equipment similar to City Hall's EMS. This type of system enables remote, real-time custom scheduling of heating and cooling systems but also requires an investment in equipment and system maintenance. An EMS can be used to implement additional types of controls, including demand control strategies, lighting controls, and others.

A Citywide EMS could build off of the existing City Hall EMS and lighting control system. Specifically, the EMS could be applied in the following ways:

- Use the scheduling capability of the existing City Hall EMS to schedule equipment such as the heat pumps. This includes implementing nightly and weekend temperature setbacks. See the City Hall geo-exchange discussion later in the document.
- Extend EMS controls to selected buildings based on size, complexity, and savings potential.
- Tighten schedules for heating and cooling systems (e.g., morning startup, evening shutdown, weekends, holidays, etc.).
- Implement more aggressive setbacks/setup temperatures.

Often, EMSs are incorporated into performance contracting as a tool to maintain tighter control for the greatest savings, which fuel other conservation efforts. Significant commitment and endorsement from all levels of the City are required to realize full savings potential, which can be significant.

Actions
Suggested actions include the following:

- Review building-specific equipment scheduling opportunities and prioritize according to the greatest potential for savings. The recommended buildings to consider include the libraries, senior center, Motor Vehicle Division, Police Headquarters and Municipal Court, recreation centers, and the two fire stations with public and administrative/training spaces.
- Consult with at least two automation and controls contractors to conduct a no-cost energy management study and determine level of automation and estimated costs on the basis of the priority list.
- Conduct a cost-benefit analysis.

Benefits and Costs
Installing an EMS typically costs about $1 per square foot, or 20 to 30 percent of utility costs, and can save 5 to 15 percent of building utility costs annually. Expanding the existing EMS is estimated to cost $150,000 with annual savings of $17,000. The current controls vendor can do a more detailed energy management study to more accurately estimate cost and savings. Cost may be lower because of the existing EMS system and infrastructure. Costs and savings based on industry guidelines and input from Integrated Control Systems.

E.7 Energy Management Capacity

Description
A key to long-term success and continued improvement is appropriate staff capacity to manage the City's energy programs and projects, as well as to manage and coordinate budgetary and operational aspects. This capacity could come in the form of reallocation of existing responsibilities, new staff, or outside contractors.

Actions
Suggested actions include developing capacity dedicated to accommodate the responsibilities listed below:

- Benchmark energy performance and water use at least annually using Energy Star™ benchmarking or a similar tool.
- Provide ongoing utility tracking to optimize systems and highlight cost savings of efficiency measures. Review data relating to operational benefits and outcomes of projects and process changes throughout the City.
- Develop the Building Operation Guidelines document (see Strategy E.5).
- Inspect facilities for operating efficiency, comfort level, and use.
- Initiate new energy programs and goals through a technical evaluation of ongoing or new activities and consensus development.
- Review and provide recommendations for other proposed energy management-related projects and proposals.
- Develop specifications and designs for new energy projects and systems, including renewable energy projects.
- Develop specifications and designs for commissioning, re-commissioning, and retro-commissioning projects.
- Support development of new construction specifications related to energy management.
- Review individual building energy management ideas, plans, and programs to develop greater awareness and create synergy across the City.
- Act as a liaison to promote partnerships with utilities and local, state, and federal agencies.
- Identify rebates, grants, and other funding options for energy projects.
- Educate staff about energy-saving opportunities and promote conservation-minded behaviors.
- Develop energy challenges and incentive programs.

- Coordinate with building-specific champions, helping facility managers stay connected to building challenges and needs.

Benefits and Costs
Benefits to the City from increased energy management capacity would include the following:

- A central individual (Energy Manager) or department responsible for monitoring energy use and managing utility data.
- A focal point for collaboration with others to finance energy efficiency upgrades.
- A forum for developing incentives and rewards for saving energy.
- Capacity for regular ongoing tracking to optimize systems and highlight cost savings of efficiency measures.

According to the Oregon Department of Energy (www.oregon.gov/ENERGY/CONS/RCM/rcmhm.shtml), resource conservation managers who manage energy, water, and trash/recycling achieve 10 to 15 percent savings on utility bills in their first year. Some overlap of savings with other recommended strategies is to be expected and for this reason a range is used. For Rio Rancho this equates to $60,000 to $90,000. Costs for this opportunity would be based on how the City elects to allocate the responsibilities and would be determined on the basis of full-time employee equivalents.

E.8 City Hall Geo-exchange (Geothermal) System

Description
City Hall was built in 2007 with a geo-exchange ground-source heat pump system as its primary heating and cooling system. This system is different and more complex than the heating and cooling systems for the rest of the City's facilities, which are almost exclusively packaged roof-top units, and is also controlled by an EMS. City staff, vendors, contractors, the architect, and the mechanical contractor were consulted for their input.

Actions
Suggested actions include the following:

- Scheduling and Temperature Setback/Setup: The EMS has the capability to schedule individual rooms or areas for occupied and unoccupied times and to adjust the temperature settings based on the occupancy schedule. This functionality is not currently being used and the building and system is operating 24/7 in 'occupied' mode. The system was designed to use setbacks in 'unoccupied' mode, which saves energy and cost, wear on the equipment, and also allows the loop field to recharge. Building maintenance staff needs to be trained on how to properly implement occupancy schedules.
- Economizing and Pre-cooling Strategy: City Hall has four roof-mounted energy recovery ventilators (ERVs) that use a rotating heat wheel to recover heat from exhaust air and transfer it to fresh supply air from outside. ERVs are used to preheat outdoor air in the winter and pre-cool outdoor air in the summer, but there are times when they can be counterproductive – for instance in the summer when it cools off at night and early morning and the temperature inside the building is warmer than outside. If the building is

in 'cooling' mode, it is preferable to use the cool outside air directly rather than heat it up with the hot air being exhausted from the building. The capability for controlling the fans and heat wheel independently through the EMS would allow early morning pre-cooling to get a head start on cooling the building down after the nightly unoccupied temperature setup. This strategy would result in energy savings from reduced system run time and would reduce the cooling load on the system. Implementation would require additional programming of the EMS but Integrated Control Systems, the EMS vendor, felt it would be feasible.

- Geo-exchange Maintenance: The geo-exchange system is unique among City buildings and requires different knowledge, maintenance, and operation. Select staff should be trained on proper system maintenance and operation, including the EMS. Specific examples that emerged during interviews included loop water treatment, heat pump strainer cleaning and maintenance, and loop temperature and pressure monitoring.
- Hot Water Desuperheater: A desuperheater could be installed to use the geo-exchange system to make hot water. This opportunity should be evaluated according to how much hot water is used in the building, including at Subway.
- Demand Profiling and Control: City Hall is on an electric demand rate and pays for monthly peak demand. It is recommended that demand monitoring and trending capability be added to the existing EMS. This would allow staff to monitor and evaluate building and system performance, including trouble shooting and tracking efficiency measures. It also would allow for demand control strategies to shed electrical loads during peak times. Controllable loads include the two electric hot water heaters (15 kW and 18 kW); temperature set points; and pump speed on pumps controlled by variable frequency drives (VFDs), such as the geo-exchange circulation pumps. Savings of $12 to $16 per kW reduced could be achieved each month on the basis of current PNM rates.
- Building Operation and Maintenance Manual: At least four copies of the operation and maintenance manual were reportedly transmitted to the City upon completion of construction. Some staff training was also done and videos of the training were made. These materials should be made available to the Building Maintenance department and staff.
- Atrium: Building occupants and staff report that the atrium is a challenge to cool in the summer and imposes a large cooling load on the geo-exchange system. Options for addressing the atrium include external shading, window film, interior shades, a supplemental cooling tower, and indirect-direct evaporative cooling (IDEC). Each of these opportunities would need to be investigated in more depth to determine applicability and value. It is recommended that the scheduling and pre-cooling strategies outlined above be implemented followed by a re-evaluation of the atrium before investing in capital equipment.

Benefits and Costs

Benefits to the City would include the following:

- Increased comfort
- Energy and cost savings

Costs for the EMS portions of this opportunity can be obtained from Integrated Control Systems. A list of vendor and contractor contacts is in Appendix G.

E.9 Pool Efficiencies

Description

Rio Rancho has four facilities with pools. The Aquatic Center is an indoor pool that is open year round and the others are outdoor facilities used only during the summer (May to August).

Actions

Suggested actions include the following:

- Circulation Pump Offseason Use: The circulation pumps at the seasonal pools run year round even when the pools are closed. This is reportedly necessary to keep the pools clean but wastes considerable energy. It is estimated that the cost to run these three pumps during the 8-month offseason is $14,000 and 160,000 kWh. There may be alternatives to running these pumps, such as finding an alternate method to keep the pools clean, draining the pools at the end of the season, running the pumps intermittently during the offseason, or installing VFDs, which would allow the pumps to operate at lower speeds and use less electricity. VFDs may also be applicable to the Aquatic Center circulation pumps during unoccupied times.
- Pump Room Furnaces: Haynes and Rainbow each have small wall furnaces in the pump/mechanical rooms. The furnace at Haynes appeared to be set at 90°F and the furnaces at Rainbow only have dials like a hot water heater. These units should have digital thermostats installed and should be set to the minimum temperature required for freeze protection.

Benefits and Costs

Installing premium efficiency motors and VFDs for each circulation pump (6 total) is estimated to save $8,500 annually and cost $22,500. With an estimated $3,800 in PNM rebates the total cost would be $18,700 which results in a 2-year payback. These values are based on an installed cost of $240 per horsepower and PNM rebates.

E.10 Sustainable Design and Construction

Description

The benefits of green building are many-fold, from reducing negative environmental impacts and increasing cost effectiveness to improving the health, well-being and performance of building occupants and users. Rio Rancho has a stretch goal to "Design all new buildings and renovate existing buildings to achieve high energy efficiency standards." High-performing, energy efficient buildings can be achieved by following or referencing various standards like the ones listed below.

Actions
Suggested implementation steps include the following:

- Establish guidelines that reference a known high-performance or green building standard.
  - LEED NC & EB – Leadership in Energy and Environmental Design for new construction and existing buildings
  - ASHRAE 189.1 Standard for the Design of High-Performance Green Buildings
  - IgCC – International Green Construction Code
  - ASHRAE 90.1-2010
  - IECC 2009
- The following are additional considerations for high-performance buildings if one of the above standards is not used.
  - All projects should commission mechanical systems upon completion. New building projects should strive to have a commissioning agent included early in the design phase and throughout construction, project closeout, and through the warranty period (referred to as full or enhanced commissioning) to maximize benefits. Very small projects may not justify being commissioned.
  - Projects that include new roof structures with adequate sun exposure for solar power should be built so they are solar ready by adding infrastructure for roof support where necessary, and allowing space for the necessary electrical equipment and hook ups. Projects should scope for a minimum of a 10 kW solar photovoltaic system.
  - All projects over 50,000 square feet construction impacted area and new construction should complete energy modeling. Projects under 50,000 square feet and remodels should complete energy modeling if budgets allow.

E.11 Renewable Energy

Description
Several of the City's buildings have good potential for solar electric and/or thermal generation. Solar potential was judged based on roof layout, number and spacing of penetrations, shading, and southern exposure. Loma Colorado Library, City Hall, and Esther Bone Memorial Library are the top candidates for roof-mounted solar systems. Several buildings, including the Aquatic Center, were not assessed from the roof but may have good solar potential as well. Loma Colorado Library and the Aquatic Center have already had assessments or bids for solar installations. Table 12 presents site observations for each building.

Actions
Suggested actions include the following:

- Work with a contractor to determine buildings to be included.
- Conduct additional analysis and design.
- Following construction, evaluate performance and lessons learned for next project.

Table 12. Buildings with Potential for Solar Electric or Thermal Generation

Facility	Assessment
City Hall	Flat, cool, white membrane roof; several good spaces for solar PV on varying roofs and levels
Esther Bone Memorial Library	Flat, cool, white membrane roof w/ skylights; good space for solar panels
Loma Colorado Library	Flat, cool, white membrane roof; one very large roof with no obstructions excellent space for solar PV; see independent energy assessment and SEP/EECBG proposal
Meadowlark Senior Center	Flat, cool, white membrane roof; lots of RTUs; recommend closer investigation
Motor Vehicle Division	Roof not assessed
Animal Control	Main building - sloped green metal roof with one side facing south; kennel roof was assessed
Police Headquarters and Municipal Court	Flat, cool, white membrane roof; lots of RTUs; some good areas for solar panels
Fire Station 1 – Southern	Flat, rock-covered, black membrane roof; three main sections; some good areas for solar panels
Fire Station 2 – North Hills	Sloped white metal roof; need to verify gable direction
Fire Station 3 – River's Edge	Flat, built-up asphalt that is white; some areas for solar panels
Fire Station 5 – Enchanted Hills	Flat, built-up, white rock asphalt; two main roof sections; some good areas for solar panels
Fire Station 6 – Mariposa	Sloped green metal roof; need to verify gable direction
Haynes Recreation Center	Sloped gravel covered roof; a lot of shading likely from nearby trees; probably not a good solar candidate
Haynes Pool	Flat roof; a lot of shading likely from nearby trees; probably not a good solar candidate overall but depending on shading some sections may be ok for solar panels
Sabana Grande Recreation Center	Roof not assessed but likely a good candidate for solar panels
Sabana Grande Art Center	n/a
Star Heights Recreation and Learning Center	Sloped blue metal roof not assessed from above but appears to be potential candidate for solar; Library – asphalt roof with high parapet; not an ideal candidate
Public Works Building Maintenance Yard	Building not owned by City; need to check direction of gable
Public Works Fleet Maintenance Yard	Building not owned by City; need to check direction of gable
Public Works and Operations and Maintenance Yard	Sloped white metal roof; roof penetrations including evaporative coolers; need to verify gable direction; some potential areas for solar panels
Cabezon Pool & Community Center	Roof not assessed but a potential candidate for solar panels; flat roof
Rainbow Pool	Roof not assessed; flat roof; no shading
Rio Rancho Aquatic Center	Flat, white roof; see Sacred Power bid for solar thermal pool heating

Benefits and Costs

Benefits to the City from additional renewable energy include the following:

- Reduced exposure to varying energy rates
- Reduced energy costs over the long term

- Reduced reliance on fossil fuels

Costs should be discussed with at least three contractors.

7.2 TRANSPORTATION STRATEGIES

This focus area broadly considers opportunities for the City to reduce fuel consumption, vehicle emissions, and vehicle miles traveled (VMT) in the City's day-to-day vehicle fleet operations. Therefore, transportation opportunities focus specifically on those that will increase the overall fuel efficiency of the fleet and reduce actual fuel use through reducing total VMT.

T. 1 City Fleet Fuel Efficiency and Consumption

Description

This strategy focuses on opportunities to both increase the overall fuel efficiency of the City's fleet vehicles as well as to reduce total vehicle miles traveled. This two-pronged strategy would help reduce fuel consumption and costs, which also would provide secondary benefits, such as reducing emissions of air pollutants and greenhouse gases from fleet-associated travel. The strategy specifically focuses on several no-cost opportunities, such as policy development to discourage idling, to allow for cost savings and immediate paybacks upon implementation.

Actions

- Identify and standardize the best way to track gasoline use and comparison data for Public Safety and Non-public Safety departments for the purpose of implementing this plan.
- Develop idling standard operating procedures and guidelines that would apply to fleet vehicles Citywide to reduce fuel consumption associated with excessive idling.
- Develop and implement a fleet replacement policy that requires consideration of more fuel efficient vehicles for all replacements. The policy should specify that hybrid and alternate fuel vehicles be considered first, followed by more fuel efficient conventional vehicles as long as the replacement vehicle can perform the necessary functions for that particular vehicle type. The policy should further provide specific guidance by category of vehicle, such as maintenance trucks, safety vehicles, standard motor pool vehicles, and others.
- To help reduce the number of City vehicles required for the overall City fleet, expand the personal use policy and allow eligible City employees to use their personal vehicles for short trips versus having a large pool of City vehicles at each location to meet short trip needs. The policy would provide a not-to-exceed limit for personal vehicle mileage reimbursement for employees who travel in their own vehicle for City business.
- Pool vehicles for support services for temporary use needs, such as special projects, trips and meetings, as opposed to having such vehicles reside with individual departments.
- Review and update, as appropriate, the vehicle take-home policy for City departments.
- Compile information on fleet fuel efficiency so that this information can be tracked over time as vehicles are replaced. The City's current fuel consumption data (amount and cost) for 2009-2010 can be used to track reductions in fuel use and costs over time.

- Assess locations and options for installing a small, secondary fueling location for field vehicles (Police, Fire, Public Works, Parks and Recreation).

Benefits and Costs

Benefits associated with the no-cost components of this strategy will vary depending on the amount of VMT reduced and overall improvements in fleet efficiency for the City.

From a vehicle replacement perspective, the City can evaluate replacement first costs and payback for alternative fuel/hybrid or simply more efficient vehicles. As an example, Table 13 provides a snapshot of data on cost, annual gas savings, and payback for select hybrid vehicles assuming they were driven 15,000 miles per year with a average gas price of $2.81 per gallon of regular unleaded. This price per gallon will vary based on market conditions over time.

Table 13. Hybrid Vehicle Costing Information

Year	Make	Model	Federal Tax Credit[1]	True Market Value	Hybrid Premium	Annual Hybrid Gas Savings[2]	Years to Break Even
2010	Toyota	Prius	$0	$23,000	$2,000	$800	2 - 3
2010	Nissan	Altima Hybrid	$2,300	$24,000	$2,300	$360	6 - 7
2010	Ford	Fusion Hybrid	$800	$26,500	$4,700	$570	8 - 9
2010	Chevrolet	Tahoe Hybrid	$2,000	$47,500	$4,400	$480	9 - 10

Source: Edmunds.com, 2010.
[1] Tax credit is for 2010 and may not apply in future years.
[2] Per gallon price estimate provide by City of Rio Rancho Finance Dept. based on average price per gallon paid by City in FY 2011

Goals and Metrics

The goals for this strategy are listed below:

- Reduce fleet fuel consumption by 5 percent per non-public safety employees by the end of fiscal year 2015 and 10 percent by fiscal year 2017.
- Reduce fuel consumption by the Public Safety fleet by 5 percent per call by end of fiscal year 2015 and 10 percent by fiscal year 2017.

Potential ways to measure progress for this strategy include:

- Average fleet fuel efficiency (miles per gallon)
- Gallons of fuel used per active fleet vehicle
- Gallons of fuel used per employee

7.3 OUTDOOR WATERS STRATEGIES

Water is a precious resource that should be used efficiently indoors and out, especially in arid climates like New Mexico where water supplies are scarce. Furthermore, conserving water saves money both in water utility costs and, in many cases, energy costs. This section will focus on steps the City can take to reduce outdoor water use at City facilities. (Indoor water use is addressed in the Energy/Facilities section.)

W. 1 Outdoor Water Use Efficiencies

Description

Rio Rancho has a variety of opportunities to reduce outdoor water use. Outdoors, water use can be reduced through improved irrigation equipment and practices, installation of low-water landscaping, and water reuse options.

Actions

Suggested actions include the following:

Water Use Policy and Guidelines

- Research the current outdoor water use policies Citywide.
- Using information about current practices, identify areas for improvement to reduce water use.
- Revise and update the City Water Conservation Plan and policies and guidelines, such as the Park Design Guidelines section of the Development Process Manual, to inform current and future water use activities. Reference the March 10, 2010 memo to the Rio Rancho City Manager for additional ideas for developing these policies and guidelines. The guidelines will drive the decision making process for implementing the indoor and outdoor activities outlined below. Outdoor topic areas addressed should include:
  - Indoor water fixtures
  - Irrigation practices and systems
  - Landscaping
  - Water reuse
  - Water billing – City departments should be responsible for approving or processing invoices for water use within that department

Outdoor Activities

- Irrigation Management/Controls and Landscaping
  - Perform irrigation audits at existing parks and other turf areas as well as new parks managed by the City using Irrigation Association techniques. Perform in a rotating schedule so each location receives an audit once every 3 years.
  - Implement water conserving irrigation practices:

i. Installation of moisture sensor controllers where needed
ii. Improved controller programming
iii. Maintenance improvements (sprinkler heads, leaks, system pressure)

- Maximize the implementation of landscapes that follow the principles of Xeriscape:
  i. Sound landscape planning and design
  ii. Limitations of turf to appropriate areas, including removal of existing non-functional or non-recreational turf
  iii. Use of water-efficient (and native) plants
  iv. Efficient irrigation (as discussed above)
  v. Soil amendments (and deep tine aeration)
  vi. Use of mulches
  vii. Appropriate landscape maintenance
- Pilot Bermuda grass and artificial turf in select areas

- Water catchment barrels at City facilities. The first phase should include three highly visible City facilities to lead by example by the end of calendar year 2011.

Benefits and Costs

The anticipated benefits and costs for select implementation activities under this strategy are discussed below. Note that the savings from each of these activities are not additive and the City would have to do a more detailed analysis of selected activities to determine the cumulative benefits.

- **Irrigation Audits**: City employees estimated that they do not currently have adequate staff to perform audits on all parks and that it can cost approx $1,300 per acre to have an audit done by a third party.
- **Improved Irrigation Efficiency**: Rio Rancho has already made significant progress in improving irrigation efficiency and reduced irrigation water use 19 percent in 2009 by shutting off irrigation during rain events, removing turf, and ramping down watering times. However, historical precipitation and Kentucky bluegrass evapotranspiration data for Rio Rancho indicate that the City may be overwatering in some areas and could save up to 9,000 kilogallons and $33,900 annually by more efficiently managing the irrigation system. This is based on information in the City of Albuquerque Irrigation Audit Manual. Achieving these additional efficiencies may require irrigation system upgrades such as implementing audit recommendations and upgrading controllers. City staff report that the existing controllers do not work with rain or moisture sensors and would need to be replaced at an estimated cost of $7,000 per controller. More extensive system renovations and central control systems are much more expensive but may offer additional irrigation and operational efficiencies. Upgrades such as converting pop-up heads to rotors can cost $0.40 per square foot ($18,000 per acre). The cost for this opportunity will vary depending on the practices implemented (i.e., weather/moisture sensors versus adjustments to scheduling with existing controllers).
- **Xeriscape**: Studies in the southwest United States have found that xeriscape practices can save up to 75 percent in irrigation water use as well as maintenance costs (xeriscape typically requires less maintenance). These savings include implementing all aspects of the principles of xeriscape, including the irrigation efficiencies outlined above and soil

development practices, such as soil amendments and aeration. City staff is currently considering deep tine aeration. Installation costs typically range between $1.00 and $4.00 per square foot ($50,000 to $180,000 per acre). The City's Water-Wise Demonstration Garden should be used as a reference for any projects that are implemented.

- **Turf Replacement**: Based on other entities that have experience with turf replacement in the region, Bermuda grass typically requires 20 percent less water than the Kentucky bluegrass variety currently in place in parks and open spaces throughout the City. This includes 10 to 15 percent savings during the growing season and up to 30 percent savings November through March, when Bermuda grass is typically dormant. The City could save 230 kilogallons and $900 annually for each acre of Kentucky bluegrass that is replaced with Bermuda grass. The price for common Bermuda grass is $500 per acre, though more cold-tolerant varieties, which would perform well in Rio Rancho, can cost up to $1,400 per acre. It is estimated that replacing 25 percent of the irrigated acreage in Rio Rancho with Bermuda grass could save $20,000 annually and would have a one-time cost of $34,000. Any sports fields, open spaces, etc., can still be used during the dormant period, but there is a public perception that grass is dead when it is dormant, which is a difficult perception to overcome. Public education would be an important addition to this strategy in order to ensure its success. Conducting pilot programs may also be a way to gauge public acceptance and education needs. The new turf would require a 1- to 3-year transition period, including use precautions and increased watering during this time before savings would be realized. Staff estimates that total conversion costs could be in the range of $6,000 to $10,000 per acre.

Goals and Metrics

The goals for this strategy include:

- Maximize outdoor water conservation at all City facilities and landscapes through operations, technology, and behavior change.
- Reduce per capita water use at City facilities by 10 percent by 2013.
- Reduce average gallons per irrigated park acre water use by 5 percent by 2013.

Potential ways to measure progress on this strategy include:

- Cost savings
- Water use reduction

7.4 MATERIALS STRATEGIES

By world standards, waste in the United States is a large and growing problem. Major facilities and tracts of land are required to accommodate generated waste, and monitoring and mitigation are needed long after disposal. Actions that promote diversion of solid waste from landfills, such as recycling, can reduce greenhouse gas emissions, prolong the life of landfills, and potentially reduce collection and disposal costs. Reducing the use and amount of purchased goods not only saves the City and community money, it can also help reduce energy and water consumption and greenhouse gas emissions associated with products.

The following section identifies key strategies the City can adopt to encourage waste reduction, recycling, and green product procurement in City operations. Each policy is supported by guidance for implementation.

M.1 Procurement Guidelines

Description

Rio Rancho currently purchases a variety of green products, but these efforts are conducted in a decentralized fashion in each department. The City would benefit from developing centralized guidelines for purchasing green, third-party certified products.

Actions

Green Product Procurement

- Take inventory of current green purchases in City operations and research available options for additional green alternatives to purchases Citywide, including the financial impacts of each alternative.
- Research the following organizations for guidance in developing selection criteria and identifying products:
  - Responsible Purchasing Network: www.responsiblepurchasing.org
  - EPA Environmentally Preferable Purchasing: www.epa.gov/epp
- Consider third-party certification for purchases in product sectors for which appropriate certifications can be identified. Potential certifications to consider include, but are not limited to:
  - Forest Stewardship Council for certified wood and paper products
  - Energy Star™ for computers, appliances, office equipment, and commercial food service equipment (www.energystar.gov)
  - Electronic Product Environmental Assessment Tool (EPEAT), which goes beyond Energy Star™ to rate electronic products on materials used, design for end of life, longevity, energy, corporate performance, and packaging (www.epeat.net)
  - Green Seal certification for various cleaning products and related materials
  - Conserv-a-tree, which provides resources for identifying recycled papers that will meet the City's needs and function well in office equipment (www.conservatree.com)
  - GREENGUARD certification for indoor products with acceptable indoor air standards (e.g., building materials, furnishings, finishes, etc.)
- Based on all of the data and information collected, develop a decision tool, including guidelines and criteria, for selecting

green products and incorporate these guidelines in the procurement code and centralized procurement process discussed above.

- Use the example document presented in Appendix H (Environmentally Preferable Purchasing Policy, City of Steamboat Springs) as a guide for developing a Rio Rancho Green Purchasing Policy to include both centralization and green product purchases.

Benefits and Costs

The financial analysis for this strategy will be part of the implementation process and purchasing policy development and is therefore not included in this Plan. Based on research of other communities around the country, the potential cost savings realized for green product procurement can range from minimal (less than 1 percent) to upwards of 10 percent, depending on the policies implemented. The cost for developing purchasing guidelines could range from $1,500 to $2,000 if conducted internally and $4,000 to $5,000 if outside support is solicited.

Goals and Metrics

The goals for this strategy include:

- Development of a City Green Purchasing Policy and decision tool by 2012
- Implementation of green purchasing by fiscal year 2013
- Ensuring all purchases follow best green practices when it is in the best interests of the City

Potential ways to measure progress on this strategy include:

- Success in developing a Green Purchasing Policy
- Cost savings as a result of centralized procurement
- Percent of certified product purchases in each identified category (i.e., electronics, paper, cleaning supplies)
- Percent of materials and supplies budget used to purchase certified products

M.2 Solid Waste Reduction

Description

There are a variety of action items that the City can implement to reduce the overall production of waste in City buildings. This includes both reducing the amount of resources used in the first place as well as better managing resources before they enter the waste stream.

Actions

Suggested activities for this strategy are outlined below.

General Steps

- Identify office green teams or individuals in each City department.
- Task green teams with collaborating to develop (1) an action plan for prioritizing and implementing some or all of the waste reduction activities below and (2) Citywide waste reduction goals.

- During the next round of contract negotiations with Waste Management consider incorporating language that encourages waste reduction in City operations. Because Rio Rancho currently does not have to pay for regular waste service at its office buildings (large waste loads may have additional costs), the cost savings from waste reduction is not realized, minimizing the incentive for reduction.

Source Reduction Activities

- Review increased use of multi-function copiers to optimize use of toner and paper and to allow for more scanning versus copying.
- Institute a default duplex (double-sided copying and printing) setting on all City copiers and printers. New computers can have the printer settings set to print default when they are set up.
- Whenever possible, disseminate documents electronically. Encourage staff to save documents electronically (PDF) rather than printing.
- Evaluate options for electronic billing and on-line bill pay for utilities and other divisions with billing.
- Evaluate options for delivering City staff paystubs electronically.
- Provide and encourage use of reusable cups/mugs for coffee, tea, and water.
- Reduce the amount of unsolicited mail (junk mail) that is received, including outdated or redundant magazine subscriptions, catalogs, and other types of mass mailings. A simple guide to reducing junk mail can be found at www.globalstewards.org/junkmail.htm.
- Through employee awareness in break rooms, promote litterless lunches and discourage disposable containers and tableware.
- Install hand dryers in all restrooms to replace paper towels.
- Host zero waste meetings and events whereby all materials to support the event (plates, napkins, food, etc.) are either re-used, recycled, or composted.
- More fully use the Reusable Office Supply Exchange (ROSE) Room for electronic equipment, office supplies, and materials.
- Work with the IT Department to evaluate opportunities for virtualization of the ROSE Room, creating a database where staff could easily look up information on available equipment and materials on the City intranet.

Waste Management Activities

- Replace standard desk-side trash bins with mini-bins to reinforce waste reduction measures. Mini-bins attach to standard trash cans that then are used as recycling bins for paper.
- Standardize signage and collection bins for recycling in all City facilities.
- Recycle all paper and cardboard. If not already doing so, recycle junk mail and opened envelopes from invoices, catalogs, magazines, etc. These materials may be placed in mixed paper recycling bins.

Benefits and Costs

Because the City receives its waste hauling services at no charge under its current contract with Waste Management, the waste management activities listed above would provide minimal, if

any, costs or cost savings. On the source reduction side, however, cost savings would be realized through by reducing purchasing costs. The percent savings would depend on the goals set by the City and the plan developed to get there. The cost of implementing any source reduction activities would be minimal.

Goals and Metrics
The goals for this strategy include:

- Creation of City department green teams
- Development of a Rio Rancho Waste Reduction Action Plan and Goals
- Implementation of the plan

Potential ways to measure progress on this strategy include:

- Progress toward meeting determined waste reduction goals
- Percent reduction in solid waste
- Per staff member annual waste production
- Cost savings as a result of waste reduction activities (expenses to monitor include paper, disposable kitchenware, paper towels)

M.3 Recycling Consolidation

Description
City Hall and Meadowlark Senior Center have commercial recycling service but the other buildings do not because they do not generate enough recycling to justify a 6-yard bin. Recycling for the other City buildings is conducted by Keep Rio Rancho Beautiful (KRRB) youth workers that are grant funded and collect recyclables from City buildings and deliver them to the City collection site. In anticipation of the grant duration limitations of this current approach, there is interest in consolidating the recycling efforts and getting staff from each department more involved in the process. Rio Rancho has recently agreed to partner with Sandoval County Landfill to open a new drop-off and consolidation recycling center near City Hall, more centrally located for City operations. This recycling facility could be used for City operations.

Actions
Suggested implementation steps for this strategy include:

- Offer recycling options at as many public common areas as possible, including City buildings, recreation and activity centers, parks, natural areas, etc.
- Develop an internal recycling collection infrastructure.
  - Consider creating trash consolidation locations in each department at City Hall and in each other City building. Once trash collection needs are reduced, recycling collection could be added to City janitor duties without a significant increase in work load. Recycling consolidation locations could be created at each facility to streamline this process as well. Since recycling services are required weekly, janitorial staff

could collect and prepare all recyclables for a building the day before a scheduled pick-up by KRRB staff.
    - Another option is to have staff volunteers collect and prepare all recyclables for a building the day before a scheduled pick-up.
- Research opportunities for including recycling collection at City facilities under the City's current Solid Waste and Recycling Management Agreement with Waste Management. There would be an additional cost for recycling under the existing contract structure and the following suggestions could be used to evaluate alternatives:
    - Develop a pilot program with Waste Management to use residential collection bins at all City facilities that do not warrant a large dumpster.
    - Request that Waste Management evaluate implementing a small commercial recycling program for the City and report its findings to the KRRB Advisory Board (Article III.11.C.(2)).
    - Request recycling service at City facilities, if warranted, through an evaluation process (Article III.19.B.(4)).

Benefits and Costs

Because the City receives its waste hauling services at no charge under its current contract with Waste Management, any recycling related activities would not likely provide cost savings and may increase costs under the current contract structure.

If an internal recycling collection program is developed, it could potentially free up grant funds to be used for other KRRB programs. The collection infrastructure would also already be in place when more formal small commercial recycling options become available.

Goals and Metrics

The goals for this strategy include the following:

- A plan for consolidating Citywide recycling
- A plan for continuing implementation after current grant funding expires

Potential ways to measure progress on this strategy are listed below:

- Level of coordination with Waste Management and leverage of current contract
- Percent increase in recycling Citywide

7.5 EMPLOYEE STRATEGIES

While this Action Plan identifies many potential policies and strategies addressing specific topic areas, such as transportation and green buildings, successful implementation will ultimately hinge on employees' awareness and willingness to take action. Education and outreach efforts should integrate with and build on existing outreach efforts through networks and partnerships, focus on building long-term leadership and capacity among employees, and provide incentives and recognition for outstanding efforts.

The following section identifies key policies the City of Rio Rancho can adopt to encourage and support education and outreach efforts. Each policy is supported by a number of recommended strategies.

S.1 Training and Capacity Building

Description

To ensure integration of sustainability throughout the organization, promote critical City staff understanding of and buy-in with this Plan and capitalize on associated cost savings. Training staff in sustainability practices is another key component of the Plan. There are many opportunities related to training, from general information (about sustainability and the City's associated practices) to specific technical capacity building.

Actions

Based on the context of the City's organization, three areas of related staff development are recommended as priority areas:

- General sustainability training
  - Incorporate general outreach materials regarding the City's commitment to sustainability into communications.
  - Provide continuing staff training on sustainability opportunities universal to every employee recycling best practices (materials that can be recycled, separation guidelines, etc.), environmentally preferable purchasing, paperless options (e.g., PDF writer software), simple energy conservation actions, water conservation, etc.
  - Identify a champion in each building interested in or responsible for managing sustainability initiatives. Consider convening, on a recurring basis, an event (brown bags, an annual sustainability summit, conference for in-house personnel) for champions to come together and share their sustainability projects and progress.
- Hiring
  - Develop a City practice for hiring criteria to include sustainability skills/experience where relevant (e.g., maintenance, IT, procurement, etc.).
  - Develop training materials to be included in new hire orientations, both in written form (training materials) as well as in-person orientations.
- Technical capacities
  - Develop proposed changes to the procurement code that require contractor hiring criteria to include sustainability skills/experience where relevant (e.g., construction, maintenance, etc.).
  - Develop training opportunities with a particular focus on staff in areas that align with the goals of the Plan that are tailored to staff functions. Some examples are listed below:
    i. Facilities
      - HVAC management, including proper scheduling, temperature set points, and seasonally appropriate temperature setbacks/setups
      - Use of Building Operation Guidelines (refer to Strategy E.5)
      - Use of City Hall's EMS
      - Routine HVAC maintenance

- Awareness and knowledge of energy efficient equipment and options for replacement and identification of new opportunities

ii. Custodial
   - Custodial staff training to consistently turn off bathroom lights when not in use and building lights after cleaning at the end of the night
   - Use of a shutdown checklist for the end of each day to ensure that building systems are shut down to conserve resources
   - Protocol to turn off lights in unoccupied rooms and ensure that exterior lights are off during the day
   - Protocol for reporting leaking faucets and running toilets
   - Custodial staff training on which materials are recyclable and which are not

Benefits and Costs

A minimum of 5 percent savings from existing utility bills could be expected as a result of employee education relative to reducing energy use. For the City, the associated energy savings are projected to be $30,000 per year. This is equivalent to about $55 per employee. Some reports issued in association with the ISO 14001 environmental management system standard suggest cost savings per employee of up to $200 per year. However, the 5 percent savings estimate is conservatively based on analyses conducted for the 2009 Boulder Energy Independence Plan that included the following resources: data published in Reducing Greenhouse Gas Emissions Through Behavior Change (Markowitz and Doppelt, 2009), ESOURCE Tech News of Canadian Hydro One pilot project, Home Energy Magazine's "Feedback on Feedback" (January 2007), and data from Poudre School District's performance contracting standards for Rocky Mountain High School.

According to the American Society for Training & Development's 2010 State of the Industry Report, U.S. organizations spent an average of $1,081 per employee in 2009. If the City invests approximately $100 per employee for training expenditures (equivalent to 2 hours of training for each individual, plus the cost of a training consultant), the costs associated with this strategy are estimated to be $64,000. Costs were based on information provided by the City's Human Resources department. This could be a one-time cost for existing employees and a lesser ongoing cost for new employees as they join City staff.

Goals and Metrics

While this measure can contribute to many of the City's 5-year and stretch goals, the most directly related goal is:

- Maintain 100 percent employee awareness and participation in adopted sustainable practices.

Potential metrics include the following:

- Number of hours spent on staff development related to sustainability
- Dollars spent on staff development related to sustainability

- Percent of City employees trained through new employee orientation

S.2 Research a 4-Day Work Week Initiative

Description

As demonstrated by a growing number of government entities across the country, reducing the duration of daily operations for key facilities offers the opportunity for positive impacts – both expected and, perhaps, unexpected. Expected positive impacts include reducing energy use and other environmental aspects. Other impacts include those related to employee retention and extended services. One leading organization in this area, the State of Utah, reports energy and environmental savings from its 1-year pilot, as well as acceptance of the approach from both the majority of its employees and citizens.

Actions

It is recommended that the City consider this strategy by researching and then piloting a trial. Key steps include:

- First, monitor the Operations and Maintenance Yard, which currently implements a complete four 10-hour day work schedule, and identify problems and benefits.
- Define a trial period. A 1-year minimum often is suggested to allow for sufficient time to observe various impacts (e.g., weather).
- Select a limited number of buildings for the defined period. Selection criteria could include the following:
  - Non-priority building or building areas (given the exploratory nature, non-priority buildings are recommended and would exclude the 24-7 operations in sections of the 500 Quantum building, fire stations, and animal control buildings)
  - Buildings or building areas that have dedicated HVAC systems that can be independently controlled based on occupancy
  - Buildings that have stand-alone utility metering
  - Buildings with the ability to demonstrate the variety of potential impacts based on their primary use and hours open to the public
- Establish modified hours for the pilot buildings (e.g., converting from five 8-hour work days to four 10-hour work days) and ensure the operation of the building energy systems are modified accordingly.
- Establish a tracking system for all of the expected impacts and regularly (e.g., monthly) update the tracked information (including non-quantifiable lessons learned).
- Publish a report at the pilot conclusion:
  - Inform decisions about implementing the strategy on a broader basis. Key buildings to consider are any portions of City Hall, Police Headquarters and Municipal Court, and buildings with areas that have typical business hours.
  - Include a survey of building users.

Benefits and Costs
The Working 4 Utah initiative of the Utah state government reported in 2009 a 10.5 percent energy savings as one of the many benefits of a four-day work week. Based on this information and regional trends, a minimum of five percent energy savings (conservative) is expected for buildings that convert from five-day work weeks to four-day works weeks. These savings are based on scaled back operations of HVAC systems. The Operations and Maintenance Yard is already observing four-day work weeks and could be used to help develop the pilot. To demonstrate potential savings, if the City elects to conduct a pilot in the other facilities-controlled buildings (Building Maintenance and Fleet Maintenance), the associated energy savings are projected to be $500 per year. Savings are low for these small buildings and would be proportionally higher for larger buildings.

The costs of this strategy are expected to be comprised of administrative fees that would vary depending on the size of a pilot and the scope of reporting. For a small pilot, these costs are considered to be nominal and could be completed in-house.

Note that the City may also be able to directly quantify benefits and costs beyond these noted – including operational costs (custodial, fleet, etc.), overtime expenditures, number of related citizen inquiries, etc.

Goals and Metrics
The Plan goal related to this strategy is listed below:

- Design all new buildings and renovate existing buildings to achieve high energy efficiency standards.

Potential metrics for this to this strategy include the following:

- Percent energy reduction
- Percent cost reduction, including utility and operations cost avoidance
- Percent of employees and citizens with a favorable opinion
- Impact on reduced level of service as reported through citizen satisfaction surveys, work orders, SeeClickFix, and other forms of input and requests for service

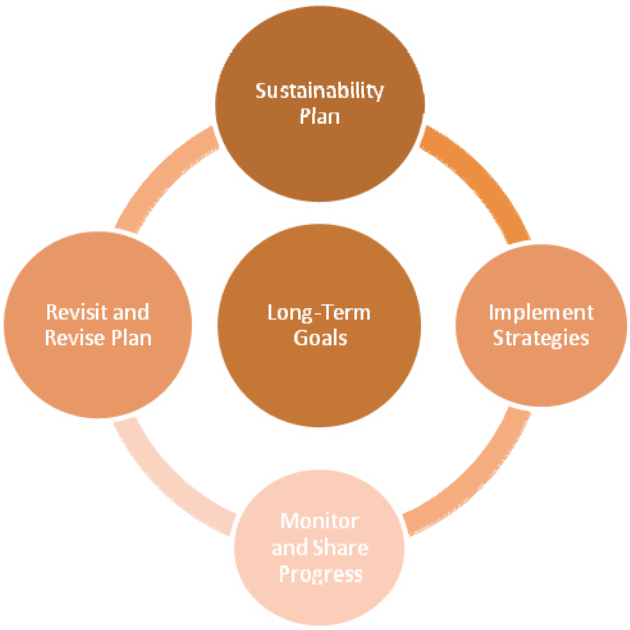
8. Implementation

The previous sections of this Plan reference different priority strategies, each with its own set of actions, goals, and metrics. For these strategies to work together as a cohesive system, implementation efforts should be coordinated and integrated to accomplish the following:

- Ensure implementation efforts are not working at odds with each other.
- Maximize synergies between related strategies.
- Cross-pollinate lessons learned among City departments and staff.
- Measure cumulative impacts relative to stated Plan goals.
- Develop a unified message in sharing progress, both internally to staff and externally to the community.
- Determine next meaningful paths based on progress and emerging opportunities.

Managing implementation of the Plan would require an ongoing organizational structure as well as a communications structure. The remainder of this section addresses each of these implementation components as illustrated in Figure 2.

Figure 2. Implementation Components



8.1 STAFFING AND ORGANIZATION

Maximizing collaboration among City staff members and with partners in the broader community will provide valuable support for Plan Implementation. A next step in implementing the strategies in this Plan is to identify who will be primarily responsible for implementing them and who can play a supporting role. Furthering sustainability for the City will involve more than

just this written Plan or other finite, technology-driven projects. The City's progress toward sustainability will depend on integrating a continuing cyclical implementation and monitoring process across the City to take action, track progress, and make course corrections to continue progress. This process, commonly known as "plan, do, check, act," is based on a model that has been successfully used by many organizations working toward sustainability. This Plan represents the "plan" portion of the model; as the City moves forward, it will need to implement the remaining stages of this cyclical process, carrying out strategies, checking on their effectiveness, and acting to adjust the strategies.

Key to the success in implementing the strategies outlined in this Plan is providing the staff capacity to manage the Plan's implementation. This includes identifying a leader or an ongoing green team that would be the primary contact with City staff and the external community to guide the Plan implementation, monitoring, and reporting process. Such an individual or group would also provide continuity from year to year. Specific responsibilities could include the following:

- Coordinate information sharing and research needs among City departments.
- Promote and coordinate the integration of sustainability initiatives into policies, services, and operations.
- Implement specific strategies in this Plan and track progress over time.
- Help acquire grants and other funding for sustainability initiatives.
- Develop and issue an annual sustainability report (see template provided in Appendix J).
- Serve as a change agent and drive organizational capacity building.

8.2 PARTNERSHIPS

The diverse nature of the strategies in this Plan provides an opportunity for broad collaboration across the City and with community partners in this effort. Partnerships are a particularly important component of Plan implementation to help share and leverage resources and expertise. The City is fortunate to have community partners with an interest in sustainability in general, as well as in specific strategies in the Plan. Valued partners can include colleges, universities and other higher education institutions, non-profit and community organizations, the business community, the building industry and professional organizations, communities of faith, and others. Such partnerships can be leveraged to share resources and expertise and they can also ensure that sustainability becomes part of the fabric of the community and not an effort dependent on a small handful of champions. Developing partnerships for implementing this Plan also support Goal 5, Strategy F of the City's Strategic Plan, which calls for the City to, *"Partner and collaborate internally as well as with jurisdictions of government, schools and other private and public entities to enhance area services, including but not limited to human services and transit services."*

In particular, the City may wish to explore partnerships with its neighboring facilities - the University of New Mexico (UNM), Central New Mexico Community College (CNM), the UNM Sandoval Regional Medical Center, and Hewlett-Packard. Partnerships with key peer municipalities as well as national organizations (e.g., International City/County Management Association, Energy Star™, etc.) can be used to leverage resources, such as collaborating on

grant proposals; collaborating with other governments to increase purchasing power; exploring joint public-private partnerships; and seeking out in-kind assistance for implementation, such as academic research projects or volunteer programs to help implement the Plan.

8.3 FUNDING

There are a number of strategies the City can pursue to fund future sustainability projects and management activities, from internal funding and debt financing to rebates, revolving loans, grants, and performance contracts. For example, the City already has $50,000 in EECBG funding toward implementing the Plan (staff training, plan and policy development, reporting, etc.). As the City considers other options, it should be noted that Rio Rancho can define its own parameters for success, such as rates of return on investment or limits on paybacks. A few of these options are described below.

- The City could hire an outside energy services company (ESCO) under an energy performance contract. Once the ESCO is selected, it would perform a detailed investment-grade audit of facilities, guarantee costs and savings, and begin work immediately. Although the ESCO charges a percentage of project costs to manage the project and potentially guarantee the savings, this added expense is more than compensated for by not having to pay the cost of delay associated with investing nominally annually for a number of years to implement facility improvements. A performance contract structure allows a customer to do wide-scale improvements in a relatively expedited time frame. Under a performance contract, it would take an estimated 3 years from hire to project completion. Performance contracting also would allow the City to consider all proposed strategies as a total package with a combined payback, with short payback items helping to support longer payback strategies. As noted previously, the City can set its own parameters in terms of goals for the term of a performance contract. For example, many institutions cap their time of payback at between 12 and 15 years.
- There are various rebates at the local level and grants at the federal and state level to support sustainability, energy efficiency, renewable energy, water conservation, and other projects. Grants also are available from foundations, associations, and the private sector. As one example, PNM offers a number of technology-specific rebates (e.g., lighting, cooling, heating, control, etc.) as well as rebate programs such as PNM Power Saver.
- To provide a consistent and sustained source for financing initiatives, the City could develop an energy and sustainability revolving fund to support innovative projects. Seeded with funds from the City and sustained with cost savings from completed projects, such a fund would provide the City with a long-term, stable source of income for a variety of ventures, from energy and water savings projects to other resource efficiency initiatives that have the potential to result in cost savings over a reasonable period of time. Once capital costs are repaid to the fund from operational cost savings, extra savings could then be allocated to other budgets or funds as desired to support other sustainability efforts that have less emphasis on cost savings.
- The City could be eligible to issue a Qualified Energy Conservation Bond (QECB) through the State of New Mexico. Resources for these bonds are allocated at the federal level to the states on the basis of population. In 2009, New Mexico's QECB allocation

was $20,587,000 with $1,268,799 designated for Sandoval County. Applicants typically must represent 100,000 people or more; however, states can use their own discretion to some degree in allocating these resources. These bonds can be used by state and local governments to fund energy projects, including reducing energy consumption in public buildings by at least 20 percent. What makes QECBs attractive is that the borrower that issues the bond pays back the principal only and the bond issuer receives a tax credit in lieu of the interest. For more information on the status of the program in New Mexico, see the following web sites: http://www.emnrd.state.nm.us/ECMD/QECBs.htm#allotments and http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US51F&re=1&ee=1.

- The City also should explore traditional bonding sources to fund up-front capital costs.

8.4 MONITORING AND REPORTING

The City can consider incorporating the strategies of this Plan into the City of Rio Rancho Strategic Plan, Goal 5, Government Services, Strategy E. Furthermore, the City can address how to monitor progress over time as strategies and opportunities are implemented. Implementation of strategies and opportunities should be documented for future reference and shared with staff. For instance, what was the actual cost of the strategy and when was it implemented? Who was involved, and what were their tangible indications of success, such as number of participants, number of residences retrofitted or kWh of electricity reduced? This type of information can be used to celebrate success, adjust strategies as desired, or develop new strategies.

As part of this monitoring and reporting process, the City should also consider developing a greenhouse gas inventory for its municipal operations. Several cities across the country have developed such inventories and are using them to track progress toward their sustainability goals. Greenhouse gas inventories are useful tools for such efforts because they serve as a cross-cutting metric that includes electricity and natural gas use, transportation, solid waste, and other factors. Such an inventory would also allow the City to understand and compare the relative contributions and impacts of these factors to its overall carbon footprint.

8.5 FUTURE UPDATES TO THE PLAN

The monitoring and reporting process will not only reveal the City's progress toward its goals, it will also help identify opportunities for updates to the Plan itself. These updates may include new goals, strategies, potential partners and resources, and additional areas of focus beyond the Plan's current, five framework focus areas.

With the experience of having started to implement strategies and actions, the City may wish to re-evaluate both the short-term and long-term goals identified in the Plan and refine them based on progress and changing perceptions. At times, for example, what may seem to have been an aggressive goal may be more achievable than initially thought, prompting staff to revise goals upward as progress is made.

8.6 DEVELOPING A COMMUNITY SUSTAINABILITY PLAN

Several cities have prepared sustainability plans for the broader community, and Rio Rancho may wish to explore this opportunity in the future. Community-oriented sustainability plans often focus on many similar topics to operational sustainability plans, but they include goals and strategies for the entire community, from helping residents and businesses reduce energy and water use to encouraging waste diversion and community conservation of natural resources. They can provide a broad range of community benefits, from reducing energy costs to providing a venue for residents to participate in sustainability in their community. Some topics that arose during development of this Plan that would lend them well to a Community Sustainability Plan include those related to community water reuse infrastructure and a community development manual.

Conclusions

Through this Plan, the City of Rio Rancho is moving quickly in developing its policy and approach for sustainability. This Plan is a first step and creates the needed road map for the sustainability process. The Plan's success rests largely upon top-down organizational support integrated with bottom-up, grass-roots communication and well-articulated and planned efforts to inspire action at all levels for continued momentum. With anticipated support and a well directed and managed effort, the City can benefit from the resulting improved energy performance and cost savings, healthy and productive working environments, engaged and motivated staff, and a greater sense of stewardship over the environment and resources on which the City and all of its staff depend.

Appendix A: Summary of Building Assessments

See MS Excel spreadsheet provided separately.

	Facility	Sq. Ft.	Avg. Electric, kWh	Avg. Gas, MMBtu	Total Energy MMBtu	Elect EUI, kBtu/ft^2	Gas EUI, kBtu/ft^2	Total EUI, kBtu/ft^2	Avg. Water, kgal	Total Cost	Cost/ft^2
1	City Hall	67,670	1,404,800	0	4,793	71	0	71	269	$110,556	$1.63
2	Esther Bone Memorial Library	12,215	174,620	418	1,014	49	34	83	2,481	$20,859	$1.71
3	Loma Colorado Library	32,000	378,907	1,664	2,956	40	52	92	243	$52,515	$1.64
4	Meadowlark Senior Center	13,995	218,107	530	1,275	53	38	91	261	$26,186	$1.87
5	Motor Vehicle Division	4,700	60,528	126	332	44	27	71	106	$7,805	$1.66
6	Animal Control	6,600	112,960	0	385	58	0	58	423	$12,097	$1.83
7	Police/Fire/Courts Main Build	48,660	837,267	918	3,775	59	19	78	312	$71,990	$1.48
8	Fire Station 1 Southern	13,440	179,547	627	1,239	46	47	92	230	$20,698	$1.54
9	Fire Station 2 North Hills	5,007	62,301	488	700	42	97	140	142	$9,933	$1.98
10	Fire Station 3 River's Edge	3,192	45,325	294	449	48	92	141	94	$8,133	$2.55
11	Fire Station 5 Enchanted Hills	7,440	98,667	373	710	45	50	95	113	$12,264	$1.65
12	Fire Station 6 Mariposa	5,000	64,240	547	766	44	109	153	127	$10,735	$2.15
13	Haynes Recreation Center	4,454	101,186	174	519	78	39	117	0	$13,897	$3.12
14	Haynes Pool	2,332	18,067	1,230	1,292	26	527	554	2,876	$12,333	$5.29
15	Sabana Grande Recreation Ce	5,000	31,308	487	594	21	97	119	120	$6,441	$1.29
16	Sabana Grande Art Center	1,600	7,564	0	26	16	0	16	0	$805	$0.50
17	Star Heights Recreation and L	3,996	41,813	202	344	36	50	86	55	$5,458	$1.37
18	PW Building Maint.Yard	3,272	21,181	244	316	22	75	97	24	$3,509	$1.07
19	PWFleet Maint.Yard	5,175	31,293	635	742	21	123	143	60	$6,669	$1.29
20	PW O&M Yard	2,786	69,787	560	798	85	201	286	370	$9,082	$3.26
21	Cabezon Pool & Community C	3,915	133,355	569	1,024	116	145	262	279	$19,098	$4.88
22	Rainbow Pool	3,404	124,580	1,929	2,355	125	567	692	2,095	$29,368	$8.63
23	Rio Rancho Aquatic Center	34,938	1,448,200	4,653	9,595	141	133	275	2,592	$153,398	$4.39
	Total	**290,791**	**5,665,601**	**16,670**	**36,001**			**124**	**13,271**	**$623,831**	**$2.15**

Color bars indicate levels of consumption and cost.

	Building	Existing Practice	Opportunities
1	City Hall	Square D lighting control, BAS	• Fine tune lighting schedule • Light & HVAC occupancy sensors for conference rooms • Geo GSHP optimization • DHW – off GSHP • EMS – tighter scheduling-applicable to GSHP? o ERVS – Economize, DCV w/ VFD • Radiant space heaters • Atrium – daylighting photocell control • Window shading - glare • Demand control w/ generator? • Delamp in restrooms • Vending misers – have but not observed
2	Esther Bone Memorial Library	• 2007 upgraded lights • .5gpm aerators • Ptstats may be programmed • Cool roof • New RTUs w/ economizers • Coffered ceiling w/ skylights for daylighting • Turn off computers at night	• T12 → T8 in RR, occupancy sensors • Irrigation controls, extend zeriscape garden to library grounds
3	Loma Colorado Library	• Designed to be green • Trane Tracker EMS • PC pwr mgt on public computers • Good control of ambient lighting	• T5's over bookshelves have problems • More aggressive setpoints and setbacks • Install economizers? • Destrat fans • Vending miser • Comfort issues, glare • Architectural corners – roof/wall intersection
4	Meadowlark Senior Center	• Lighting just upgraded	• TAB? • Tstats serve multiple spaces and spaces used for diff activities, staff constantly changing setpoints • Chris suggested automated control dampers • Demand control – 6-7kW kilns, ice machine • Clean walk-in evap coils
5	Motor Vehicle Division	• Reminder sign to turn off lights	• Lighting T12 → T8, delamp 4' on east wall behind desks 5-10 fixtures, daylighting, seasonal schedule adj. to ext. lighting • Ptstats

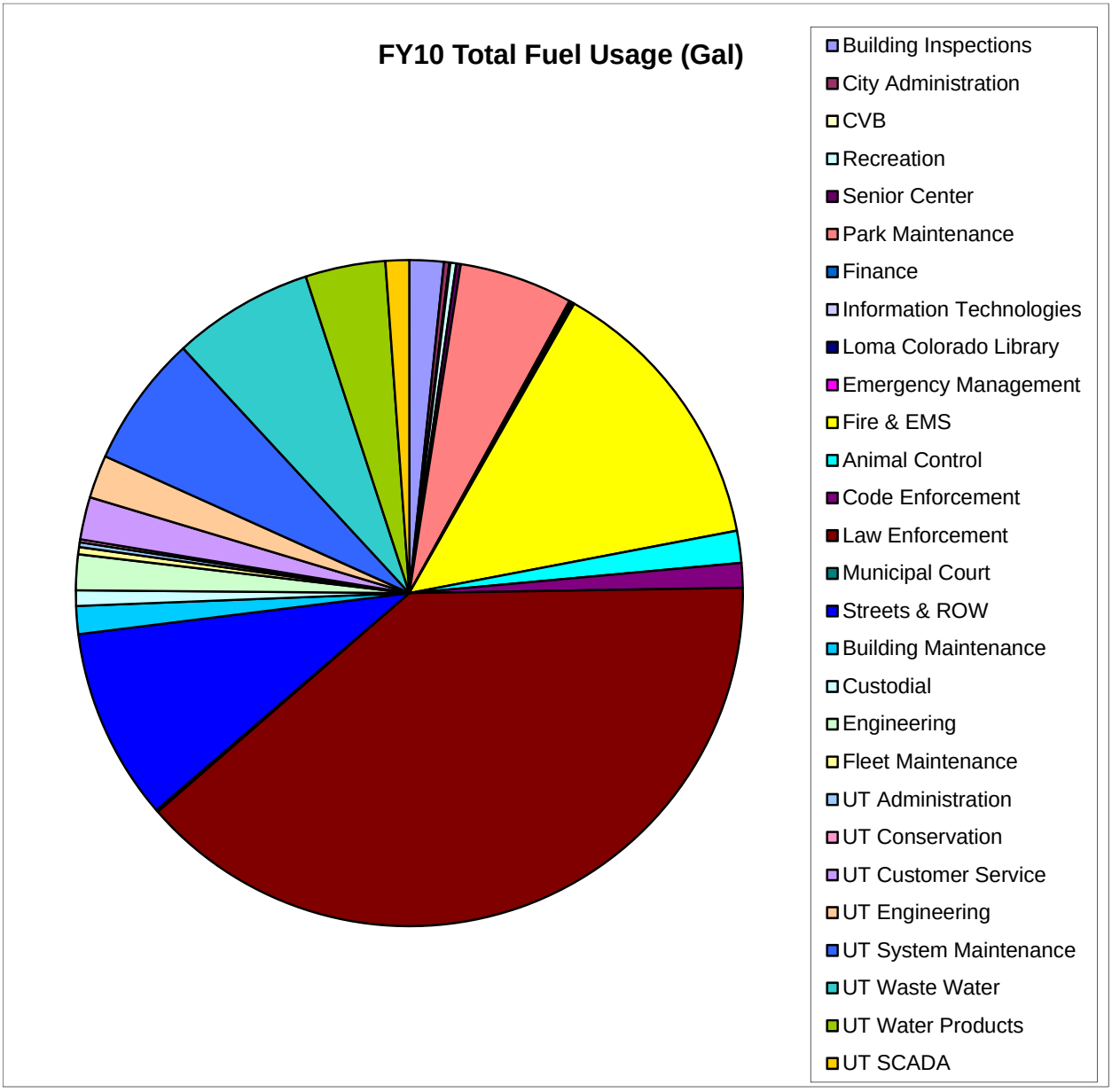
			• Trane Tstat set w/o a dead band between heating and cooling • Vending machine
6	Animal Control	Evap cooling & T8 in kennels	• T12 → T8 in office? • Program Ptstat • 1 faucet aerator retro • Vending miser • Commercial washer extractor • Water savings? – clean kennels often
7	Police/Fire/Courts (DPS)	• Upgraded lighting • Some Ptstats but program unknown	• Delamping • Occ sensors in infrequently used rooms • RCx – tstats serve multiple areas, relocate some • Schedule HVAC • Radiant heaters – have some 400W • Generator for demand control?
8	Fire Station 1 Southern		• T12 → T8, occ & daylight sensors • Aerators and showers • Tighter more aggressive scheduling/setpoints
9	Fire Station 2 North Hills		• Select lighting retros incl bays
10	Fire Station 3 River's Edge		• Ltg retro – 65W floods, 8'T12 • Insulate 3 dock doors • PC pwr mgt
11	Fire Station 5 Enchanted	• Insulated dock doors	• General lighting retro • Insulate DHW piping • IR space heater? In sleeping area
12	Fire Station 6 Mariposa	• Insulated dock doors	• Bay lighting controls – photosensor • Remove some exterior HIDs? • Ptstat? jb • Water reclaim on training activities
	Fire Station Summary		• Bay HIFs w/ lighting controls – Stations 1,2,3,5 • Delamp T8s – 2,6, CFLs in 3 • Program Tstat in public areas – 3,5 • Economizers for RTUs – 3,5 • ES appliances - all • Timer on laundry EF – confirm – 2,3,5,6 • Generator for peak demand – non-demand rate – 3,5 • IR space heater? In sleeping area – 2,5

			• Shower & aerator retro – 3,5,6 • Door control for IR like FS2 – 3,5
13	Haynes Recreation Center	• Good daylighting so don't use lights	• T12 → T8 • Insulation? • New furnace & evap coolers • Tstat in public restroom that has exterior entrance
14	Haynes Pool		• T12 → T8 • Ptstat - Wall furnace in pump room set at 90 • Reduce circ pump runtime or rate, VFD? • Water or heat recovery from backwash • VFD on 'features' pumps to reduce flow
15	Sabana Grande Rec	• Evap coolers	• Lighting T12 → T8 • Ptsats for GUHs and furnaces • Vending miser
16	Sabana Grande Art		• Lighting T12 → T8 • Ptsats for furnaces
17	Star Heights Rec & Lib	• Keep lights off some of time • Some push-valve faucets • Turn off computers	• More aggressive scheduling and setbacks • Mag → electronic ballasts, have T8s • Aerators • 1-2 space heaters • Weatherstripping for doors
18	PW Building Maint Yard	• Don't own building • Evap cooling	• T12 → T8 • Ptstat and schedule existing, relocate one • Insulate doc doors
19	PW Fleet Maint Yard	• Don't own building	
20	PW O&M Yard		• Delamp T8 areas • HIFs in bays w/ lighting controls • Timers for engine block heaters • Localized PC power mgt since not on network • Aerators • Insulate garage doors, roll-ups? jb • Tstat w/ temps for IR heaters? jb
21	Cabezon Pool & Comm Center	• Low flow water fixtures including .5gpm aerator • Turn off computers • Didn't drain pool last year?	• Program Ptstat • Shades/blinds for atrium • Pool circ pump motor

22	Rainbow Pool		• Pool circ pump motor
23	Rio Rancho Aquatic Center	• Heat recovery	• Heat recovery in AHUs heating pool water? • DCV for party room/exercise room • HVAC scheduling • VFD for pool circ pump and based on occ • Low flow shower heads

Appendix B: City Fleet Fuel Use

Fuel Cost Center	Annual Total Gallons	Annual Cost	# Employees in Cost Center	Gallons/ Employee	% of Total City Usage
Building Inspections	6,099.40	13,544.52	16.00	381.21	1.66
City Administration	942.90	2,332.82	6.00	157.15	0.26
CVB	186.70	451.30	4.00	46.68	0.05
Recreation	1,049.60	2,360.12	78.50	13.37	0.29
Senior Center	795.90	1,924.29	8.00	99.49	0.22
Park Maintenance	20,199.80	45,830.86	38.00	531.57	5.50
Finance	234.50	561.43	21.00	11.17	0.06
Information Technologies	327.50	776.40	7.00	46.79	0.09
Loma Colorado Library	218.40	519.37	34.62	6.31	0.06
Emergency Management	201.80	486.50	2.00	100.90	0.05
Fire & EMS	50,550.90	112,519.94	100.00	505.51	13.76
Animal Control	5,720.60	13,864.27	17.00	336.51	1.56
Code Enforcement	4,387.30	10,594.69	7.00	626.76	1.19
Law Enforcement	142,731.92	342,076.33	129.00	1,106.45	38.85
Municipal Court	373.50	899.35	12.00	31.13	0.10
Streets & ROW	34,264.80	69,174.37	48.00	713.85	9.33
Building Maintenance	4,966.50	12,001.59	6.00	827.75	1.35
Custodial	2,766.50	6,641.26	10.00	276.65	0.75
Engineering	6,349.70	16,227.34	25.00	253.99	1.73
Fleet Maintenance	1,281.80	3,073.09	6.00	213.63	0.35
UT Administration	844.00	2,044.91	5.00	168.80	0.23
UT Conservation	529.40	1,284.05	2.00	264.70	0.14
UT Customer Service	7,582.70	18,351.19	19.00	399.09	2.06
UT Engineering	7,659.40	18,550.11	8.00	957.43	2.08
UT System Maintenance	23,524.30	54,357.82	18.00	1,306.91	6.40
UT Waste Water	25,110.50	56,291.63	23.00	1,091.76	6.84
UT Water Products	14,257.60	34,184.78	12.00	1,188.13	3.88
UT SCADA	4,208.40	10,145.37	4.00	1,052.10	1.15
	367,366.32	**851,069.72**	**666.12**	**551.50**	**100**


FY10 Total Fuel Usage (Gal)
Building Inspections
City Administration
CVB
Recreation
Senior Center
Park Maintenance
Finance
Information Technologies
Loma Colorado Library
Emergency Management
Fire & EMS
Animal Control
Code Enforcement
Law Enforcement
Municipal Court
Streets & ROW
Building Maintenance
Custodial
Engineering
Fleet Maintenance
UT Administration
UT Conservation
UT Customer Service
UT Engineering
UT System Maintenance
UT Waste Water
UT Water Products
UT SCADA

Appendix C: Summary Results of Staff Survey

RESPONDENT PROFILE

Total of 75 respondents

- Public Works 25.3%
- Library & Information Services 25.3%
- Police 13.3%
- Parks and Rec 13.3%
- Development Services 8.0%
- Financial Services 5.3%
- City Admin 4.0 %
- City Attorney 1.3%
- Human Resources 1.3%
- Information Technology 1.3%
- Municipal Court 1.3%

STAFF LEVEL

- General staff 67.6%
- Senior management 20.3%
- Junior management 12.2%

RESPONSES

- The greatest opportunity for savings voted by respondents lies within Outdoor water use, city vehicle use, building heating/cooling vent systems, and building lighting systems. Other areas for savings included cross training, public transportation, increasing overall knowledge on sustainability, fixing leaky pipes, and updating building codes.

- Based on the opinion of the respondents the most helpful and effective actions that could be taken to save city money and resources are fuel efficient vehicles with 65% voting very helpful, changing water fixtures in bathrooms and other areas with 59.5% voting very helpful, programming building lights with 59.5% voting very helpful, using native grass with 58.1% voting very helpful, adjusting building temperatures with 57.5 % voting very helpful, providing more guidance to staff with 41.9% voting very helpful, and better power management with 33.8% voting very helpful. Other helpful ideas included added additional recycling bins and offering online training courses.

- When asked to rate the City's performance on several sustainability practices, no topic area received a "very good" rating. The highest rated topic was indoor water use with 44.6% good votes, then computers and printers with 44.4% good votes and landscaping with 44.4% good votes, building lighting systems had 39.2% good votes, and green purchasing had 38.4% good votes.

- Respondents thought that lack of time is the most challenging issue facing a sustainability plan followed by lack of staff education, then no clear staff leader, and finally no clear benefits from the plan.

- When asked why the above sustainability could prove challenging, the responses indicated a lack of staff and overall staff apathy to be the major issues. Other issues included lack of knowledge, lack of funding, and lack of leadership.

- When asked to overcome these challenges, the respondents indicated hiring more staff positions would be the best solution. Other solutions included creating staff incentives, methods for calculating building energy use and being able to compare to earlier years, conducting green focused training seminars, appointing a central leader dedicated to sustainability, creating an hourly requirement focusing employees on conservation, creating a centralized department in charge of the whole city, and regular follow-up communication with specific improvements to ensure employees continue to adhere to green initiatives.

- When asked about personal participation, 39.7% of respondents are willing to occasionally participate in implementing a sustainability plan, 31.5% are not willing, 16.4% would like to be regularly involved, 5.5% would like to be a champion, and 1.4% are willing to be a leader in their department.

- The majority of respondents indicated that lack of time and staff are the biggest reasons why participating in a sustainability plan would be difficult.

- Forty-three respondents thought that recognition of employees would be the best incentive for motivating co-workers. Thirty-one voted for providing additional time off, 25 said requiring it as part of their job, and 21 said developing more specific inter-department green teams.

- When asked to comment on how to motivate co-workers, the major theme was that requiring tasks as part of job requirements would be the most effective way to get the tasks done. However, strategic planning would be required since staff levels are already so low and adding on more tasks would be difficult. Other responses included passing on energy savings to employees, offering incentives, and conducting annual reviews.

- When asked about the current plan vision, 49.2% agreed that the current plan vision is “fine as is,” while 30.2% agreed it needs some minor changes and 12.7% agreed it needs major changes.

- When asked about the current plan policy, 59.4% agreed that the current plan policy is “fine as is,” while 32.8% said it needs minor changes and 7.8% agreed it needs major changes.

- Some last thoughts about the plan included cross training, best management practices for outdoor irrigation, holding webinars to kick off the Plan, creating more general

awareness, and implementing plans that address the largest opportunities for savings and not creating extra work for minuscule gains.

'OTHER' RESPONSES TO QUESTION A

- Cross train staff to cover/help out when needed. The answer of "I don't do that but you can leave a message for who does," should not be an option.
- No take home vehicles for cops, no vehicle mileage/gas reimbursement for management. It should be paid out per mile with a maximum. You always want the little guy to save and sacrifice, but you are not willing to do so yourself.
- I think this is internally focused, but it should also be external: building codes.
- There are so many leaks in the water pipes in our neighborhood streets that many of them go unrepaired for a week or so, wasting many gallons of water.
- It is too warm in our building in the winter, and yet we don't have the ability to turn down the heat, which would save the city money. This summer, we have had freezing areas and overly warm areas in our building. There ought to be a way to effectively maintain a comfortable temperature throughout the building. I am not in favor of saving money through making staff and the public uncomfortable.
- Telecommuting and 4-10s work weeks to save City and personnel fuel. Decentralized points of reporting to work places, report at a City facility or check by computer in vehicles used for inspections or rounds.
- I don't feel knowledgeable enough about what can be done and what's being done in these areas to rank them.
- If we make the City friendly for bikes, pedestrians, and bus traffic... people will use those options.
- I don't know enough about the issues to make an informed prioritized list.
- Cross training.
- Start getting rid of our dead weight!! We are paying employees who do nothing and ABUSE FMLA!!! HR needs to do their job, look into the abuse of FMLA and get rid of these people! THAT will save a lot of money!!

Appendix D: Summary of Existing City Sustainability Practices

MARCH 30, 2010 WORKSHOP NOTES

- Police department eliminated half of lights, leave lights off in hallways; save reports as PDFs to eliminate paper, especially out of dispatch. Cuts down on staff time, toner and ink.

- Bob: Put a scanner over at Fleets, Rhonda only has to come out here once a week, less wear and tear on vehicle, she has more time in office. Multi-purpose green products: buy in bulk, good for 2-3 months, bathroom cleaning product, floors. Try not to run swamp cooler and heaters in older buildings. Fleet and maintenance buildings behind Fire Station 1 in particular. Station 1 costs a lot. Pulling all trash and putting it in back corner results in time savings for custodian.

- Bob: Fleet, ambulances, will come to fleet, repair, and drop off to us, no charge for pickup or delivery.

- Vaughn: Have performance benchmarks annually, make decisions regarding type of technology deployed, with goal of reaching benchmarks. Reliability as well as performance while reducing down time, which is lost revenue. Got federal grant for server virtualization. Awarded contract to company with technology, low power consumption was huge, too. Try to drive home theme in printing solutions, desktops, laptops, etc. At each desktop, turn off monitor after 20 minutes of idle. Hard disk idle: down that after 20 minutes. Can take to another level for server and desktop. Software strategies: Adobe to PDF writer, less paper use, less toner. Centralize use of scanner and printers via networking. Perhaps reduce use of desktop printers. Continue to pursue these on a daily basis. Have started standardization of printer types (infancy); to streamline cartridge uses, helps with recycling more.

- Irrigation: automated shutoff for rainy days, saves full day of irrigation. Removed non-essential grass w/Xeriscape, work with Sandoval County landfill with waste trimmings. Give them free compost to add to turf.

- Centralize printers in department.

- Created re-use room that whole department participated in (Parks). Bring surplus materials to room, office supply exchange. Send out email. Office Exchange Day, Finance Office first. Staples Reward Dollars for printer inks, to buy office supplies.

- Vaughn: ask employees to shut down computers and monitors at the end of business day. Pushing a year, recouped significant savings in power consumption. (not mission critical)

Dyane sent City-wide email and met with departments to emphasize type of savings to recoup. City management supported this, from City Manager's office to show leadership and support. City Manager has embraced many ideas we have written down. Important to come from top level and trickle down.

- Capital Plan now lists roads that should have preventative maintenance, but no way to pay for it.
- Dolores: Printing less, turning off lights, inspectors – more concentration of area assignments (route optimization); double up inspectors to cut down on fuel; training through federal funds on energy codes.
- Police and Fire: Re-district beats to cut down on travel across city. Effects gas usage.
- Jimmy: Electronic reporting biggest thing. Discussed legality of having to do reports.
- Gillian: Shut off/on times adjusted to save more. Default black and white on printers.
- Lighting needs to be good enough for older population.
- Consolidated cleaners from 4 to 1, saves fuel. Consolidate trips for W-2s.
- Had initial complaints about green cleaning not working well.
- Sensors in library restrooms.
- Recycling available.
- Turn lights down in corridors, etc.
- Grant funded youth workers help with recycling. Could staff help with consolidation in other departments to streamline and increase recycling?
- RR follows "ICMA" – listed some best practices for sustainability; get log in to best practices

MARCH 30, 2010 DEPARTMENT REPRESENTATIVES WORKSHOP

Flip chart Notes - Existing Practices

- Library: 1 car cleaner!
- Concentrated W2 pick-ups
- Good green cleaning products
- Turn it down in corridors, RR's
- Library: staff-centralized recycling
- Police vehicle, new vehicle pick-up
- PM impacts on infrastructure (i.e. roads)

- Manual lighting controls
- Development services area assignment concentration (inspectors)
- Reallocating inspector services and time
- Police now districts for concentration
- Library: power management on public PC's, recycling, reuse
- City Manager vested interest
- R.O.S.E
- Office Exchange Day
    - Cashing in rebates/paybacks (i.e. Office Depot)
- IT: employee awareness (i.e. IT equipment shutdown at night)
    - Via city-wide emails
    - Department meetings
    - City manager endorsement
- Develop process manual
- Development standards
- Demo: centralized trash, decrease in time
- Ambulance transport for cleaning centralization
    - Decrease in time
    - Decrease in VMT
- Irrigation rain sensing technologies
- Turf to xeriscapes
- Composting green waste
    - Complete loop
- Parks & Recreation centralized printing
- Police
    - Eliminate 50% of hallway lights
    - Eliminate reporting
    - Email distribution (PDF's)
    - Decrease paper, decrease staff time, decrease materials
- Fleet scanner
    - Decrease trips, fuel, wear & tear
    - Increase time
- Custodian Products
    - Bulk purchases
    - Green cleaning products
- Building/Systems
    - Decrease run time
    - Fleet
    - Building maintenance
- Annual performance benchmarks
    - Reliability, performance
    - Less down-time, more revenue
    - Leads to decision-making
- Server virtualization
    - Emphasis on less downtown
    - Low power

- Power management at desktops
- Paperless printing strategies
- Centralize/network central
    - IT resources (scanners, printing)

Appendix E: Supplemental Opportunities

STRATEGIES INTRODUCTION AND SELECTION PROCESS

The focus areas presented in the City's Sustainability Plan (Plan) framework reflect results from building assessments, input from City staff, and best practices from other districts and organizations. Within each focus area, strategies were identified to address the goals outlined in the Plan framework.

Note that, for the strategies identified from City staff input, a facilitated prioritization process was undertaken by department representatives. Many, many opportunities that relate to potential strategies were collected and the prioritization was helped to focus in current efforts on the most relevant topics. This process involved taking into consideration the mix of strategies and keeping emerging themes in mind:

- Economic considerations
- Doing better instead of doing more
- City guidelines
- Consolidation
- Partnerships

Before looking at a substantial list of potential strategies, department representatives determined the most important priorities to use in ranking the strategies. Of the following priorities, department representatives voted the first two as the most important in their screening process:

- Economics/cost effectiveness
- Management support
- Employee well-being
- Environment
- Ease of implementation
- Visibility
- Timeliness
- Multiple wins

Once economics and management support were identified as the guides for prioritization, the department representatives broke into three groups that focused on the focus areas of transportation, energy/water, and materials. Using the screening priorities mentioned earlier, these breakout groups ranked potential strategies within their focus areas from one to three, with one being the highest and three being the lowest. The strategies that emerged from the breakout group rankings are presented for consideration in the following subsections and are organized by the focus areas of the SMP framework.

General/Cross-cutting

- Invest in preventative maintenance – buildings, vehicles, infrastructure (road, pipes, etc.), Public Works, etc. (supports Capital Plan)
- Leverage local/regional partnerships – CNM, UNM, HP, International City/County Management Assoc, etc.

Transportation

- Use more fuel efficient vehicles and reduce fuel consumption in the City fleet
- Pool vehicles for support services (currently individual by department)
- Establish City idling policy
- (Directors and department reps) Modified plan for take-home vehicle for police (e.g., within range of City limits, seniority-basis, etc.)
- Per mile basis with not to exceed limit for vehicle mileage/gas reimbursement
- (Directors) Implement fleet replacement policy that includes X% hybrid and alternate fuel vehicles.
- (Directors) Create (or approve) a second fueling station (such as at Fire Station 5) to reduce miles traveled by city vehicles for the purpose of refueling.
- (Directors) Implement a GPS tracking system to monitor fleet locations in order to better plan work routes, assign safety and service calls, and reduce fuel use.

Water

- (Directors) Revise City policies and guidelines to reduce water use.
- Upgrade to indoor, low-flow water fixtures
- Outdoor water efficiency improvements:
    - Amend Development Processes Manual to encourage reduced irrigation/sod
    - Sprinkler timers
    - Expand xeriscaping in parks and buildings
    - Use native, drought tolerant plans and water conserving irrigation systems

Materials

- (Directors) Review green alternatives to purchases Citywide by fiscal year 2011, and include a financial review.
- General green/sustainable purchasing – including consideration of local purchasing, centralized trash services in bldgs, etc.
- Printing efficiency. Samples default to duplex (double sided) and PDF writer instead of printing
- Recycling and solid waste consolidation including general waste reduction - Zero waste mtgs and events policy
- Green cleaning practices including custodial services during workday

Employees

- (Directors) Analyze City divisions for training opportunities by 2012.
- City version of “Craig’s List” for exchange – events, rooms, employee, salvage, materials, office supplies, etc.
- Cross train staff (included topics – best practices, emerging technologies, recycling options)

- Employees list
- Reduced work week (e.g., switch to four ten hour days)

Energy/Facilities

- City IT guidelines, including for turning off computers, purchasing, data center HVAC temperature settings, centralize computer power management, server virtualization and standardize all computer hardware platforms
- Lighting - upgrade from T12 fluorescents to high-efficiency T8 fluorescents
- Building operation guidelines including HVAC schedule programming and temperature settings, better shutdown procedures, energy manager – training,
- Retro-commissioning of existing buildings

MARCH 30, 2010 - DEPARTMENT REPRESENTATIVES WORKSHOP NOTES OF OPPORTUNITIES

- Police: parabolic heaters in entryways
- Vaughn: Standardization of all computer hardware platforms
- ENERGY STAR equipment. Could be added as selection criteria
- Expand trash demo to more buildings
- We know how much more could be transferred from sod to Xeriscape. Need to determine return on investment.
- Most new parks come from developer construction- would mean amending Development Process Manual. Directing them to put in as much grass as possible now. Look at who pays, who saves. Demonstrate only needed irrigated turf. Standards are a chapter in the Manual.
- Donald: Development standards a big impact. Same holds for roads, water/wastewater systems. (Engineering people aren't here at workshop.) List of road projects; if they city made investments in preventative maintenance, they would not have reconstruction needs.
- On table now: ROW permitting fees to go back into road maintenance fund, pay for ID projects.
- Donald: Funding to maintain what we have- separate stream; saving money. Things can gain traction; maybe have dedicated streams in the future instead of coming from general budget. How can we set up innovation to pay for this?
- Community as a whole is looking at adopting own city codes for green building and energy conservation
- Landscape ordinances for city property and private property; timers on sprinklers, etc.
- Reallocate inspector services to other areas in department.
- Hope that we can put together a plan to put these things in practice even after we have money again.
- Fire: 24/7 operation, but where can we find intermittency opportunities?
- Opportunity: change idling times on police and fire vehicle.
- Not somewhere else, power use here.
- Bob: opportunity for fire; doing hours, not mileage for maintenance. Got meters on all of them, pumps breaking down, etc. Idling a lot doesn't get counted then.

- Jennifer: Opportunities for how we travel around the City. City is wide and very large. Could mitigate a lot of waste. Mail, meetings, deposits. Courier would really help a lot- mail services.
- Could make fleet mechanics (3) more productive
- Teach City employees how to take care of vehicles, check properly, add to vehicle checklist?
- Pool for vehicles- support services, admin support, management staff, "bean counters"
- Resources for looking at other municipalities- what are others doing?
- Donald- Moving from old to new city hall decisions on new facilities, Parks and Recreation facilities; develop a system to make goal- life cycle costs?
- Integrate into how we plan for capital improvements, how we deal with developers? Purchasing supplies. (TBL tool?- systems thinking tool.)

March 30, 2010 – Department Representatives Workshop Flip Chart Notes

- Leverage budget decrease "opportunity" for lasting impacts
- Right of way permitting fees used to fund road PM
- Police opportunities for reducing equipment, building shutdown
- Dedicated stream separate from general funds and association support
- Identified as priority (water reuse, water direct re-inject)
- Funds for energy code turning for inspectors
- Evaluate adopting codes for commercial green buildings, landscape ordinances
- IT purchase standardization process in progress (all hardware platforms) and Energy Star product integration
- Full scale centralized trash procedures
- Complete turf to xeriscape conversion in applicable areas
- Incorporate/update development process manual with sustainability (including standards) - KEY! BIG!
- Optimizing program benefit awareness
    - Infrastructure to roads
- Fire: maintenance requirements on fire engines based on hours vs. mileage and/or sharing
- Travel collapse
    - Courier for errands, supplies, deposits, mail, recycling
    - The key: training
- Education on vehicle use
    - Less wear and tear
    - Decrease in coast and waste
- Pool vehicles for support services (currently individual by department)
- Finance staff not routinely infield (management staff, administrative support)
- Centralized purchasing
- Resource to look at other municipalities' best management practices
    - Street Lighting
    - Leverage ICMA resources, especially sustainability
    - Integrated design for new and acquired buildings (including development manual)

Appendix F:
Resources for Recommended Strategies

RETRO-COMMISSIONING

Portland Energy Conservation provides a useful resource center dedicated to information about the traditional approach to retro-commissioning for larger commercial buildings:

- http://www.peci.org/resources/large-commercial.html

A resource to inform the streamlined approach for small building retro-commissioning is:

- Report on *City of Boulder Small Building Tune-up Pilot Program*, December 2010 available from Kevin Afflerbaugh, Business Sustainability Specialist, Local Environmental Action Division, Afflerbaughk@bouldercolorado.gov.

EPA ENERGY STAR Building Upgrade Manual – see Chapter 5: Retrocommissioning

- http://www.energystar.gov/index.cfm?c=business.bus_upgrade_manual

CENTRAL ENERGY MANAGEMENT SYSTEM

The current City Hall controls vendor, Integrated Control Systems, can provide more information on EMS specifics and costs.

- Integrated Control Systems, 505-884-3503, www.icsicontrols.com

TRANSPORTATION

- Potential partnerships with UNM, the Sandoval Regional Medical Center and/or IBM to pool purchasing power for replacement vehicles.
- Potential fleet vehicle sharing with partners to maximize use of existing vehicles.
- Sample idling policy: City of Roanoke, VA: http://www.roanokeva.gov/85256a8d0062af37/CurrentBaseLink/N2629QVS856LWODEN
- Cool Fleets Resource Guide: www.coolfleets.com/Default.asp
- U.S. Environmental Protection Agency Green Vehicle Guide: http://www.epa.gov/greenvehicles/Index.do

OUTDOOR WATER

- New Mexico Office of the State Engineer Water Use Program (http://www.ose.state.nm.us/conservation_index.html)
- City of Albuquerque Irrigation Audit Manual (http://farmingtonsc.nmsu.edu/documents/calbauditmanualdec2007.pdf)
- Mountain West GolfScapes, Inc. for Bermuda grass implementation (www.mwgs.us)

SOLID WASTE REDUCTION

- U.S. Environmental Protection Agency Waste Wise (http://www.epa.gov/epawaste/partnerships/wastewise/index.htm)

RECYCLING CONSOLIDATION

- New Mexico Recycling Coalition (http://recyclenewmexico.com/)

EMPLOYEE STRATEGIES

- Carrier University for HVAC training (http://carrieruniversity.com)
- Schneider Electric Energy University – Free (http://myenergyuniversity.com)

FOUR-DAY WORK WEEK

The State of Utah is an excellent resource to support this proposed strategy. Interim and final reports related to the organization's pilot is available at http://www.dhrm.utah.gov/.

Appendix G:
Geo-exchange Related Vendor Information

The following companies and individuals were contacted to discuss the City Hall geoexchange system.

- Integrated Control Systems, 505-884-3503, www.icsicontrols.com
  - Installed and service City Hall automation and control system
  - John Walker – Service Manager, 505-991-1354 cell
  - Joe Herrera – Sales, jherrera@icsicontrols.com
- The Hartman + Majewski Design Group, 505-242-6880, www.designgroupnm.com
  - City Hall Architect
  - Jorge Gonzales
- Gerald Martin
  - City Hall General Contractor
  - Casey Gibbs
- Hannah Plumbing & Heating, 505-898-4536
  - City Hall Mechanical Contractor
  - Larry Pfaff
- Bridgers & Paxton, 505-883-4111
  - Designed City Hall geoexchange system
  - John Grapsas
- Industrial Water Engineering, 505-345-5055, http://industrialwaterengineering.com
  - Local vendor that provides water treatment services for ground source heat pump systems. Offer GSA discounted pricing. Made a proposal for water treatment for City Hall in 2010.
  - Gary Wilkerson
- Major Geothermal, http://majorgeothermal.com, 1-800-707-9479
  - Geothermal contractor and consultant
  - Terry Proffer
- Geo Energy Services, www.geoenergyservices.com, 303-531-5292
  - Geothermal contractor and consultant
  - Trey Austin

Appendix H: Environmentally Preferable Purchasing Policy Example Document

ENVIRONMENTALLY PREFERABLE PURCHASING POLICY
CITY of STEAMBOAT SPRINGS

1.0 STATEMENT OF POLICY

It is the policy of the City of Steamboat Springs (City) to:

Advocate the purchase of products and services that minimize environmental and health impacts, toxics, pollution, and hazards to worker and community safety and to the larger global community to the greatest extent practicable. We will inspire commitment to this mission from our employees and work with other organizations to further this policy; however

It is not the intent of this policy to require a department, buyer or contractor to take any action that conflict with local, state or federal requirements or to procure products that do not perform adequately for their intended use, exclude adequate competition, or are not available at a reasonable price in a reasonable period of time.

2.0 PURPOSE

This Policy is adopted in order to meet the goals of resolution 2006-42 adopting the City of Steamboat Springs Sustainability Management Plan (SMP) Priority G Environmentally Preferable Purchasing and ordinance #1921 supporting sustainable wood product purchasing (please see Attachments 1 & 2), and the following:

- minimizing health risks to City staff and residents,
- minimizing the City's contribution to global climate change,
- improving air quality,
- protecting the quality of ground and surface waters, and
- minimizing the City's consumption of resources

Further, this Policy is adopted in order to:

- purchase products that include recycled content in order to support strong recycling markets
- institute practices that reduce waste by increasing product efficiency and effectiveness, use products that are durable and long-lasting, and reduce materials that are land-filled
- purchase products and institute practices that conserve energy and water, use agricultural fibers and residues, reduce greenhouse gas emissions, use unbleached or chlorine free manufacturing processes, and use recycled wood and wood from sustainably harvested forests
- purchase energy from renewable or green sources in preference to fossil fuels, when economically feasible
- purchase products that are free of mercury and lead and eliminate the use of other persistent bioaccumulative toxic chemicals where possible

- increase the use and availability of environmentally preferable products, services and distribution systems that protect human health and the environment,
- support emerging and established manufacturers and vendors that reduce environmental and human health impacts in their services and production and distribution systems, and
- create a model for successfully purchasing environmentally preferable products and services that encourages other buyers and consumers in our community to adopt similar goals
- provide organizational and community education on the benefits of environmentally preferable purchasing

3.0 SPECIFICATIONS

3.1 Source Reduction

3.1.1 The City shall institute practices that reduce waste and result in the purchase of fewer products whenever practicable and cost-effective, but without reducing safety or quality.

3.1.2 The City shall purchase remanufactured products (i.e. for equipment and vehicles) whenever practicable, but without reducing safety, quality or effectiveness.

3.1.3 The City shall advocate that all equipment bought after the adoption of this policy to be specified and delivered so it is compatible with source reduction goals as referred to in this section (3.1), whenever practicable.

3.1.4 All buyers shall consider short-term and long-term costs in comparing product alternatives, when feasible. This includes evaluation of total costs expected during the time a product is owned, including, but not limited to, acquisition, extended warranties, operation, supplies, maintenance, disposal costs, trade-in value, and expected lifetime compared to other alternatives.

3.1.5 Products that are durable, long lasting, reusable, refillable, recyclable or otherwise create less waste shall be selected whenever possible.

3.1.6 The City shall request vendors to minimize packaging to the greatest extent practicable.

3.1.7 Packaging that is reusable, recyclable or compostable shall be selected when suitable uses and programs exist. The City and its vendors should avoid the purchase any polystyrene foam food packaging and 50% by volume of the food packaging purchased by the City shall be recyclable or degradable when possible.

3.1.8 Vendors shall be required whenever possible to take back and reuse pallets and packaging materials.

3.1.9 Suppliers of electronic equipment will be requested to take back equipment for reuse or environmentally safe recycling when the City discards or replaces such equipment, whenever possible. If it is not possible to return equipment to suppliers it shall be reused or recycled when practical.

3.1.10 Rechargeable and recyclable batteries shall be purchased and used whenever possible.

3.1.11 All documents shall be printed and copied on both sides to reduce the use and purchase of paper, whenever practical.

3.2 Toxics Reduction and Pollution Prevention

3.2.1 No product or service purchased by the City shall contain, emit, or create the following in its use, to the extent practicable:

- carcinogens and reproductive toxins,
- persistent bioaccumulative toxicants, including lead, mercury, dioxins and furans for example,
- compounds toxic to humans or aquatic life, corrosive to the skin or eyes, or that are skin sensitizers, and
- substances that contribute to the production of photochemical smog, tropospheric ozone production, or poor indoor air quality.

3.2.2 All cleaning or disinfecting products (i.e. for janitorial and automotive use) shall, at minimum, meet Green Seal Standards (see Attachment 3) for environmental preference and performance, whenever practical.

3.2.3 Purchasing products containing persistent, bioaccumulative and toxic chemicals (PBTs) shall be avoided, where alternatives exist.

3.2.4 The use of chlorofluorocarbon-containing refrigerants, solvents and other products known to contribute to the depletion of the ozone layer shall be phased out and new purchases shall not contain them. The City shall not purchase any chlorofluorocarbon-processed food packaging when practical.

3.2.5 When maintaining buildings and landscapes, the City shall manage pest problems through prevention and physical, mechanical and biological controls and use least toxic chemical pesticide products only after safer approaches or products have been determined to be ineffective. The first priority is to use a variety of non-toxic alternatives in combination with commonsense practices to control or eliminate pest problems indoor and outdoor. The City should provide on-going education and training to City staff.

3.2.6 When maintaining buildings, the City shall use products with the lowest amount of volatile organic compounds (VOCs), highest recycled content, and low or no formaldehyde when purchasing materials such as paint, carpeting, flooring, adhesives, furniture and casework, when practicable.

3.2.7 The City shall reduce or eliminate its use of products that contribute to the formation of dioxins and furans. This includes, but is not limited to:

- Purchasing paper, paper products, and janitorial paper products that are unbleached or that are processed without chlorine or chlorine derivatives, whenever possible, and
- Discourage the purchase of products that contain or are packaged in polyvinyl chloride (PVC) such as, but not limited to, office binders, furniture, carpeting/flooring, other building materials and supplies, and medical supplies whenever practicable.

3.2.8 The City shall purchase products and equipment with no lead, cadmium or mercury whenever possible. For products that must contain lead or mercury because no suitable alternative exists, the City may give preference to those products with the lowest quantities of these metals available and/or to vendors with established lead, cadmium and mercury recovery programs.

3.2.9 When replacing vehicles, the City shall lease or purchase only the most fuel-efficient models available that are suitable for each task and through car sharing and carpooling, should minimize the number of vehicles purchased.

3.2.10 To the extent practicable, the City shall use renewably-derived fuels or fuels that are cleaner and less-polluting than gasoline and conventional diesel fuel, including biodiesel, natural gas and electricity.

3.2.11 The City shall avoid the purchase of all pentachlorophenol, arsenic and creosote treated wood.

3.2.12 The City shall avoid purchasing products containing brominated flame retardants (BFRs) wherever possible. In particular, the BFRs "penta" and "octa" will be targeted for phase-out.

3.3 Recycled Content Products

3.3.1 All products purchased for which the United States Environmental Protection Agency (U.S. EPA) has established minimum recycled content standard guidelines shall contain the highest postconsumer content practicable, but no less than the minimum recycled content standards established by the U.S. EPA Guidelines.

3.3.2 Copiers and printers purchased shall be compatible with the use of recycled content and remanufactured products, to the greatest extent practicable.

3.3.3 The City shall purchase re-refined lubricating and industrial oil for use in its vehicles and other equipment, as long as it is consistent with the engine manufacturer's warranty and maintenance requirements to the extent practicable without compromising the health and longevity of the equipment.

3.3.4 When specifying asphalt concrete, aggregate base or portland cement concrete for road construction projects, the City shall use recycled, reusable or reground materials when practicable and consistent with accepted engineering practices and local, state, and federal specifications.

3.3.5 The City shall specify and purchase, when possible, recycled content transportation products, including signs, cones, parking stops, delineators, and barricades.

3.3.6 Paper purchases shall be made with City's preference for recycled content and recyclable paper.

3.3.7 Encourage that all pre-printed recycled content papers intended for distribution that are purchased or produced shall contain a statement that the paper has recycled content.

Whenever feasible, the statement should indicate the percentage of postconsumer recycled content it contains.

3.4 Energy and Water Savings

3.4.1 All products purchased by the City and for which the U. S. EPA ENERGY STAR certification is available shall meet Energy Star certification, when practicable. When Energy Star labels are not available, products shall meet or exceed the FEMP Federal Energy Management Program (FEMP) recommended levels.

3.4.2 New and replacement equipment for lighting, heating, ventilation, refrigeration and air conditioning systems, water consuming fixtures and process equipment and all such components shall meet or exceed recommended levels, whenever practicable if no ENERGY STAR alternative exists. Please see http://www1.eere.energy.gov/femp/technologies/eep_purchasingspecs.html

3.4.3 When energy is purchased, renewable or green sources are preferred when economically feasible. These include solar power or photovoltaics, wind power, geothermal, and hydroelectric energy sources and do not include fossil fuels (coal, oil or natural gas).

3.4.4 Demand water heaters shall be purchased whenever practicable. Where renewable forms of energy are unavailable or not practicable, natural gas shall be used in lieu of electricity for space heating and water heating.

3.4.5 Energy Star and power-saving features for copiers, computers, monitors, printers and other office equipment shall be enabled during the initial installation and shall remain enabled unless these features conflict with the efficient use and/or manufacturer's recommended operation and maintenance of the equipment.

3.5 Green Building - Construction and Renovations

3.5.1 All building and renovations undertaken by the City shall follow Green Building practices for design, construction, and operation, where applicable, as described in the LEED, Green Globes rating systems, or similar rating system. Compliance with these documents shall be documented internally. Certification from these green building rating systems shall be encouraged for the construction of the City's public buildings.

3.6 Landscaping

3.6.1 All landscape renovations, construction and maintenance by the City, including workers and contractors providing landscaping services for the City shall employ sustainable landscape management techniques for design, construction and maintenance whenever possible, including, but not limited to, integrated pest management, grass-cycling, drip irrigation, composting, and procurement and use of mulch and compost that give preference to those produced from regionally generated plant debris and/or food waste programs.

3.6.2 Plants should be selected to minimize waste by choosing species for purchase that are appropriate to the microclimate, species that can grow to their natural size in the space

allotted them, and perennials rather than annuals for color. Native and drought-tolerant plants that require no or minimal watering once established are preferred.

3.6.3 Hardscapes and landscape structures constructed of recycled content materials are encouraged. The City shall limit the amount of impervious surfaces in the landscape, wherever practicable. Permeable substitutes, such as permeable asphalt or pavers, are encouraged for walkways, patios and driveways.

3.7 Forest Conservation

3.7.1 To the greatest extent practicable, the City shall not procure wood products such as lumber and paper that originate from forests harvested in an environmentally unsustainable manner. When possible, the City shall give preference to wood and wood products that are certified to be sustainably harvested by a comprehensive, performance-based certification system. The certification system shall include independent third-party audits, with standards equivalent to, or stricter than, those of the Forest Stewardship Council certification.

3.7.2 The City prohibits the purchase and use of wood products consisting, in whole or in part, of tropical rainforest woods that are not harvested sustainably. Please see Attachment 2 for a list of prohibited wood species.

3.8 Agricultural Bio-Based Products

3.8.1 Alternate, non-petroleum based fuels for vehicles and equipments are encouraged whenever practicable.

3.8.2 Paper, paper products and construction products made from non-wood, plant-based contents such as agricultural crops and residues are to be purchased and used whenever practicable.

4.0 PRIORITIES

4.1 The health and safety of people who live, work, and visit in Steamboat Springs is of utmost importance and takes precedence over all other City policies.

4.2 The City has made significant investments in developing a successful recycling system and recognizes that recycled content products are essential to the continuing viability of that recycling system and for the foundation of an environmentally sound production system. Therefore, to the greatest extent practicable, recycled content shall be included in products that also meet other environmental specifications, such as chlorine free or bio-based.

4.3 Nothing contained in this policy shall be construed as requiring a department, buyer or contractor to procure products that do not perform adequately for their intended use, exclude adequate competition, or are not available at a reasonable price in a reasonable period of time.

4.4 Nothing contained in this policy shall be construed as requiring the City, department, buyer or contractor to take any action that conflicts with local, state or federal requirements.

5.0 IMPLEMENTATION

5.1 The City Manager adopt this policy in coordination with other appropriate City personnel.

5.2 Implementation of this policy will be phased based on available resources and City priorities.

5.3 The Green Team shall advise the City Manager, Department Heads, and buyers regarding environmentally preferable products that comply with this policy. Recommendations will include input of applicable environmental staff and department. Whenever possible, the City will use existing eco-labels and standards to make purchasing decisions.

5.4 Successful bidders may be asked to certify in writing that the environmental attributes claimed in formal competitive bids are accurate. When requested, vendors shall be required to specify the minimum or actual percentage of recovered and postconsumer material in their products, even when such percentages are zero.

5.5 Preference may be given to businesses certified by the Steamboat Springs Sustainable Business Program or similar program, in requests for products and services. This is not tob e interpreted as a “Local Preference” policy.

5.6 Vendors, contractors and grantees shall comply with applicable sections of this policy for products and services provided to the City, where practicable. I

5.7 If the buyer making the selection from competitive bids or the requesting department seek to purchase products that do not meet the environmentally preferable purchasing criteria in this Policy, the buyer or the department may be asked to provide a written justification to the City Manager stating why compliance is not practicable, e.g., the product is not technically practical, economically feasible, or available within the timeframe required.

5.8 If a vendor that is under contract to the City is no longer able to provide a product that meets the City’s environmentally preferable specifications, it shall notify the department project manager and provide written justification for why compliance is not practical.

5.9 Newly installed computers shall be set to default to duplex and black and white printing rather than single-sided and color.

5.10 Training of buyers and other relevant city staff, vendors, contractors and grantees shall include instruction on the recommendations of this Environmentally Preferable Purchasing Policy by the Green Team.

5.11 Each purchasing department is encouraged to work with the City’s Green Team to help them formulate their purchasing plan in accordance with this policy.

5.12 The City shall revise Title III, Procurement Regulations of the Personnel and Administrative Regulations Manual (PARM) in accordance with this policy.

6.0 DEFINITIONS

6.1 “Agricultural Bio-Based Products” means commercial or industrial products (other than food or feed) that utilize agricultural crops or residues but does not include products made from forestry materials.

6.2 “Steamboat Springs Sustainable Business Program” is a partnership of governments and businesses that certifies the environmental performance of government agencies and businesses.

6.3 “Buyer” means personnel authorized to purchase or contract for purchases on behalf of the City or its subdivisions.

6.4 “Chlorine free” means products manufactured or processed without chlorine or chlorine derivatives.

6.5 “Contractor” means any person, group of persons, business, consultant, designing architect, association, partnership, corporation, supplier, vendor or other entity that has a contract with the City or serves in a subcontracting capacity with an entity having a contract with the City for the provision of goods or services.

6.6 “Dioxins and furans” are a group of chemical compounds that are classified as persistent, bioaccumulative, and toxic (PBT) by the Environmental Protection Agency.

6.7 “Energy Star” means the U.S. EPA’s energy efficiency product labeling program.

6.8 “Energy-Efficient Product” means a product that is in the upper 25% of energy efficiency for all similar products, or that is at least 10% more efficient than the minimum level that meets Federal standards.

6.9 “Federal Energy Management Program” (FEMP) is a program of the Department of Energy that issues a series of Product Energy Efficiency Recommendations that identify recommended efficiency levels for energy-using products.

6.10 The “Forest Stewardship Council” is a global organization that certifies responsible, on-the-ground forest management according to rigorous standards for sustainably harvested forests developed by a broad variety of stakeholder groups.

6.11 “Green Seal” is an independent, non-profit environmental labeling organization. Green Seal standards for products and services meet the U.S. EPA’s criteria for third-party certifiers. The Green Seal is a registered certification mark that may appear only on certified products.

6.12 “Integrated Pest Management (IPM)” is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Least toxic pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment.

6.13 “Green Globes” is an environmental assessment, education and rating system that is promoted in the United States by the Green Building Initiative, a Portland, Oregon-based non-profit.

6.14 “LEED Rating System” means the Leadership in Energy & Environmental Design system developed by the U.S. Green Building Council designed for rating new and existing commercial, institutional, and high-rise residential buildings.

6.15 “Persistent Bioaccumulative Toxins” (PBTs) are chemicals and/or pollutants that remain in the environment for a long time (persist) without breaking down, accumulate in the environment and build up in the tissues of humans, fish, and animals (bioaccumulative), and are toxic (causing cancer and other health problems) to living organisms, including humans.

6.16 "Postconsumer Material" means a finished material which would normally be disposed of as a solid waste, having reached its intended end-use and completed its life cycle as a consumer item, and does not include manufacturing or converting wastes.

6.17 “Practical” and “Practicable” mean whenever possible and compatible with local, state and federal law, without reducing safety, quality, or effectiveness and where the product or service is available at a reasonable cost in a reasonable period of time. For energy and water consuming devices, a reasonable cost shall mean that the product has a life-cycle cost that is reasonably similar to the life-cycle costs of other similar products.

6.18 “Preconsumer Material” means material or by-products generated after manufacture of a product is completed but before the product reaches the end-use consumer. Preconsumer material does not include mill and manufacturing trim, scrap, or broke which is generated at a manufacturing site and commonly reused on-site in the same or another manufacturing process.

6.19 “Recovered Material” means fragments of products or finished products of a manufacturing process, which has converted a resource into a commodity of real economic value, and includes preconsumer and postconsumer material but does not include excess resources of the manufacturing process.

6.20 “Recycled Content” means the percentage of recovered material, including preconsumer and postconsumer materials, in a product.

6.21 “Recycled Content Standard” means the minimum level of recovered material and/or postconsumer material necessary for products to qualify as “recycled products.”

6.22 “Recycled Product” A product which conforms to the minimum content of recycled material as specified in the Comprehensive Procurement Guidelines (CPG) and the Recovered Materials Advisory Notice (RMAN) published by the Environmental Protection Agency (EPA).

6.23 “Remanufactured Product” means any product diverted from the supply of discarded materials by refurbishing and marketing said product without substantial change to its original form.

6.24 “Reused Product” means any product designed to be used many times for the same or other purposes without additional processing except for specific requirements such as cleaning, painting or minor repairs.

6.25 “Source Reduction” refers to products that result in a net reduction in the generation of waste compared to their previous or alternate version and includes durable, reusable and remanufactured products; products with no, or reduced, toxic constituents; and products marketed with no, or reduced, packaging.

6.26 “U.S. EPA Guidelines” means the Comprehensive Procurement Guidelines established by the U.S. Environmental Protection Agency for federal agency purchases.

7.0 EFFECTIVE DATES

8.1 This policy shall take effect on [fill in date].

ATTACHMENTS:

Attachment 1 - Sustainability Management Plan (Priority G)
Attachment 2 – Ordinance 1921- Sustainably Harvested Wood
Attachment 3 – Green Seal Standards

Appendix I: Building Weatherization

Weatherization or weatherproofing is the practice of protecting a building and its interior from the elements, including sun, rain and wind, and to reduce energy consumption and building operating costs. The sustainability planning process used while developing this plan did not identify weatherization as meeting the low-cost, high-impact criteria that other efficiency strategies did. However it is recommended that the City continue to consider weatherization projects as it works through plan implementation and develops new short term goals related to the Facilities and Energy focus area – Long Term Goal of: "Design all new buildings and renovate existing buildings to achieve high energy efficiency standards."

For existing buildings, weatherization typically focuses on testing and sealing or retrofitting the following building components:

- Roof and Attic
  - ensure construction is weather tight and water diverted away from building
  - ensure appropriate levels of insulation on roof deck or attic
  - provide adequate attic venting as appropriate
  - roofing materials reflect instead of absorb sunlight
- Insulation and Air Sealing
  - ensure building envelope is air tight and adequately insulated
  - seal bypasses (cracks, gaps, holes), especially around doors, windows, pipes and wiring that penetrate the ceiling and floor
  - seal recessed lighting fixtures, which can leak large amounts of air into unconditioned attic space.
- Windows and Doors
  - install storm doors and storm windows
  - replace old drafty doors
  - replace single pane or older windows with low-energy, double-glazed windows.
- Mechanical Systems
  - Seal ductwork
  - Install or replace dampers in exhaust ducts to prevent outside air from entering the building.

A building envelope consultant may be hired to assess whether or not air leaks exist in a city building and significant, costly work – other than basic sealing, caulking, and addition of insulation at key locations, is warranted.

Weatherization efforts have traditionally focused on residential buildings where they are typically a better return on investment, however in February, 2011 President Obama launched his "Better Buildings Initiative" that aims to make commercial buildings 20% more efficient over the next decade. While the loan and tax incentive programs proposed by this program may not be advantageous to the city as it works to fund any city facility weatherization projects, the city may be eligible for funding through the competitive grant program.

Appendix J: Annual Report Template

City of Rio Rancho

2011 Annual Sustainability Report

Rio Rancho™

City of Vision

Message from the Mayor

Insert photo from City here.

Insert inspiring quote staff member or citizen.

Rio Rancho's Sustainability Vision and Policy

History of the City of Rio Rancho

(Provide text here on the history of the Rio Rancho, its values mission, beliefs, philosophy, etc.)

Box for quote or image.

City of Rio Rancho: Sustainability Today

(Text about the Rio Rancho, and the community, etc.)

Rio Rancho at a Glance

- 5 …

Insert map of City here.

Our Sustainability Areas of Focus

- Transportation
- Facilities and Energy
- Employees
- Water
- Materials

The City's Roadmap for Sustainability

(Talk here about the City's sustainability goals. Talk about how the sustainability dashboard will be used to track trends over time.)

Insert a sustainability dashboard here.

Insert photo here.

Quote here on the future.

Photo of transportation project, etc.

Transportation

(Text on how transportation is important to the City, progress and benefits of transportation sustainability strategies and actions.)

The City's Sustainability Transportation Initiatives

Share transportation strategies here.

Transportation goal: (share one or more 5 year goals here as you choose).

Another transportation photo or a quote here.

The City's Progress

Share what's been accomplished.

Facilities and Energy

(Text on Facilities and Energy is important to the District, progress and benefits of initiatives.)

Photo of facilities or energy project, etc.

Facilities and Energy targets: (share one or more 5 year targets here as you choose).

Another Facility or energy project photo or quote here.

The City's Facilities and Energy Initiatives

Share strategies here.

The City's Progress

Share what's been accomplished.

Photo of Employees project, etc.

Employees

(Text on how employees are important to the City, progress and benefits of employee sustainability strategies and actions.)

Employee goal: (share one or more 5 year goals here as you choose).

The City's Employee Sustainability Initiatives

Share employee strategies here.

Another employee photo or a quote here.

The City's Progress

Photo of a water project, etc.

Water

(Text on how water is important to the City, progress and benefits of water initiatives.)

The City's Water Initiatives

Share energy strategies here.

Water targets: (share one or more 5 year targets here as you choose).

The City's Progress

Share what's been accomplished.

Another water photo or a quote here.

- List of partners here
- Xxx
- Xxx
- Xxx

Quote from a partner on working with the City.

Sidebar: Our Partners

Mention here how important partners are to the City. Provide a bulleted list of partnership programs for the year. Include stakeholder committees, etc.

Materials

(Text on how materials are important to City sustainability. Share progress and benefits of materials initiatives.)

Photo of Materials project, etc.

Materials targets: (share one or more 5 year targets here as you choose).

The City's Materials Initiatives

Share materials strategies here.

Another materials photo or a quote here.

The City's Progress

Share what's been accomplished.

Where We're Heading

Beyond specific targets, where the City is heading with respect to sustainability. Inspirational parting message.

Parting photo.

Parting quote or message.