

ADAMS COUNTY SUSTAINABILITY MANAGEMENT PLAN



***Adams County
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1. Executive Summary

At the request of Adams County, the development of this Sustainability Management Plan (SMP) for county operations will provide the necessary direction and tools to help the county save tax dollars, assure clean land, air, and water, and improve the working and living environments that allow the county to thrive today and in the future. Factors such as cost savings, decreasing environmental impact, and leading the community are all drivers for integrating sustainability, or efficiency, into the county's internal operations.

The creation of this SMP was a multistep process that began by developing an understanding of the county's scope of operations and how sustainability was incorporated into these operations. Conducting interviews, meetings, and facility tours highlighted opportunities for improvements in sustainability and generated a deeper understanding of the organizational culture of the county, an important factor when considering how to better integrate the concept of sustainability.

Based on this information, the formation of the actual plan was done through an interactive process involving the Sustainability Coordinator and other key stakeholders to determine the direction of the county's sustainability efforts. The SMP is centered on four primary categories: energy consumption, transportation, waste reduction, and sustainability funding. Specific goals for 2012 are highlighted within each of the focus areas. These goals include:

Energy: Decrease energy consumption by 10%

Transportation: Decrease fuel consumption by 5%

Waste: Improve waste diversion by 10%

Funding: Create funding model for sustainability initiatives

The plan explores each focus area as it relates to current county operations and provides the steps and necessary tools for obtaining each corresponding goals, along with customized tracking and monitoring instruments that can be utilized to measure progress indefinitely.

2. BACKGROUND & PURPOSE

Sustainability represents a holistic approach to ensure economic viability, operational efficiency, environmental stewardship, and social responsibility. This concept of integrating each aspect encourages organizations to consider the economic, environmental, and social impacts of their decisions and operations. Embracing this integrative approach allows organizations to simultaneously realize benefits in each component, as opposed to sacrificing one (or multiple) areas to benefit another.

While the general concept remains relatively constant, sustainability will take on different meanings to different organizations. The focus of sustainability efforts may vary significantly across organizations. For local governments the approach to integrating sustainability may involve focusing on operational efficiency, sustainable planning and development, or community outreach. This approach is likely to progress and change over time, as sustainability is a dynamic and evolving process.

2.1 Sustainability and Adams County

For Adams County, sustainability currently means efficiency. The county's approach to sustainability focuses on improving inefficient county operations. By improving the efficiency of how buildings operate, of internal operating systems, and of operations that serve the public, the county seeks to reduce operating costs transferred to taxpayers and to reduce the impact on the environment to ensure the county's long-term viability.

As the county continues to embrace and integrate sustainability, it is possible that the focus of the sustainability program to adapt to better represent the changing organization. Efforts may shift to include a more community-focused approach or to a sustainable development focus. It is important to remember that no approach is necessarily better than another, but what is important is that the approach reflects the changing sustainability goals and vision of the county.

In 2010, the Board of County Commissioners adopted the Resolution to Approve Adams County Sustainability. Acting as the guiding document for the county's Sustainability Program, the Resolution encourages the county to develop, set and implement policies, practices, and strategic actions that incorporate more sustainable practices in county operations. While the objective of this Resolution was to publically commit to the county sustainability, this commitment has not been fully integrated or internalized by the county.

Many times the perception exists that sustainability is an issue that can be addressed or that sustainability initiatives belong in a certain department. However, sustainability is a cross-cutting, strategic approach that needs to be embraced at all levels and throughout all departments or divisions of an organization. A shift in institutional thinking at all levels is needed to create the culture necessary to support sustainability over the long term. This type of organizational change will ensure that sustainability is integrated into all aspects and all departments of county operations.

2.2 Sustainability Management Plan

The creation of Adams County's Sustainability Management Plan (SMP) serves not only to support the nature of the adopted Sustainability Resolution by formalizing goals and a

comprehensive framework to capitalize on unrealized opportunities throughout county opportunities, it also serves to encourage the organization change necessary to fully embrace sustainability.

3. GOAL SETTING PROCESS

Putting sustainability into practice should be seen as a process of continual improvement, rather than a final destination. For this reason, goal setting should be revisited each year, as goals should change based on where the county stands in terms of its sustainability journey. When engaging in this goal setting process on an annual basis, it is important to take into consideration a variety of variables as they relate to sustainability, including the culture of the organization, level of leadership engagement, and resources available (e.g. financial, staff time, technical knowledge).

As previously mentioned, this Sustainability Management Plan serves to provide structure for advancing sustainability within county operations. The Plan's framework is built around sustainability goals identified and approved by the county for 2012. The process for establishing these goals included:

- Identifying focus areas
- Determining specific goals
- Gaining approval and support

3.1 Identifying focus areas

With direction from the county's Green Team, an internal group charged with identifying and promoting sustainable practices in the county, the Sustainability Coordinator selected four primary focus areas for its 2012 goals:

- Energy consumption
- Fuel consumption
- Waste reduction
- Sustainability funding

The Green Team had previously identified three primary areas to focus its sustainability efforts on. These focus areas included energy savings, transportation, and waste reduction. Building on the momentum of the Green Team's efforts, establishing funding for both future sustainability initiatives, as well as for the county's Sustainability Coordinator position, was added as a fourth focus area for 2012.

Because incorporating sustainability into an organization is a dynamic and evolving process, the focus areas, or how the county approaches these areas, are bound to change. For instance, the county is currently aimed at becoming more efficient. With this current aim, the goals established for each category focus on improving internal operations. Overtime, the aim may shift from improving internal operations to introducing external, community-focused sustainability efforts. This shift can result from a number of reasons, such as direction from top management, increased availability of resources, or the development of new partnerships.

Revisiting the goal setting process each year will help the Sustainability Coordinator gauge how the sustainability is being viewed and embraced in the county and how to adjust the focus areas accordingly. Due to the absence of a Sustainability Coordinator, the focus areas were driven by the Green Team in the past. With the establishment of this position, the Sustainability Coordinator should lead the process of identifying where to focus sustainability efforts.

3.2 Determining Specific Goals

While determining focus areas provides general direction for the county's sustainability initiatives, goals provide a measurable objective to be completed over a specific time period. Goals should be quantitative and time-bound.

Quantitative

Each goal should be quantitative in nature in order to measure progress and to determine when it has been accomplished by the county. Quantitative goals will allow the Sustainability Coordinator to chart and demonstrate real achievements. Having quantitative evidence of progress and the impact of the goal will serve as a valuable tool when engaging top leadership in the county.

Time-Bound

Establishing a time frame for a goal provides structure and helps maintain focus. When a goal is time bound, it forces the goal-setter to think through and plot out the steps necessary to achieve it. For long term goals, such as the year-long goals being pursued by the county, using sequential benchmarks with deadlines will help ensure achievability.

The county's Sustainability Coordinator should be responsible for establishing the annual sustainability goals for each focus area. The Sustainability Coordinator best understands the politics of the county as they relate to sustainability initiatives, thus allowing him/her to determine what goals are attainable. Although the Green Team will play an integral role in helping to achieve the goals, the Sustainability Coordinator is ultimately accountable for delivering each goal. Thus, if this position is responsible for setting the goals, it also allows the Sustainability Coordinator to maintain strategic control of what sustainability initiatives will be pursued.

Ideally, three (3) to five (5) goals will be identified by the Sustainability Coordinator each year. Limiting the number of goals to five (5) allows each goal to have the potential for significant impact, while ensuring enough resources will be available to successfully achieve each. For the county's 2012 sustainability goals, the Sustainability Coordinator created one (1) goal for each of the four (4) focus areas. The four (4) goals to be completed in 2012 are as follows:

1. Energy: 10% energy consumption reduction
2. Transportation: 5% fuel consumption reduction
3. Waste: Increase diversion by 10%

4. Funding: establish funding for the Sustainability Coordinator

Each focus area and its corresponding goal will be explored in detail in the subsequent sections of this report. Prior to doing so, it is important to continue with the goal setting process.

3.3 Gaining Approval and Support

Once the Sustainability Coordinator has established concrete goals, they should be presented the Green Team, department leadership, and the county's top leadership for approval and support.

Green Team

On an annual basis, goals set by the Sustainability Coordinator should be formally presented to Green Team members for their review and approval. The roadmap of how to achieve these goals should be included in this presentation. The roadmap should include details such as the timeline, benchmarks, and deadlines so that Team Members are able to start to visualize their role in the process of successfully reaching these goals.

As defined by the Roles and Responsibilities of the county's Green Team, the team members function as a support system for the team's leader, the Sustainability Coordinator. While team members are encouraged to review and provide constructive feedback, as well as actively participate in implementation, creating sustainability goals and initiatives does not fall under their umbrella of duties or responsibilities. Constructive criticism and feedback of the roadmap is encouraged by Team Members, however it is the responsibility of the Sustainability Coordinator to maintain the set direction of the goal.

Department Advisors & Directors

Once the goals have been presented to the Green Team, the Sustainability Coordinator should present the goals to his/her department advisor and department director. The Sustainability Coordinator position currently falls under the county's Finance Department, thus engage with the Finance Director, as well as his/her immediate advisor in the department. Gaining approval at this level will help with engaging top leadership in the county.

Top Leadership

Like most organizations, Adams County started pursuing sustainability initiatives from a grass roots, bottom up approach. The Green Team and various county employees have taken the lead on introducing several sustainability-focused efforts throughout the county. However, without top leadership on board, substantial progress is unlikely.

Presenting the goals to top leadership in the county will help the Sustainability Coordinator engage key power players and articulate the importance of integrating

sustainability into the culture of the county. Top leadership in Adams County includes the:

- County Administrator
- Board of County Commissioners

First, present the goals to the County Administrator. This presentation will serve as a dry run for the Board of County Commissioners' presentation. Responsible for implementing the policies and priorities of the Board of County Commissioners (BOCC), the County Administrator essentially functions as the gatekeeper to the County Commissioners. The County Administrator will be able to offer suggestions on areas or points to highlight in the presentation to the BOCC.

Presenting the annual goals to the BOCC should be a formal, concise presentation that focuses on the expected outcomes associated with achieving each goal. For instance, the Sustainability Coordinator should demonstrate the environmental benefits and cost savings generated by the 10% reduction in energy use. Rather than focusing on the process of achieving the goal, as the Sustainability Coordinator would concentrate on when presenting to the Green Team, focus on measurable outcomes.

Getting in front of top leadership will not only increase visibility of the Sustainability Coordinator's position, but will hopefully encourage these leaders to take a more active role in publically supporting and advocating for sustainability initiatives. The Sustainability Coordinator should also establish semi-annual or quarterly meetings with the BOCC to keep them updated on the status and accomplishments of the various sustainability initiatives implemented to achieve the year's goals.

4. ENERGY CONSUMPTION

2012 Goal: Decrease Energy Consumption By 10%

Reducing energy consumption was identified as a key sustainability focus area for the county. Reducing energy consumption in county operations by 10% has the potential to yield significant environmental and economical benefits. Not only will a reduction in energy use decrease the county's carbon footprint by reducing green house gas emissions, the county can attain considerable cost savings.

The county should engage in a multi-step process in order to obtain the 10% reduction goal and realize the benefits of decreased energy consumption. The proposed steps are as follows:

- Map out current buildings
- Look at market
- Design path forward

First, the county should establish the energy performance and operating details of its buildings. Mapping out the current building stock will allow the county to compare not only its own buildings against one another, but also against the performance, policies, and procedures of externally operated buildings. Following this evaluation, the county will be able to begin the process of identifying and implementing initiatives aimed at energy use reduction. Providing the steps and tools necessary to achieve a 10% reduction, this general framework will be explored in detail below.

4.1 Map Out Current Buildings

The process of mapping out the county's building portfolio includes engaging in an assessment of current energy use, as well as looking at the current policies and procedures that influence energy use in each building. This will allow the county to highlight current successes, identify areas for improvement, and provide the starting point for measuring future progress. During this stage, the county should focus on the following steps:

- Creating a baseline
- Documenting how each building currently operates
- Rewarding well-run buildings

4.1.1 Creating a Baseline

Reducing energy consumption requires the collection of preliminary data to establish baseline measures as a basis for setting goals and targets, as well as for measuring progress towards these goals.

Benefits of establishing a baseline include:

- Provides snapshot of current energy consumption profile

- Compiles data into format that can be easily compared
- Allows the county to look at building-specific energy consumption, or countywide energy consumption
- Showcases energy efficient operations or buildings
- Highlights inefficient operations/buildings; areas to improve

Establish the county's energy consumption baseline with the following tools:

- Utilize energy portfolio management tools
- Design and populate standard energy inventory template

Utilize Energy Portfolio Management Tools

Description:

There is a wide variety of resources and/or instruments available to help track utility consumption and costs. These energy portfolio management tools allow organizations, such as local governments, to see how their buildings are performing in terms of energy efficiency. With approval from the Sustainability Coordinator, Adams County chose to utilize the Environmental Protection Agency's (EPA) ENERGY STAR Portfolio Manager as its primary tool compile, follow, and assess key energy consumption metrics. This tool is explored in detail below.

ENERGY STAR Portfolio Manager Overview:

The EPA's ENERGY STAR Portfolio Manager is an interactive online tool that allows the county to track and assess energy consumption across its building portfolio. Through this energy management tool, the county is able to generate reports on energy performance, costs and environmental impact over time, for both individual buildings as well as its entire portfolio. The Portfolio Manager will help to benchmark energy performance, identify under-performing buildings, and award recognition for superior energy performance.¹

In order to calculate key metrics such as energy intensity (energy use per square foot), energy costs, and carbon emissions, energy consumption data is entered into Portfolio Manager for all county building. Once data entry is complete, each facility will not only receive these key metric calculations, but also an energy performance comparison against a national average for buildings of a similar type.

Additionally, some building types will receive an ENERGY STAR score. Based on a 1-100 scale, this score indicates how efficiently buildings use energy. A score of 50 signifies that energy performance is average compared to similar building types, while a score of 75-100 signifies top energy performance. A

¹ http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager

building receiving a score in this top range is eligible to earn an ENERGY STAR label.

Using the ENERGY STAR Portfolio Manager:

The Adams County ENERGY STAR Portfolio is comprised of separate profiles created for each individual county building or facility. To generate this portfolio and the building profiles, the following information is required:

- Portfolio Manager Account Information
- General Building Information
- Space use attributes
- 12 consecutive months of utility bills

Portfolio Manager Account Information

To access Adams County Portfolio Manager account, go to <https://www.energystar.gov/istar/pmpam/> and login with the following information:

Username: Adams.County
Password: energystar

General Building Information

To add a new building or facility to the portfolio, click "Add a Property" on the "My Portfolio" page. Have the following information readily available to enter about the facility:

- Facility name
- Building address, city, state, zip code
- Year built

Space Use Attributes

Space use attributes refers to the types of space that comprise the makeup of a building, as well as the specific elements associated with a particular space type. Some buildings may be limited to one type of space (e.g. office); while some buildings contain several different space types (e.g. office, warehouse, data center, and parking).

Depending on the specified space type, several space use characteristics will also need to be identified. Besides gross floor area, Portfolio Manager supplies default values that can be used for all of the characteristics. See below for an example of required space use attributes.

General Office 1:

Required:

_____ **Gross floor area (SF)**

_____ Weekly operating hours

_____ # of workers on main shift

_____ # of personal computers

_____ Percent of floor area that is air conditioned (>=50%, <50%, or none)

_____ Percent of floor area that is heated (>=50%, <50%, or none)

12 Consecutive Months of Utility Data

A facility may be added to the county’s Portfolio at any time, regardless of utility data available. However, in order to calculate energy-related benchmarks and generate an ENERGY STAR score, utility data from 12 consecutive months needs to be recorded.

In order to enter energy data, an Energy Meter needs to be added to the facility’s profile for each meter serving the building. Once meters are added for all the energy types (e.g. electricity, natural gas) consumed by the building, they should be populated with the appropriate energy data. The following data is needed to populate a facility’s energy meter:

- Start Date (mm/dd/yyyy)
- End Date (mm/dd/yyyy)
- Energy Use (appropriate energy unit)
- Cost (optional)

Below is an example an example of how the data will be displayed in Portfolio Manager.

Meter: Midwest United Energy- Gas			
Building: Adams County Animal Shelter			
Fuel Type: Natural Gas, (therms)			
Space(s): Entire Facility			
Start Date	End Date	Energy Use	Cost - US Dollars
8/1/2011	8/31/2011	740	\$496.18
7/1/2011	7/31/2011	680	\$456.41
6/1/2011	6/30/2011	790	\$521.63

5/1/2011	5/31/2011	2,120.00	\$1,267.23
4/1/2011	4/30/2011	2,790.00	\$1,654.16

ENERGY STAR Status

Currently, 12 ENERGY STAR profiles make up the Adams County Portfolio. Based on total floor space, the Portfolio as a whole has a current rating of 69, but a median score of 51. In terms of energy efficiency, the Honnen building ranks the lowest, with a score of 9. The Justice Center and District Attorney’s Building both rank at 90 or above. Below is a list of the 12 core buildings along with their ENERGY STAR scores, if applicable.²

Facility Name	Current Rating (1-100)
AdCo Animal Shelter	22
AdCo Children & Family Center	52
AdCo DA's Building	92
AdCo Government Center	-
AdCo Honnen Building	9
AdCo Human Services Building	50
AdCo Justice Center	90
AdCo Parks Administration	49
AdCo Parks- Dome	-
AdCo Public Works	53
AdCo Service Center	63
AdCo Western Service Center	42
Group Average	69*

Portfolio Manager allows the county to generate energy use and cost calculations over a certain time period. The table below describes the county’s energy consumption and expenditures over the 12 month period from July 2010 to August 2011.

Facility Name	Current Rating (1-100)	Current Energy Intensity (kBtu/ft²)	Current Energy Cost (\$/yr)
AdCo Animal Shelter	22	212.40	\$ 63,023.28
AdCo Children & Family Center	52	215.00	\$ 77,222.78
AdCo DA's Building	92	117.00	\$ 83,333.25
AdCo Government Center			\$ 211,313.55
AdCo Honnen Building	9	319.80	\$ 37,246.13
AdCo Human Services Building	50	224.30	\$ 134,664.61

² No ENERGY STAR rating is provided to the Government Center because less than 12 months of consecutive energy use data was available. Also, ENERGY STAR does not provide ratings for some types of space. Due to the space classification of the Park’s Dome, no rating is available.

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AdCo Justice Center	90	128.80	\$ 326,231.57
AdCo Parks Administration	49	198.00	\$ 27,363.07
AdCo Parks- Dome		880.7	\$ 86,787.37
AdCo Public Works	53	216.80	\$ 51,401.73
AdCo Service Center	63	222.00	\$ 152,449.70
AdCo Western Service Center	42	234.40	\$ 102,847.44
Group Total	-	-	\$ 1,353,884.48
Group Average	69*	269.93	\$ 112,823.71

This energy tracking tool is also able to generate potential cost savings that can be realized by improving energy efficiency. The table demonstrates the potential savings by increasing a facility's ENERGY STAR rating to 50 and 75. As shown below, the county can generate an annual savings of \$66,509.06 by improving the four (4) under-performing buildings to reach the national average's energy efficiency level.

Facility Name	Current Energy Cost (\$/yr)	Energy Cost: 50 Rating	Savings Potential: 50 Rating	Energy Cost: 75 Rating	Savings Potential: 75 Rating
AdCo Animal Shelter	\$ 63,023.28	\$ 44,403.32	\$ 18,619.96	\$ 31,520.19	\$ 31,503.09
AdCo Children & Family Center	\$ 77,222.78	\$ 77,980.64		\$ 57,670.81	\$ 19,551.97
AdCo DA's Building	\$ 83,333.25	\$ 162,257.01		\$ 120,007.04	
AdCo Government Center	\$ 211,313.55 ³				
AdCo Honnen Building	\$ 37,246.13	\$ 22,258.55	\$ 14,987.58	\$ 16,462.87	\$ 20,783.26
AdCo Human Services Building	\$ 134,664.61	\$ 136,112.62		\$ 100,672.66	\$ 33,991.95
AdCo Justice Center	\$ 326,231.57	\$ 593,534.79		\$ 438,951.22	
AdCo Parks Administration	\$ 27,363.07	\$ 27,305.02		\$ 20,194.17	\$ 7,168.90
AdCo Parks- Dome	\$ 86,787.37	\$ 22,989.23	\$ 25,413.98	\$ 22,989.23	\$ 25,413.98
AdCo Public Works	\$ 51,401.73	\$ 53,634.76		\$ 39,669.13	\$ 11,732.60
AdCo Service Center	\$ 152,449.70	\$ 176,805.47		\$ 130,757.32	\$ 21,692.38
AdCo Western Service Center	\$ 102,847.44	\$ 95,359.90	\$ 7,487.54	\$ 70,538.19	\$ 32,309.25
Group Total	\$ 1,353,884.48	1,412,641.31	\$ 66,509.06	\$1,049,432.83	\$ 204,147.38
Group Average	\$ 112,823.71	128,421.94		\$ 95,402.98	-

Design and Populate Standard Energy Inventory Template

Description:

Like ENERGY STAR's Portfolio Manager, a standard template can be used to track specific details relating to energy use and associated costs for each building. Collecting this information provides a snapshot at past and current energy performance and establishes a common data set as the county enters in the process of setting priorities to improve energy efficiency. By including

³ Current energy cost in this table refers to the 12 month period from July 2010 through August 2011; however, energy use data for the Government Center is only available starting in January 2011. Thus the current energy cost displayed for this facility only reflects a seven (7) month period from January to August 2011.

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energy expenditures in the assessment, the baseline also provides a means for generating associated monetary cost and saving estimates.

Proposed energy details to track on a monthly basis include:

- Electricity consumption (kWh)
- Electricity cost
- Demand charges (KW)
- Demand cost
- Gas consumption (therms)
- Gas cost

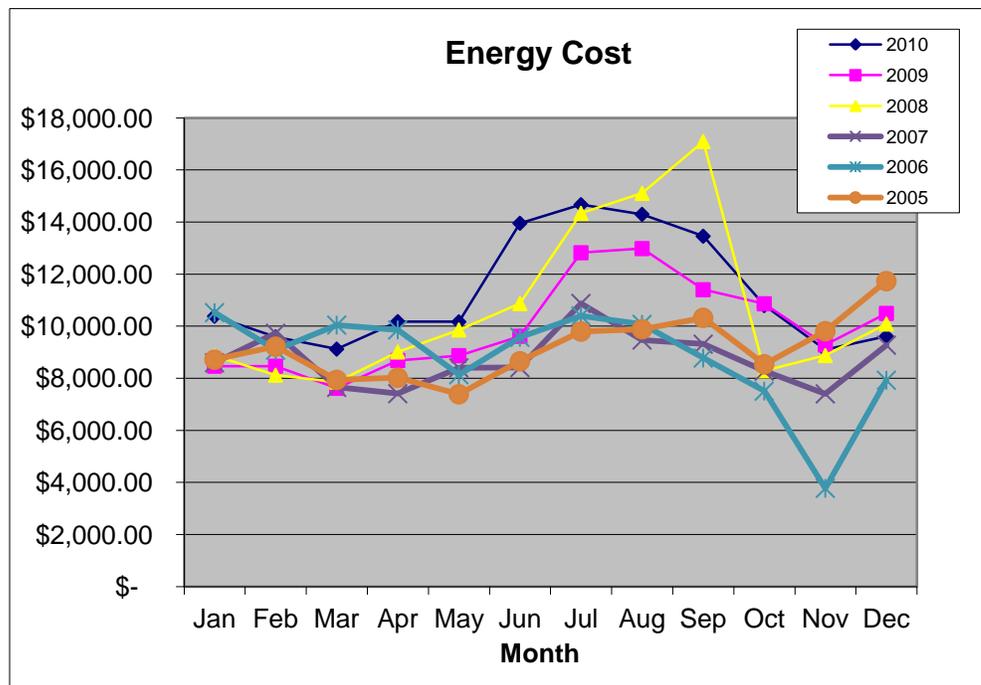
Below is an example of the template used to create the county’s baseline energy assessment. Utility data for the 12 core buildings from 2005 through August of 2011 was entered into the following template. See Appendix A for entire template.

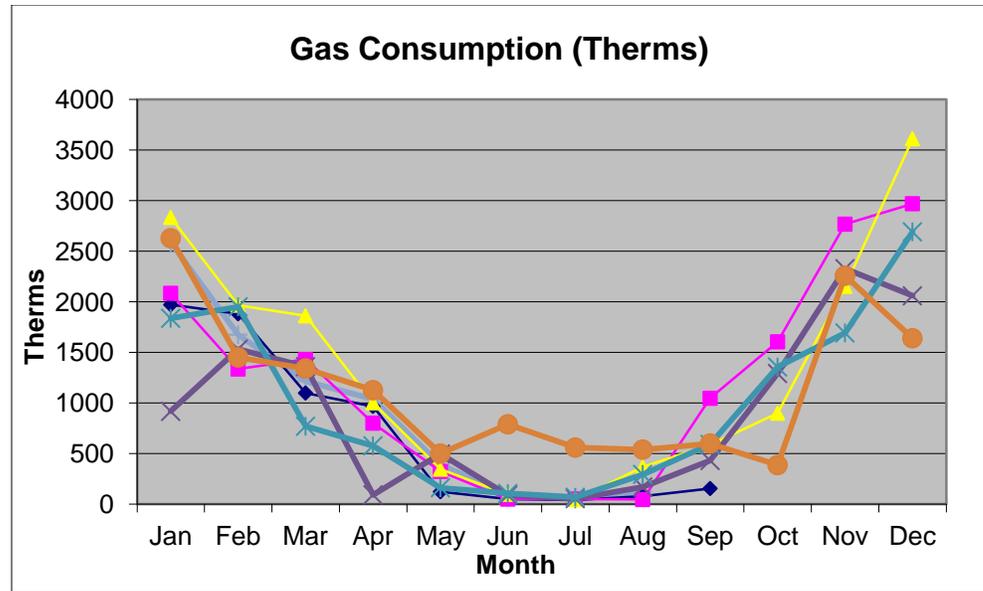
Building #:	6	Building Name:	Human Services					
Sq Ft	69,984	Year Built:	1980					
Description								
Energy 2011								
Month	kWh	Elec Cost	KW	Demand cost	Therms	gas cost	total kBtu	total cost
Jan								
Feb								
Mar								
Apr								
May								
Jun								
Jul								
Aug								
Sep								
Oct								
Nov								
Dec								
Total	0	0	0	0	0	0	0	0

Utilizing a custom template allows the county to extract the data it wants to track and analyze. Unlike ENERGY STAR’s Portfolio Manager, a template is customizable and able to capture additional energy data, such as demand charges. Demand is a measure of the rate at which energy is consumed, different from the quantity of energy consumed (kWh). Because electricity cannot be stored, utility companies must maintain sufficient generating and

transmission capacity to supply peak demand at all times. Demand charges represent the cost to utility companies to maintain this capacity. Demand charges that county buildings incur are based on the height of energy consumed over a specified period of time (demand interval) and can represent a significant portion of total electricity charges. Tracking additional data, such as demand, will provide the county a more complete evaluation of consumption and associated costs, as well as help the county target areas for improvement.

The template also allows the county to generate numerous graphs to relate these metrics through visual representations. The graphs can be automatically generated depending on what information is requested. Below are two examples of graphs generated from the entered energy data.





The baseline inventory established by using these tools will help determine the current scope of energy performance and potential opportunities to improve the energy efficiency of the building portfolio. By utilizing ENERGY STAR's Portfolio Manager, as well as populating a custom inventory template, will also serve as a tool to engage stakeholders, specifically top management, in these topics.

4.1.2 Documenting How Buildings Currently Operate

Documenting how each county building operates is an important step in mapping out the county's internal energy consumption and its associated costs. While building operating policies and procedures exist in all buildings, most have never been detailed in a formalized document. If recorded, many times this documentation comes in the form of a Building Operations Plan or Manual.

Purpose:

How a building operates significantly impacts energy consumption. Building operations and maintenance (O&M) represents the most significant expense in owning and operating a building over its life cycle. The U.S. Department of Energy's Energy Efficiency and Renewable Energy division suggests an operating manual as one of the most cost-effective methods for ensuring energy efficiency, safety, and reliability in building operations. If properly executed, an operating manual or plan has the potential to generate significant energy savings, as well as improve system life expectancy.

Description:

A Building Operations Plan (BOM) describes key components and systems operating within a specific building and explains specifically how each should be operated and maintained in order to ensure maximum operational efficiency. Refer to Appendix B for a BOM spreadsheet and template. Either example could be used to establish the

necessary documentation of how a county building should be operated to maximize efficiency.

Creating a Building Operations Plan:

Specific details about the systems and equipment functioning in each building is needed to create this document, thus cooperating from Facilities is required to start the process of creating a Building Operations Plan. Work with Facilities to record the following details is suggested:

- Operating Policies
- Operating Procedures
- Equipment inventory

Operating Policies

Policies provide the framework within which any given building operates. By providing the necessary written documentation, operating policies establish parameters for controlling the systems and equipment that contribute to energy consumption. It is important that these policies are established as enforceable, as they set the behavioral boundaries of the operating systems, and thus empower the staff at the operational level (Facilities) to maintain strict control of settings. With approval from top county leaders, these operating policies provide the building's Facility Manager with the necessary support to operate their buildings at the optimal efficiency level.

Working with Facilities, a building's operating policy should incorporate the following specifications:

- User controls
- User prohibitions

Operating Procedures

Building procedures are the actual processes targeted at implementing the established operating policy. The procedures are the operational, working-level documents that establish the means to adequately support the building policy.

In general, the following building procedures should be documented:

- Building start/stop:

Document the building's operating hours for weekdays, weekends, holidays, and special occasions.

- Heating, Ventilating, and Air-Conditioning (HVAC) controls

Record the temperature setpoint range for the building. The setpoint range declares the highest acceptable and lowest acceptable temperatures the building can be set at. Be sure to include any exceptions that might exist and how temperature settings change throughout the year.

- Lighting controls

In buildings with automated lighting systems, describe what the controls are set at. Usually this description includes which lights are turned on/off at what specific times. Be sure to include if lighting schedules are altered depending on the time of year.

In buildings that do not have automated lighting systems, document the typical lighting schedule. This can be done through observation and/or talking with the facilities manager.

Equipment inventory

An equipment inventory will provide a record of the county’s operational assets. Compiling an inventory involves a thorough walk-through of each county building to identify the specific types of equipment and fixtures that are currently in use. Use the equipment inventory templates to capture the following information:

Systems inventory

A systems inventory generally refers to the heating, cooling, and ventilation systems in a building. Record the types of equipment that make up these systems. Below are some examples of the equipment that may be included:

- Air handling units (AHU)
- Variable air volume units
- Fan coil units
- Cabinet heating units
- Exhaust fans
- Relief fans

The table below is one example of a systems inventory. This type of inventory provides a general overview of the types of equipment that correspond to each system.

System	Equipment
Whole Building	Main Electric Meter Main Gas Meter
Chilled Water System	Chillers CH-1, CH-2 Primary Chilled Water Pumps P-5, P-6

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Condenser Water System	Condenser Water Pumps P-1, P-2 Cooling Tower CT-1
AHU-1 (Air Handling Unit)	Supply Fan SF-1, Outside Air Fan SF-3 Relief Fans RF-1, RF-2, RF-3 Terminal Boxes associated with AHU-1
AHU-2 (Air Handling Unit)	Supply Fan SF-2, Outside Air Fan SF-4 Relief Fans RF-4, RF-5, RF-6 Terminal Boxes associated with AHU-2
General Exhaust	Chiller Room EF-11, Transformer Vault EF-12, Toilet TEF-1 Level and Dock Exhaust, Parking Exhaust PEF Fans
Heating Water Systems	Natural Gas Boilers B-1, B-2 Heat Exchanger HX-1 Hot Water Pumps P-7, P-8 Fan-coil units (6 per floor, 8 floors)
Air Compressor	Air Compressors FC-1

The inventory template below provides a more detailed look at each piece of equipment and its cost implications. See Appendix C.

Equipment List									
Description	Location	Parent	Manufacturer	Install Date	Warranty Date	Total Cost	Year to Date Cost	Budget Cost	Running? (Y/N)

Identifying the types of equipment is important to understand how the energy systems operate. However, the standards (e.g. temperature setpoints) and procedures for operating these pieces of equipment efficiently, as explored in the previous section, will be more valuable in terms of producing energy savings.

Lighting inventory

Completing a lighting inventory will help provide the Sustainability Coordinator with an accurate count of the types and amount of lighting fixtures in order to generate a better understanding of the electrical consumption from lighting systems.

Complete an inventory for each county-operated building. For each area of the building, document the number of fixtures, type of fixture, number of bulbs per fixture, watts per bulb, and the estimated number of hours each light is on per day. Below is a portion of a sample inventory. See Appendix C for entire template.

Light Bulbs							
Area of Building	Number of Fixtures	Type of Fixture	Number of Bulbs per Fixture	Watts per Bulb	# of Hours on per Day	Kilowatt Hours Used per Month	
First Floor	Corridor A offices	32	T12	2	60	13	1,148
	Corridor B offices	21	T8	2	34	13	427
	Corridor C offices	10	T12	2	110	13	658
	Break room	2	T8	2	40	13	48
	Conference Room A	8	T8	1	10	13	24
	Conference Room B	4	T8	3	40	13	144
	Computer Lab	8	T8	2	34	13	163
	Break room	3	T8	3	40	13	108
	Kitchen	4	T12	2	40	13	96
	Bathrooms	4	T12	2	34	13	81
Total						2,896	

Based on the kilowatt hours (kWh) used per month and the utility company's per kWh charge, lighting cost per month can be calculated.

Breaking the lighting inventory down by department could be advantageous if, in the future, an energy reduction competition is initiated. Based off the estimated energy use calculated from the lighting inventory, departments could compete against each other to reduce energy consumption.

Energy – Free Lighting Audits

It is recommended that the Sustainability Coordinator take advantage of the free lighting audits offered by Xcel Energy. Buildings serviced by Xcel Energy have the opportunity to receive a lighting audit performed by Franklin Energy, Xcel’s contracted consultant for the program,

The lighting audit performed by a Franklin Energy representative includes:

- A building/facility walk through to identify inefficiencies
- Suggestions to cut costs and improve lighting systems
- An explanation of the recommendations and potential savings

The Sustainability Coordinator should be aware that many times the cost savings identified in these audits are not guaranteed and aren’t necessarily accurate or building-specific. However, these recommendations will help highlight priority areas for the Sustainability Coordinator.

The Franklin Energy representative will also likely be knowledgeable about current lighting rebates or funding opportunities for improving lighting inefficiencies.

While Facilities may be hesitant of bringing in an outside consultant, the benefit of utilizing this service is that it takes the responsibility and time commitment from Facility managers.

Water Fixture Inventory

Performing a water fixture inventory will provide the Sustainability Coordinator with an accurate count of the types/models of toilets and faucets that make up a significant portion of water use in each building. When conducting a water fixture inventory, collect the following information:

Toilets: Make, type (tank/tankless) and gpf (gallon per flush)

Sink Faucets: Make, type (sensor, lift handle, push button, etc), aerator (gpm – gallon per minute). Aerators are found at the tip of most indoor water faucets and spread water flow from the faucet into many droplets.

Below is sample water fixture inventory. See Appendix D for blank template.

WATER FIXTURE INVENTORY				
Location	Toilet		Faucet	Aerator

	Make	Type	GPF	Make	Type	
First Floor, Corridor A	Regular toilet (Wellworth)	tank			lift handle h/c	1.5 gpm
	Regular toilet (unknown)	tank				
First Floor, Entry	Regular toilet (unknown)	tank		Delta	lift handle h/c	2.2 gpm
First Floor, Corridor B	American Standard	tank	1.6	Delta	push-button	2.2 gpm
	American Standard	tank	1.6	Delta	push-button	2.2 gpm
	Urinal	Waterless	-	Delta	push-button	2.2 gpm
	Urinal	Waterless	-			
Second Floor, Corridor A	American Standard	tank	1.6	Delta	push-button	2.2 gpm
	American Standard	tank	1.6	Delta	push-button	2.2 gpm
	Urinal	tank		Delta	push-button	2.2 gpm
	Urinal	tank				
Second Floor, Corridor B	Mansfield	tank	1.6	Delta	lift handle h/c	1.5 gpm
	Mansfield	tank	1.6	Delta	lift handle h/c	1.5 gpm
	Mansfield	tank	1.6	Delta	lift handle h/c	1.5 gpm
				Delta	lift handle h/c	1.5 gpm

Technology inventory

A technology inventory functions to capture any additional sources of electrical consumption in the building. This inventory records items such as computers, printers, scanners, telephones, space heaters, personal fans, and other vampire devices.

4.1.3 Reward Well-Run Buildings

While creating a baseline and documenting operating details will undoubtedly draw attention to under-performing buildings, completing these steps may also highlight energy efficient buildings in the county. It is important to reward these existing successes, as energy efficiency translates into environmental benefits and cost savings for the county. Obtaining an ENERGY STAR certification is one way to recognize a well performing building, as well as the Facility Manager who runs the building.

ENERGY STAR Certification

As previously mentioned, one of the tools offered by the EPA’s Portfolio Manager is the energy performance rating system. Based on a building’s energy performance, the rating system provides that building a score, on a scale of 1 – 100, relative to similar buildings throughout the nation. Buildings with a rating of 75 or higher may qualify for the ENERGY STAR label.

This certification indicates that the building meets stringent energy performance standards set by the EPA, and thus consumes less energy, costs less to operate, and emits less greenhouse gases. A certified building is granted an ENERGY STAR label to be displayed publicly.

Steps for Applying for the ENERGY STAR

1. Enter the required energy use data and building information in Portfolio Manager to determine if the building achieves a score of 75 or better
2. If the building achieves a 75 or better, generate the following application documents:
 - a. Statement of Energy Performance (SEP)
 - b. Data Checklist
 - c. Letter of Agreement
3. Validate the application documents by having a Licensed Professional sign and stamp the SEP and Data Checklist
4. Submit the application documents within 120 days of the SEP Period Ending Date and await approval

As of August 2011, Adams County had two buildings with ratings over 75, thus qualifying for the ENERGY STAR Label. The District Attorney’s Building scored a 92, and the Justice Center scored a rating of 90.

Below is the estimated cost difference of operating the District Attorney’s Building at a rating of 92 as compared to operating at other benchmark ratings. See Appendix F for the application documents submitted to the EPA.

ENERGY STAR Rating	Energy Cost (\$/year)	Cost Difference	Energy Cost (\$/ft²/year)	Cost Difference
Rating of 92	\$ 83,333.25	\$ -	\$ 1.19	\$ -
Rating of 75	\$ 120,007.04	\$ 36,673.79	\$ 1.72	\$ 0.53
Rating of 50	\$ 162,257.01	\$ 78,923.76	\$ 2.33	\$ 1.14

Below is the estimated cost difference of operating the Justice Center at a rating of 90 as compared to operating at other benchmark ratings. See Appendix G for the application documents submitted to the EPA.

ENERGY STAR Rating	Energy Cost (\$/year)	Cost Difference	Energy Cost (\$/ft²/year)	Cost Difference
Rating of 92	\$ 327,287.92	\$ -	\$ 1.07	\$ -

Rating of 75	\$ 438,951.22	\$111,663.30	\$ 1.44	\$ 0.37
Rating of 50	\$ 593,534.79	\$266,246.87	\$ 1.95	\$ 0.88

4.1. Look at Market

Having mapped out the current building stock by establishing a baseline inventory and documenting operating details, the county is able to evaluate its buildings’ energy performance as compared to externally operated buildings. Market comparisons enable the county to assess its competitiveness in terms of energy performance against other local governments as well as the private sector. This research will also likely result in uncovering alternative approaches to various building operating policies and procedures, many of which could be applied to Adams County in some capacity. It is suggested the county compare:

- How other counties operate buildings
- How the private sector operates buildings

Gather any available energy performance data and identify existing building operating policies and procedures. Conducting interviews with Facilities Managers or Directors is one effective way of obtaining detail-specific information and data that is generally not publically available or easily accessible. Refer to Appendix H for an interview guide that can be used to extract valuable data or information about building operations.

4.2 Design Path Forward

After having completed an assessment of energy performance, reviewed operational policies and procedures, and performed an in-depth market comparison, the Sustainability Coordinator will be prepared to develop a strategic plan towards achieving a 10% energy consumption reduction. Proposed next steps are as follows:

- Present state of current buildings in comparison to market
- Identify areas to improve
- Implement changes

4.3.1 Present State of Current Buildings in Comparison to Market

Establishing a baseline and market comparison will serve as tools to engage key stakeholders in discussions about where Adams County stands in terms of energy performance, as well as the state of its building operating policies and procedures. Presenting the state of county buildings will help key stakeholders to visualize both the current strengths and areas of weakness within the building portfolio. This information offers the platform to drive conversation and foster support for initiatives aimed at improving energy efficiency.

Engage Facilities

Utilizing building-level energy performance information is an effective way of engaging Facilities. After having rewarded Facilities for efficiently operated buildings, focus on working with Facilities to identify inefficient buildings or systems. Allow

Facilities to dictate the priority areas and initiatives to pursue. The Sustainability Coordinator should initially take on the role as a project supporter, taking direction from Facilities and performing tasks that are suggested or approved by Facilities.

Engage Top Management

Facility Managers need to obtain visual backing from top county leadership in order to implement and maintain effective and efficient energy operations. Approach top management by connecting improvements to operational efficiency with real cost savings for the county. Once their support is established, encourage top leadership to communicate their support directly with Facilities in order to give Facilities the necessary assurance to continue making efficiency improvements.

4.3.2 Identify Areas to Improve

Performing the previously discussed assessments and comparisons will help highlight the current weaknesses of the county’s building stock in terms of energy performance. Identified priorities may take the form of an individual project or may be programmatic in nature. Both types of improvements offer distinct benefits in terms of supporting the county’s sustainability mission, as well as the particular goal of energy consumption reduction. Individual projects generally provide specific benefits and savings that can generate momentum towards the sustainability goal, but may lack the organizational framework to maintain momentum. Programmatic changes, focusing on policy and procedure, tend to create the framework necessary to integrate sustainability within an organization.

After engaging in preliminary conversation with both Facilities and top management, a list of potential projects and energy-saving initiatives was generated. Also included in the table is the estimated percentage of total energy reduction that could be achieved with each initiative. The identified percentages are rough estimates based primarily on past experience and knowledge of how implementing these initiatives impacts total energy use. Without detailed information about the specific energy systems in operation, it is difficult to provide accurate reduction predictions.

10% ENERGY REDUCTION			
Priorities		Ideas	Reduction Potential (%)
Computer shut down	1%	building operations manual	3%
Buildings operations manual	3%	<i>automated settings</i>	
Lighting retrofits	2%	<i>68-76 standard</i>	
Lighting inventory/audit	1%	<i>HVAC schedule</i>	
Policy (vampire devices)	1%	<i>Cool Biz</i>	
<i>Charge dept utilities</i>	2%	<i>lighting retrofits</i> <i>lighting schedule</i>	2%

<i>Competition</i>	1%	<i>occupancy sensor lighting upgrade analysis</i>	
		Charge dept utilities	1-2%
		computer shut down	<1%
		lighting audit lighting inventory	1%
		policy network printers vampire devices ENERGY STAR products	1%
		incentives competition behavior changes	1%
		hot water temp	<1%
		partial facilities schedule	<1%
		janitorial day cleaning	<1%
		utility services	<1%
		renewable energy	<1%
		VM Ware	<1%
		Flex Hours	<1%
		Demand mgmt	0%
		energy load breakdowns	0%
		ENERGY STAR awards	0%
		Xcel tool	0%
		Gray water	0%
		Engineering support	0%

After generating a list of potential energy saving opportunities to pursue, several top priorities were identified with the help of the Sustainability Coordinator. The following factors were taken into consideration when prioritizing energy saving initiatives:

- Achievability
- Contribution to 10% reduction goal
- Ability to improve or foster relationship with key stakeholders

4.3.3 Implement Changes

Implementing changes ultimately translates into obtaining the county’s energy reduction goal. Successful initiatives begin with a well developed implementation plan prior to execution. The steps for implementing automated computer hibernation, a top priority project, are described in detail below. The steps provide a framework that can be replicated for implementing future energy reduction initiatives.

Automated computer hibernation

Several key stages are identified below to ensure successful implementation of energy saving initiatives. The proposed stages include:

- Creating an implementation plan
- Providing education
- Carrying out implementation

Create Implementation Plan

Creating a detailed plan for implementation is crucial to the success of any initiative. The plan should be divided into several sections, including:

- Description
- Purpose
- Procedure

Provide description

Setting a computer to hibernation mode, completely powers the computer down, while at the same time retaining its state. Because the hardware is completely powered off, electrical consumption is reduced. At no additional cost to the county, the IT department will initiate a system to automatically set unoccupied or unused computers to a hibernation mode.

Identify purpose

Developing an automated computer hibernation system would help eliminate unnecessary electrical draw from computers not in use. Decreasing electricity consumption contributes to the county's overall energy reduction goal.

Create procedure

1. Identify stakeholders
 - a. IT Department – Ultimately the county's IT Department will be responsible for establishing the technological controls necessary to put into operation this system.
 - b. Top management – Visible support from top management in any organization change is important. Maintain open and regular communication as the plan is developed and implemented
 - c. Employees – Implementing computer hibernation will directly impact staff on a daily basis. While county employees will not necessarily play a role in developing the implementation plan, it is still important to devise communication materials to educate the staff about the upcoming changes.

2. Meet with the IT Department to discuss developing an automated hibernation system
 - a. Determine potential energy and cost savings of the system
 - b. Define timeline
3. Present to top management for approval & support

Provide Education

Any organizational change should be supplemented with education in order to adequately explain why a change is being implemented and what that change will look like. Educating staff members about an energy saving initiative, such as computer hibernation, should include:

- Program introduction at departmental staff meetings
- Q&A session
- Email blast
- Intranet announcement
- Established point(s) of contact

Carry Out Implementation

After developing the implementation plan and providing necessary education to staff members, the Sustainability Coordinator should coordinate and work closely with the IT Department in order to ensure the plan is executed according to the established timeline.

The Sustainability Coordinator should take advantage of the fact that the IT Department can track the actual energy and cost savings of implementing this program. Maintain quantitative records of savings as a result of computer hibernation to help demonstrate the cost benefits achieved through the Sustainability Program.

5. TRANSPORTATION

2012 Goal: Decrease Fuel Consumption By 5%

The highlighted 2012 goal for transportation is reducing the county's fleet fuel consumption by 5%. Like a reduction in energy use, a reduction in fuel consumption offers both economic and environmental benefits to the county. A decrease in fuel consumption reduces the county's green house gas emissions and improves air quality, while also generating savings for the county by reducing annual expenditures on fuel.

The county should replicate the multi-step process used for energy consumption reduction in order to achieve the 5% fuel reduction. The process outlined below will provide the necessary steps when working towards this reduction goal.

- Understand current county operations
- Look at market
- Design path forward

In order to reduce fuel consumption, the county must develop an understanding of current fuel usage, as well as the departmental policies and operations that affect consumption. Establishing this understanding will enable the county to look externally and use other fleet operations to benchmark its own fuel related operations. The strategic planning stage of identifying and implementing consumption-reducing initiatives should follow.

5.1 Understand Current County Operations

The process of developing an understanding of the county's fuel related operations includes looking at current consumption levels, as well as assembling policies and practices impacting fuel usage. This will help provide a starting point for identifying strengths in current operations, as well as inefficiencies and opportunities that can be targeted to reduce fuel consumption. The following steps are recommended:

- Calculate current fuel usage
- Collect fuel related policies
- Identify current levels of service provided

5.1.1 Calculate Current Fuel Usage

Establishing fuel usage by fleet operations will provide the county with the current scope of fuel consumption. Utilizing a tracking software program, the Fleet Superintendent maintains and updates vehicle data for the county's entire fleet. Vehicle information, including make, model, year, acquisition date, and meter reading is recorded and easily accessible. In addition to the specific vehicle records, all operating, maintenance, warranty, and fuel costs incurred by a vehicle are recorded.

See Appendix I for an example of a report generated by the Fleet Superintendent that depicts monthly vehicle expenditures by department. Each department's costs are separated into various categories, including fuel costs. Additionally, the amount of fuel consumed and the department's average miles (or hours) per gallon rating.

Work with the Fleet Superintendent to come up with a report that captures desired fuel consumption data that can be generated and given to the Sustainability Coordinator on a monthly basis. Fuel usage data could potentially be compiled into the following categories:

- Department
- Vehicle Type
- Vehicle Age
- Activity (e.g. patrolling, grading, etc...)

Assembling fuel usage data into multiple categories will provide a more exhaustive depiction of the county's fuel consumption. These reports will function as the baseline data set and will serve as a tool for identifying trends and inefficiencies, as well as a tool for benchmarking improvements in the future.

5.1.2 Collect Fuel Related Policies

It is important to understand the current policies that impact fleet operations, as these policies also directly affect fuel consumption. Departments engaged with the fleet in any capacity usually have policies, many undocumented, relating to vehicle operation. Potential policies that relates to fuel consumption that may exist in the county include maintenance, procurement, scheduling, routing, and/or idling.

Maintenance

Fleet maintenance policies refer to the practices of vehicle inspections, servicing, and repairs to help prolong the life of a vehicle. Maintenance is generally classified into two (2) categories, reactive maintenance and preventative maintenance. Reactive maintenance refers to maintenance that is performed after a problem has been identified, while preventative maintenance refers to the regularly scheduled services performed on all vehicles. Consider the following topics when collecting information about the county's maintenance policy:

- Records or tracking mechanism for vehicle maintenance tracked
- Current procedure for reactive maintenance
- Current procedure for preventative maintenance
- Written documentation for maintenance policies and/or procedures
- Staff leading maintenance decisions, scheduling, and/or procedures
- Extent of staff member education about maintenance policies

Procurement

A fleet procurement policy establishes the guidelines and requirements during vehicle and equipment replacements or acquisitions. Consider the following topics when looking at the county's current procurement practices:

- Current criteria for purchasing or replacing vehicles/equipment
- Current process for purchasing or replacing vehicle/equipment
- Differences in the procurement criteria or process between departments
- Written documentation for procurement policies/procedures
- Staff involved in the procurement process
- Extent of staff member education about procurement policies

Routing

Routing is the practice of plotting out specific routes for fleet operations, with the goal of optimizing time and vehicle/personnel resources. Information to consider when collecting information about current routing policies includes:

- Current routing procedures
- Current process for routing vehicles/equipment
- Differences in routing procedures between departments
- Utilized technology or software
- Staff leaders involved in routing decisions
- Extent of staff member education about routing policies

Idling

Idling occurs when a vehicle's engine is running, but is not being used to move a vehicle. Idling not only contributes to GHG and air pollutant emissions, but also consumes fuel and reduces fleet efficiency. Address the following topics when examining the county's current idling policy:

- Records or tracking mechanism for idling
- Differences in idling policies/procedures between departments
- Differences in idling policies/procedures based on vehicle or equipment type
- Written documentation for idling policies/procedures/expectations
- Extent of staff member education about idling policies

Identifying and assembling any fuel related policies will help the county better understand the fuel usage data, as policies (or lack of) directly impact consumption levels. The collection of policies provides the county a means to highlight areas for improvement and to identify positive practices that might be currently unrecognized.

The table below shows the percentage breakdown of county vehicles by department or division. As shown, the Department of Public Works and the Sheriff's Department account for nearly 75% of total number of vehicles. Focus primarily on the policies

that affect by these departments, as the county is most likely to achieve the largest fuel consumption decreases between the two departments.

Department/Division	% of Total Vehicles
Public Works	41.21%
Sheriff's Department	33.68%
District Attorneys	3.56%
Pool Vehicles	3.35%
Assessor's Office	3.14%
Parks Department	3.14%
Facility Maintenance	2.30%
Animal Shelter	1.46%
Coroner's Office	1.26%
Extension	1.26%
Social/Human Services	1.05%
Head Start	0.84%
Commissioners	0.63%
County Clerk	0.63%
Fleet Operations & Maint.	0.63%
Planning Admin	0.42%
Treasurer	0.42%
Auctioned/other	0.42%
Community Development	0.21%
County Attorney	0.21%

5.1.3 Identify Current Levels of Service Provided

The Department of Public Works accounts for over 40% of the county's entire fleet, and thus is responsible for a significant amount of total fuel consumption. One of the major functions of this department is to provide road maintenance services throughout the county. The major types of road maintenance services offered by the county include:

- Grading gravel roads
- Patching or sealing paved road; asphalt resurfacing
- Sweeping paved roads
- Snow plowing
- Ditch pulling & cleaning

Each service provided by the Public Works Highway Section contributes to the overall fuel consumption. Identifying current levels of service will help determine how a significant portion of the county's fuel consumption is being used. In terms of the road maintenance services provided by Public Works, the levels of service for the

county's designated routes typically involves the frequency of effort, priority of treatment, and type of treatment.

Adams County is regularly recognized for its high levels of service. High levels of service generally translate into elevated satisfaction of county residents. However, the frequency of effort, one of the components that determine the level of service, contributes significantly to fuel consumption. This is largely in part due to the low fuel economy associated with the types of vehicles, such as dumpsters and snow plows, needed to perform the road maintenance services.

For instance, the Fleet Superintendent revealed that dump trucks, typically used for grading roads, are costing the county \$1.00 per mile. Over a ten year period, this cost per mile results in \$300,000 in fuel expenditures per dump truck. Examining grading services provided by the county, may demonstrate that by slightly reducing the level of service, the county could generate notable cost savings.

5.2 Look at Market

Completing the assessments explained in the previous section allows the county to gain a better understanding of current fleet operations as they relate to fuel consumption. Market research will allow the county to see how its fleet operations compare against those of other counties and help identify policies or procedures that could be incorporated into Adams County.

When looking at other organizations, proposed information to collect includes:

- Fuel consumption data
- Fuel related policies
- Levels of service

Conducting interviews with staff in surrounding local governments is likely to generate more promising results than performing secondary research. Refer to Appendices J and N for sample interview guides and questions for the categories listed above.

5.2.1 Understanding Other County's Fuel Consumption

Engage with other counties to determine the fuel consumption of different fleet operations and the cost implications of their fuel usage. It is important to consider how differences in fleets may impact consumption levels. Differences to consider include:

- Fleet size
- Types of fuel consumed
- Types of vehicles
- Services provided

So while examining other fleets will not provide an exact comparison, it will give the county a better understanding of where its fuel consumption currently falls as compared to that of other counties.

Case Study: Transitioning to Natural Gas Fleet in Colorado

Due to the identified benefits that include cutting emissions, cutting fuel expenditures, extending vehicle life, reducing reliance on foreign oil, and promoting the creation of U.S. jobs, some local governments are looking to transition to a natural gas fleet.

On November 9, 2011, Colorado Governor, John Hickenlooper, along with governors from Oklahoma, Wyoming, and Pennsylvania signed a Memorandum of Understanding (MOU) that was designed to increase the use of natural gas vehicle in each states' respective fleet. (See Appendix K for executed MOU).

The memorandum strives to encourage manufacturers to develop a functional and affordable original equipment manufacturer (OEM) fleet natural gas vehicle (NGV) by creating a Multi-State Request for Proposal (RFP) that combines annual State fleet procurement commitments.

Following the guidelines of the Joint-RFP, the aforementioned States intend to transition new fleet vehicle acquisitions to OEM NGVs. Committing to the procurement of NGVs seeks to spur the private development and expansion of compressed natural gas fueling infrastructure.

Benefits of Natural Gas:

- Produces 23% less GHG emissions and 95% less particulate matter per equivalent distance traveled
- Costs on average \$1.25 per gallon less than gasoline
- Corrodes and wears engine parts less rapidly
- Extends vehicle life – commonly find NGVs with mileage around 500,000 miles

Disadvantages of Natural Gas:

- Non-renewable fossil fuel
- Lack of infrastructure
- Mileage is less than gasoline
- Extraction method, hydraulic fracturing, potentially harmful to environment

Current Status of NGVs:

- Estimated 120,000 NGVs in the U.S.
- Approx. 1,200 NGVs in Colorado
- 960 fueling stations nationwide
- 29 fueling stations in Colorado, ranking it 7th in country

Colorado State Fleet:

- 5,800 total vehicles
- 2,000 additional vehicles within state Department of Transportation
- 3-year backlog of approximately 1,600 vehicles to be replaced

In anticipation of soliciting the Joint-RFP, Colorado will begin coordinating with local agencies, municipalities, and companies to determine the number of NGVs it will commit to purchasing. If Colorado chooses to commit to a significant amount and responses by the private sector is strong enough to supplement vehicle procurement with the necessary infrastructure, it could be advantageous for Adams County to also explore the procurement of NGVs for its Fleet. Not only could a transition to NGVs provide the opportunity to showcase Adams County as a leader on this sustainability front, it also has the potential to provide considerable fuel cost savings for the county.

5.2.2 Understanding Other County’s Fuel Related Policies

Efficiency and sustainability measures are increasingly incorporated into municipal policy, including fuel related policies in county governments. Researching and collecting policies enacted by other counties that affect fuel consumption can provide potential ideas or templates for Adams County. Several fuel related policy topics might include:

Low Emission or Standard MPG Procurement Policy

A sustainability-focused vehicle procurement strategy prioritizes the purchasing or leasing of fuel efficient vehicles or fleet equipment during asset replacements or acquisitions. Green procurement strategies provide the guidelines to select the most fuel efficient vehicle, while simultaneously taking into consideration a vehicles life-cycle costs and its ability to support the county’s operations and services. With the primary goal of fuel efficiency, this tool sets the purchasing standards and procedures to ensure procurement of the best possible vehicle for its function while helping fleet managers to minimize fuel consumption and reduce GHG emissions.

- **City of Denver**

Fuel efficiency procurement policies may already exist in surrounding local governments. For instance, Denver’s Green Fleet executive order, established in 1993, mandates that the City of Denver must purchase the most cost-effective and lowest emissions vehicle possible. Denver’s fleet procurement policy also includes fuel-efficiency specifications to help effectively reduce fuel consumption and carbon dioxide emissions.

- **Boulder County**

In their Resolution, “Adopting a Sustainable Energy Path for Boulder County”, the Boulder County publically committed to:

- Increasing the average fuel efficiency of county fleet vehicles
- Converting to hybrid and plug-in hybrid vehicle

- **Other**

Included in Ann Arbor, Michigan’s Green Fleets Policy is the commitment to increase average fuel economy. Base on vehicle class, the city set mpg standards to be met when purchasing new vehicles. The fuel efficiency targets are at or slightly above the average fuel economy for each vehicle class. The following chart shows the breakdown:

Vehicle Class	MPG Standard
Compact Car	26
Midsize & Full-Size Cars	20

Minivans/Mini-Pickups	19
2X4 Trucks	16
Passenger/Cargo Vans	15
4X4 Trucks	15

These mpg standards are reviewed and modified annually by the city. The policy encourages division and department managers to purchase the most fuel-efficient vehicle available that is able to meet its operational needs. Each purchase request is submitted and reviewed. Exemptions from the policy are only awarded by the reviewing committees if sufficient justification exists.

Engine Idling Policy

An idling ordinance or policy is one strategy aimed at idle reduction. Several cities around the Denver Metro Area have implemented anti-idling policies to improve air quality, reduce emissions, improve vehicle performance, and reduce fuel consumption. While not exhaustive, the list below can be used to demonstrate that many local governments have made idling policies a priority.

- Arapahoe County
- Summit County
- City of Aspen
- City of Denver
- Greenwood Village Municipal Code
- Town of Johnson Municipal Code
- Vail Town Code
- Winter Park Town Code
- City of Fort Collins
- Boulder County
- City of Boulder

Both the Department Director of Public Works and the Fleet Manager expressed interest in formalizing an anti-idling policy for the county. As a result, an Adams County Engine Idling Policy was drafted. See Appendix L for draft of the policy.

Also included in the Appendices (Appendix M) is Colorado's House Bill 11-1275, passed in April of 2011 that established an engine idling standard for certain commercial diesel vehicles. If the county is unwilling to adopt a separate engine idling policy for all county operated vehicles, the Sustainability Coordinator should make it a priority to ensure that departments operating vehicles included under this engine idling standard set by the state are following the established guidelines.

Efficiency Routing Policy

Optimizing efficient planning with routing allows fleet to meet operational and service requirements while reducing drive time and trip distance, and thus reducing fuel consumption. Utilizing software is becoming more prevalent as fleet managers understand the role technology can play in fuel conservation and efficiency improvements. Trip planning software is an effective tool to help guarantee vehicles and equipment are traveling the most efficient routes on a daily basis.

Installing telematics, such as electronic global positioning systems (GPS) devices, in fleet vehicles is also becoming more prevalent in fleets of all sizes. These devices are able to collect positional and tracking data relayed by each vehicle and communicate this information with software, generally located in the main fleet offices. Tracking data may include vehicle location, driving speed and idling times, giving fleet managers a better understanding of their fleet's driving behaviors and practices.

Preventative Maintenance Policy

According to the Federal Energy Management Program, preventative maintenance is one of the most cost effective ways to reduce fuel use. Practicing regular, scheduled maintenance on fleet vehicles helps to prolong fuel economy benefits, such as improved fuel efficiency and reduced emissions over a vehicle's life cycle. The benefits of preventative maintenance also include expanded vehicle life and reduced equipment or process failures.

Preventative maintenance procedures should include the following:

- Checklist of services or tasks performed
- Service interval or frequency to perform tasks
- Scheduling processes
- Recording keeping process

Identifying and understanding the types and purposes of various fuel-related policies may serve as a tool to motivate departments to improve fuel efficiency and reduce consumption in fleet activities.

5.2.3 Understanding Other County's Levels of Service

Engage with other counties to determine what levels of service they provide. This will help to establish a benchmark for where Adams County stands in comparison to other counties and may offer the impetus and support to change the current levels of service provided by the county.

Engage with the key personnel in other county/city transportation or road maintenance divisions to gain a better understanding of the types of services provided and the established level of service. Utilize the interview guide (Appendix N) to determine how service levels are decided.

Boulder County, for instance, determines grading based on the volume of traffic using the roads. Below is the breakdown for determining how often a road is graded:

- High traffic volumes roads are graded every 7 to 10 days as conditions permit,
- Lower traffic volumes roads are graded every 3 to 4 weeks as conditions permit, and
- Low usage roads and jeep roads are graded seasonally as conditions permit.

Comparing information such as how often certain roads are graded will allow the Sustainability Coordinator to see how Adams County road maintenance services compare to the levels of service provided by surrounding local governments. This information will also prove to be valuable when engaging in conversation with the county's Highway Superintendent.

5.3 Design Path Forward

After successfully identifying current fuel related practices and policies, and effectively comparing these to other counties, the Adams County should begin the process of designing and implementing changes to achieve the 5% fuel reduction goal. The suggested framework to obtain this goal includes the following steps:

- Presenting the state of the current fleet in comparison to the market
- Identifying areas to improve
- Implementing changes

5.3.1 Present State of Current Fleet in Comparison to Market

The primary stakeholders, including top management, as well as department directors from Public Works and the Sheriff's department, should be engaged in a conversation that addresses the status of the current fleet. Presenting how Adams County's current fleet compares against other counties in terms of fuel consumption, fuel related policies, and levels of service as compared to the market will provide key stakeholders a comprehensive picture of the county's fuel usage.

Engage at Departmental Level

As previously mentioned, Public Works and the Sheriff's Department operate the majority of the vehicles and equipment in the county's fleet. They also account for the majority of fuel use. Engaging these two departments is most advantageous due to the impact both have on total fuel consumption.

Illustrating current fuel consumption not only increases their knowledge about both consumption levels and cost ramifications, it can be a powerful tool in motivating departmental leadership to explore consumption reduction initiatives.

Engage Top Management

The ability to demonstrate other counties’ fuel policies and practices is an informative tool that could provide the key stakeholders with the necessary motivation or reasoning to implement changes that make sense from a fuel reduction or efficiency improvement standpoint.

5.3.2 Identify Areas to Improve

Completing the evaluations of current fuel consumption as previously discussed will draw attention to opportunities for improvement. The Sustainability Coordinator should primarily focus on fuel reduction projects or implementing policies that not only work towards the 5% reduction, but also on opportunities aimed at fostering sustainability in the organization.

Below is a table of potential opportunities to pursue in order to reach the county’s fuel reduction goal drafted with the Sustainability Coordinator. Also included in the table is the estimated percentage of total fuel reduction that could be achieved with each initiative. The identified percentages are rough estimates based primarily on past experience and knowledge of how implementing these initiatives impacts total fuel consumption. Some estimates are conservative, while some are more aggressive depending on the information gathered from interviews or the data that was available. Unfortunately, without county-specific fuel consumption data, it is difficult to provide accurate reduction predictions.

5% FUEL REDUCTION			
Priorities	%	Ideas	%
Idling policy	<1%	Idling policy	<1%
Decrease miles driven	5%	MGP procurement standard	0%
Dump truck operations analysis	~5%	downsize cars	0%
Education	1%	Vehicle breakdown	0%
Competition	1%	Decrease miles driven	5%
		Scheduling (timing/distances)	1%
		Trip planners (GIS)	1%
		Analysis of dump truck operations	5%
		Implement flex hours	1%
		Vehicle breakdown by department	0%
		Competition	1%
		Publish fuel results	1%
		Education	1%
		Vehicle locators	<1%
		Levels/frequency of service	2%
		Eliminate vehicles	
		Pool vehicles	

When prioritizing the identified opportunities, several aspects should be taken into consideration, including the partnerships necessary to carry out the initiative, how achievable the initiative is, and how much it will contribute to a reduction in fuel usage.

The selected priorities include:

- Establish an engine idling policy
- Decrease total miles driven
- Analyze dump truck operations
- Provide employee education
- Implement efficient driving competition

From the list of identified opportunities, the Sustainability Coordinator initially selected several priority initiatives to focus on in 2012. Note that it appears fuel consumption would be reduced by over 10% upon the successful implementation of each priority initiative. It is advantageous to aim above the 5% reduction goal for several reasons. For instance, as previously mentioned, the savings percentages are not guaranteed, but rather estimates. Also, savings may not be realized immediately after a policy or initiative is implemented.

5.3.3 Implement Changes

Implementing identified sustainability initiatives will work towards achieving the 5% fuel consumption reduction goal. The specific steps of implementing an efficient driving competition, a potential fuel reduction priority, are explored below.

Efficient Driving Competition

Using competition is one tool that can be utilized to make strides towards achieving a proposed goal. As previously explained, the Public Works Department and the Sheriff's Department consume the significant majority of all county fuel. Establishing an efficient driving competition either between or within these departments could help towards the 5% reduction goal.

With the objective of fuel reduction, several key steps are identified below to ensure the successful implementation of an efficient driving competition. The following steps will be explored as they related to this initiative specifically, but can be applied to any future fuel reduction initiative.

- Create implementation plan
- Provide education
- Carry out implementation

Create Implementation Plan

Creating a detailed plan for implementation is crucial to the success of any initiative. The plan should be divided into several sections, including:

- Description
- Purpose
- Procedure

Provide description

An efficient driving competition challenges employees who drive county vehicles or operate county equipment to reduce fuel consumption by adjusting current driving practices or behavior. After collecting and making publish current fuel consumption levels, the participating departments or employees will be briefed on efficient driving/operating practices. Upon completion of the educational component, participants will compete to reduce total consumption over a specified period of time (e.g. one month). The department or participants with the highest percentage fuel reduction will be awarded winner.

Identify Purpose

Implementing an efficient driving competitive to reduce fuel use will contribute to the overall 5% fuel consumption reduction goal set by the county's sustainability program. If executed properly, an efficient driving competition has the potential to increase awareness about current fuel consumption, provide an opportunity to educate county employees about efficient driving techniques, and motive employees to take ownership for fuel consumption and to be actively involved in reducing consumption levels.

Create Procedure

1. Identify stakeholders

- a. *Public Works Department* – Accounting for over 40% of the county's total vehicles, Public Works is responsible for a large percentage of fuel consumption and the consequent fuel expenditures.

There are several key stakeholders in this department due to the separate departmental divisions. Engage with the Director of Public Works to gain support from the department's top leadership. The director is in the position and has the power to dictate if and what fuel reduction initiatives are pursued.

The Fleet Superintendent, head of Public Works' Fleet Services and responsible for the procurement, maintenance, and disposal of all county vehicles and equipment, is another key stakeholder to engage. Responsible for tracking fuel consumption for the county's vehicles, the Fleet Superintendent will play a crucial role in producing the reports necessary to compare reduction levels between or within the participating departments.

The Highway Superintendent is responsible namely for the county's road maintenance operations. The vehicles and equipment used to perform these operations, such as graders, dump trucks, and snow plows, all contribute to the county's overall fuel consumption. The Highway Superintendent will take directive from the Department Director, but also has significant influence among his employees in the Highway Section. Engaging with him to gain support for the competition will be crucial to obtain employee buy-in for this initiative.

- b. *Sheriff's Department* – The Sheriff's Department currently accounts for approximately 34% of total county vehicles. Because a significant amount of the department's activities involve vehicles, along with the portion of total fleet vehicles the department is accountable for, the leadership are identified as other important stakeholders in the effort to reduce fuel consumption.

Gaining support and approval from the Sheriff is crucial for the success of fuel reduction initiatives. A highly visible and influential individual, the Sheriff should be engaged early, kept involved, and updated regularly.

- c. *Top Management* – Support and visible backing from the county's top leadership, specifically the Board of County Commissioners and County Administrator, is also crucial to how successfully fuel reduction initiatives are accepted by county employees. Direction from top leadership is a powerful tool in recruiting the support from the rest of the organization.

Additionally, the Board of County Commissioners, the County Administrator, and other top elected officials are provided vehicles by the county. Not only could these leaders publically express support for the initiatives, leading by example and adopting efficient driving practices themselves is also a powerful motivating tool. Engaging with these leaders to helping them understand their potential impact, as well as informing them of how they can support the initiative is an important step in the implementation plan.

- d. *Employees* – An efficient driving competition could involve all county employees that drive or operate any of the county's fleet. While all may not initially be involved in the efficient driving competition, it is still important to educate these employees and communicate the importance and impact (monetary and environmental) of implementing efficient driving practices.

2. Meet with Fleet Superintendent to discuss tracking system for competition
 - a. Determine what reports should be run regarding fuel consumption depending on participating parties
 - i. Fuel consumption by department
 - ii. Fuel consumption by vehicle
 - iii. Cost ramifications of fuel consumption
 - b. Determine how frequently the reports should be run/published
3. Define completion timeline
4. Present to top management for approval & support

Provide Education

Education is critical to the success of any initiative, especially if the proposed initiative requires a change in employee behavior. Use this opportunity to adequately explain why the initiative is being implemented by helping employees understand the cost and environmental ramifications of current fuel consumption.

In order to reduce fuel consumption, employees who drive or operate county vehicles will need to adjust their driving practices. The Sustainability Coordinator should develop educational materials to inform employees of inefficient driving practices, why or how they cause unnecessary fuel consumption, and how to improve.

Lastly, it is also important create an education strategy to explain the details of the driving competition to the participants. The Sustainability Coordinator should utilize Green Team members and departmental leadership in the participating departments to help with this phase of education to help create buy-in and excitement for the competition.

Carry out Implementation

Once the Sustainability Coordinator has implemented the educational strategy and all participating employees have been fully briefed on the competition, the Sustainability Coordinator should carry out the devised implementation plan.

It is important to make sure that fuel consumption is made public throughout the competition. This will help participants track their progress and establish accountability for fuel use and the consequent costs.

Once the driving competition is over, fuel consumption should be published to demonstrate the reductions made across the competition. The department

that is able to successfully reduce their total fuel consumption by the highest percentage should be awarded with a previously decided upon prize.

Additionally, the Sustainability Coordinator should use these quantitative results when presenting the progress of the sustainability program to the top leadership in participating departments and top leadership in the county.

6. WASTE REDUCTION

2012 Goal: Improve Waste Diversion by 10%

The third major sustainability focus of the county is internal waste reduction and waste diversion. Improving waste diversion by 10% was identified as the goal for 2012. While waste reduction focuses on decrease the total amount of waste produced by the county, diversion focuses on reducing the percentage of material that is disposed of in landfills. Improving the county's diversion rate will generate environmental, financial and social benefits. Some of these benefits include energy conservation, a reduction in greenhouse gas emissions, and a decrease in waste collection service expenditures.

Prior to focusing on waste diversion efforts in 2012, the Sustainability Coordinator identified successfully completing the implementation of a formal recycling program in all county-operated buildings as the primary goal for 2011. Several stages have been identified to help achieve an accessible, convenient, single-stream recycling program and help the county increase its diversion rate by 10% by the end of 2012.

- Develop recycling plan
- Implement recycling plan
- Perform waste audits

After developing and implementing the recycling program in county buildings, the Sustainability Coordinator should focus on performing waste audits to improve waste diversion. Diversion rates are calculated by dividing the total weight of materials disposed of by means other than landfill dumping (e.g. recycling, composting), by the total weight of all materials discarded by the county. A waste audit is a multi-stage, cyclical process aimed at monitoring waste generated by county operations, identifying inefficiencies in the waste process, educating employees, and improving these inefficiencies. Conducting these waste audits throughout county buildings will provide the Sustainability Coordinator with the necessary tools to improve diversion rates.

6.1 Develop Recycling Plan

Creating an in-depth plan will provide the necessary framework and help streamline the process of implementing the recycling program in each county-operated building. While the general outline of the plan can be replicated, a separate document should be created for each building so as to reflect building-specific details that relate to implementation. Proposed sections of the plan include:

- Overview of the recycling system
- Defining the implementation phases
- Selecting bin locations
- Creating recycling training

6.1.1 Overview of the Recycling System

Establish a summary that communicates the purpose, intended outcomes, and basic details of the recycling program.

Single-stream recycling

The county will implement a single stream recycling system in all buildings. Single stream recycling allows all recyclable materials, including paper, plastics, metals, and containers, to be collected in a single bin. Items do not need to be separated.

Employee Recycling Bins

- Provided by the county
- Emptied by employees into centralized station

Each employee will receive an individual recycling bin to be placed at his/her workspace. The 3-gallon bins will be provided to staff by the county after implementation of each building’s recycling program. Once the program is implemented, employees are responsible for emptying their bins into centralized stations throughout the building. The janitorial staff will no longer be responsible for trash or recycling collection at individual workstations.

Central Recycling Stations

- Located in designated common areas
- Educational signs/material posted on bins
- Bins emptied on a daily basis

Several larger recycling receptacles will serve as the collection stations in each building. These centralized recycling stations will be located in designated common areas throughout each building. Educational materials and/or signs should be located on or around the receptacle to serve as a point of reference for employees. Unlike the individual recycling bins, these containers will be emptied on a daily basis by the janitorial staff.

6.1.2 Define Implementation Phases

A multi-phase approach will help focus and streamline the implementation process. At the end of Q3 2011, seven county buildings were actively participating in the recycling program. In order to successfully manage the implementation of the remaining 19 buildings, these buildings should be divided into smaller groups. Splitting up the remaining buildings will effectively form the phases for implementing the program.

The following chart depicts the phases as decided on by the Sustainability Coordinator.

Phase	Name	Comments
Phase 1	ADCO District Court	20 Central Bins - T&R

Phase 1	ADCO Head Start	2 Central Bins - T&R
Phase 1	ADCO Honnen Building	9 Central Bins - T&R
Phase 1	ADCO Human Services Building	48 Central Bins - T&R
Phase 1	ADCO Justice Center	74 Central Bins + 47 3-gallon Bins
Phase 1	ADCO Motor Vehicle	3 Central Bins - T&R
Phase 2	ADCO Comm. Center	
Phase 2	ADCO Fed. Heights Head Start	
Phase 2	ADCO Social Services Career Ctr.	3 Central Bins - T&R
Phase 2	ADCO South Park Shop	2 Central Bins - Need to contact Bert
Phase 2	ADCO Western Service Center	Need to complete bin location ID
Phase 3	ADCO Detention Center	8 Central Bins - T&R
Phase 3	ADCO Motor Vehicle	3 Central Bins - T&R
Phase 3	ADCO Service Center	8 Central Bins -T&R
Phase 3	ADCO Sheriff & Coroner	4 Central Bins - T&R
Phase 3	ADCO Shooting Range	1 Metal Bin - contact Trevor Graf
Phase 4	ADCO Rotella Park	No bins available at this time
Complete	ADCO Animal Control	
Complete	ADCO Children & Family Center	
Complete	ADCO Development	
Complete	ADCO Golf Maintenance Yard	
Complete	ADCO Government Center	
Complete	ADCO Parks Department	
Complete	ADCO Riverdale Golf	

6.1.3 Select Bin Locations

Aside from the individual bins given to each employee, central recycling stations need to be identified in common areas.

- Create standard template to record bin locations
- Complete a building walk-through with the Facilities Manager to determine appropriate locations
- Record locations in template for future reference

6.1.4 Create Recycling Training

Education is crucial to the success of any organizational change. Developing a comprehensive training plan for county employees will help smooth the transition into implementation of the recycling program. Important factors to consider when creating educational materials include:

- Potential fears or concerns
- Existing level of knowledge/exposure
- Incentives or motivations

Prior to providing training and educational materials, the Sustainability Coordinator should conduct a staff survey that will shed light on the aforementioned factors. See Appendix O for sample questions to include in the survey. The sample questions are designed to give the Sustainability Coordinator a better understanding of staff members' personal experience, knowledge, and opinions about recycling. The results from the survey can be used help develop a more tailored educational experience for staff.

A multi-faceted approach will most-likely yield the best results in terms of successfully reaching the large audiences of employees. Presenting information through different forms of communication will not only increase knowledge about the program, but because people tend to learn/absorb information differently, the information will more effectively reach employees. Potential educational material and methods are described below:

- Provide initial recycling training session for all employees
- Make informational handouts and/or signs readily available
- Encourage use of the Green Team's intranet page as informational source
- Establish a clear point(s) of contact

6.2 Implement Recycling Plan

Successful implementation of the recycling program depends on several key stages. The proposed stages are as follows:

- Discuss recycling plan with key building stakeholders
- Provide training session for all staff
- Distribute bins
- Train maintenance staff

6.2.1 Discuss Recycling Plan with Key Building Stakeholders

Prior to rolling out the recycling program in any building, key stakeholders should be identified and engaged in the process. Determining key stakeholders involves identifying individuals who have significant influence upon or importance within the building and are most capable of influencing the implementation process. Key stakeholders in this process may include:

- Department directors
- Facility or building managers

Engaging with the indentified stakeholders provides the opportunity to initiative alignment or further aligns key personnel with the proposed program and the county's sustainability mission in general. Engaging with stakeholders will also provide the appropriate setting to identify and address any potential issues or

challenges prior to implementing the program. Potential items to address in a one-on-one meeting with key stakeholders are discussed below.

Description of the program

Utilize the information developed in the overview section of the recycling program's plan. Discuss program's details, the purpose of the program and its intended outcomes.

Benefits of the program

There are several benefits associated with the program's implementation that should be communicated. These include:

- Potential cost savings – as materials are diverted from the county's trash stream, the county is most likely to realize cost savings from adjusting its waste collection services.
- Reduced environmental impact – less county waste will end up in the landfills.
- Opportunity to fulfill employee interest – communicated desire of employees to have the option to recycle

Staff member training session

Obtain permission and support from department directors to involve staff in a training session at the start of the programs implementation. Discuss the importance of public support from management during organizational change.

Feedback about the program

Due to their day-to-day involvement, department directors and facilities staff may offer additional, building-specific insight about how to better implement and run the recycling program. Providing time for feedback about the program will allow the Sustainability Coordinator to address any concerns, as well as adjust the plan if necessary.

Obtaining key stakeholder understanding and support of the program is an important step in helping to ensure a smooth transition into implementation.

6.2.2 Provide Training Session for All Staff

Effective implementation requires a period of outreach and education to employees & staff members. Ultimately, the success of any initiative, including the recycling program, depends on the support and understanding of the employees responsible for implementing it.

When implementing the recycling program in a new building, a training session for all staff members is suggested to introduce and educate employees about the program. The session should be lead by the Sustainability Coordinator, as well as the Green

Team leader(s) from that particular building. Potential aspects of this training session may include:

- Overview of the program
- Bin locations
- Discussion of accepted items
- Q&A session

While educational efforts should focus on the specific initiative, it is important to incorporate general concepts of sustainability, so staff members connect the initiative with the county's sustainability mission.

6.2.3 Distribute Bins

Recycling bins must be distributed to each employee, as well as to the designated recycling/waste centers throughout the building. The 3-gallon individual bins should be handed out after the all staff training session. So as not to lose momentum with the program, delivery and distribution of the containers for the recycling centers should coincide closely to the training session date. With these two parts of the system in place, disposing of recyclable materials can begin immediately following bin distribution.

6.2.4 Train Maintenance Staff on Recycling System

The janitorial staff plays an integral role in carrying out the actual systems of the recycling program. Effective training will help to ensure the systematic side of the program runs smoothly. The Sustainability Coordinator should coordinate with the Head of Maintenance to discuss with maintenance staff the changes in waste pick-up.

The implementation of the recycling program will coincide with separate changes to general waste collection in the buildings. The following changes about waste collection should be communicated to the maintenance staff:

- Trash & recycling bins in central locations (same locations as recycling centers) will be emptied on daily basis by maintenance staff.
- Employees are responsible for emptying individual bins (trash & recycling) into waste center bins on as-needed basis.

6.2.5 Provide Follow-up Support & Education

After the recycling program has been implemented in any building, there will likely be questions or concerns that arise by staff members. Follow-up support and education should be made available to address these issues, as well as provide updates to employees if necessary. While the Sustainability Coordinator and a Green Team member should be the designated point of contact for general question/concerns, it is also suggested to have scheduled check-ins.

- One week after bin delivery
- One month after implementation

- Quarterly or bi-annually at departmental staff meetings

6.3 Conduct Waste Audits

Once implementation of the recycling program is complete, the Sustainability Coordinator should focus on reducing the percentage of material that is disposed of in landfills (trash). Waste and inefficiency are inextricably linked. Conducting a waste audit allows the county to pinpoint the sources of this waste and develop improvements, leading to increased efficiency, increased savings, and to improvements in waste diversion. A waste audit can function as a useful tool in increasing the materials diverted from landfills, helping the Sustainability Coordinator achieve the 10% waste diversion goal.

Below is a summary of the four proposed stages of a waste audit. Although the stages are sequential, in order to maximize the benefits of a waste audit, treat this process as a cyclical one.



Stage I – Analysis

The purpose of the first stage is to get an accurate picture of the current waste operations of the county. Various approaches will be utilized to gain an understanding of how much waste is produced, the activities that generate waste, current waste collection services, and the costs associated with waste for the county as a whole, as well as for individual buildings.

Stage II – Identifying & Improving Inefficiencies

The data collected in Stage I will help identify specific inefficiencies in the county's current waste operations. Addressing the identified inefficiencies in waste operations translates into a decreased environmental impact and cost savings.

Stage III – Education & Involvement

County employees are an essential resource in this process. Not only will the Green Team play a significant role in orchestrating the various stages, but the education provided to county staff about increased efficiency and any consequent changes is essential to successfully improving operational inefficiencies.

Stage IV – Monitoring Changes

As in Stage III, staff involvement is also critical in Stage IV. Monitoring the implemented changes involves regularly examining the amount and contents of the waste generated. The goal of this stage is to determine whether items are being discarded to the proper waste stream and to identify strengths and weaknesses in the process.

Following these stages will promote continual improvement in county waste operations. Establishing a system that continuously monitors waste operations, identifies inefficiencies, and involves and educates staff will help guide the Sustainability Coordinator when making decisions regarding the county's waste.

6.3.1 Stage I – Analysis

Several activities are proposed to complete the waste analysis stage. The information or data compiled from each activity will provide the county with a more accurate picture of its waste generation and operations. The proposed activities include:

- Data & records compilation
- Building walk-throughs
- Waste examinations

Each varies in terms of the time, resources, and details required to complete the activity. As the Sustainability Coordinator begins the waste audit process in order to establish a comprehensive understanding of the county's waste, it is suggested that each activity is performed in entirety. However, as the county's waste goals or priorities change over time, the Sustainability Coordinator may choose to perform one activity or use a combination of the approaches in order to capture the desired waste information.

Data & Records Compilation

Overview

Compiling waste data will increase the county's knowledge about its waste generation and waste collection services. Records to examine might include:

- Waste equipment invoices or contracts
- Waste hauling and disposal records and contracts
- Recycling facility contracts

From these records, invoices, and contracts, extract data that can be used to gain a better understanding of the current waste system and the monetary costs associated with waste disposal.

By gathering all this information, it can be compiled into a central, manageable location. This will allow the Sustainability Coordinator to better comprehend the current waste collection and removal process at all of the county's facilities. Examining this compilation will help direct the Sustainability Coordinator to develop more appropriate waste management and reduction strategies.

Compiling & Maintaining Data Records

The Sustainability Coordinator should utilize tracking tool to regularly and easily access and update the data. A variety of tracking tools exist, ranging from Excel spreadsheets to more complex databases to contractor-based tools. With consent from the Sustainability Coordinator, a customized Excel spreadsheet was created and will be utilized to document and track the county's waste data. The data should be regularly revisited and updated, either on a monthly or quarterly basis.

Strategy

Data compilation is generally less labor-intensive than building walk-throughs and waste examinations, as it does not require the physical inspection of the actual waste streams or sources of waste. However, it can be time-intensive to not only generate the initial compilation, but also to update and maintain the data.

It is not necessary for the Sustainability Coordinator to be involved with the actual data entry, so long as he/she has access to and regularly examines the updated data. One option is to provide the Sustainability Coordinator with a report after new data is entered. The Sustainability Coordinator should utilize and delegate the task of updating the tracking mechanism to Green Team members.

Benefits

The county is responsible for the waste operations at numerous facilities. Many times in larger organizations, such as a county government, waste collection services (e.g. frequency of pickups, size of container, and number of containers) are not customized to the amount of waste produced at each facility, but rather are continued without change from year to year.

Simply compiling the waste collection service information into one place generally highlights inefficiencies in the current system that can be examined and usually altered to generate cost savings for the county.

Documenting current waste collection and removal practices at each county-operated facility or building will also allow the Sustainability Coordinator to generate certain assumptions about the amount of waste produced by the county. Based on the size of waste removal containers and the frequency of their pick-up, the Sustainability Coordinator can generate estimates of the amount of waste produced at each facility.

Building Walk-Throughs

Overview

A walk-through consists of touring a building in order to observe waste producing activities and calculate estimates of the amount of waste generated. A building walk-through would allow the county to:

- Estimate the types and relative amounts of waste produced
 - Indicate units used to estimate (lbs, tons)
 - Record time period estimating for
- Observe waste-producing activities and equipment
- Identify inefficiencies in operations
- Assess current waste reduction efforts and activities

Strategy

- 1.** Assemble a small team (3-5 staff members) to conduct a building walk-through. The team should be made up of the Sustainability Coordinator, building-specific Green Team members, and the building or facility manager.
- 2.** Schedule the activity close to a waste collection day. This will help ensure a sufficient amount of waste has accumulated and will provide a relatively accurate representation of the types of waste generated. Try not to perform a walk-through on or around events, such as holiday parties in order to avoid observing waste that is not generally produced during a normal workday.
- 3.** Inform the building's department managers prior to performing the assessment.
- 4.** If possible, take time to speak with employees to gain additional insight on waste generation and ideas to improve inefficiencies. This also provides an opportunity to keep employees engaged in the waste reduction efforts and the sustainability program as a whole.
- 5.** Focus on operations and areas of the building that are most likely to generate the most amount of waste. For instance, this may include kitchens, copying or printing stations, or shipping and receiving departments.

6. Building walk-throughs can be completed less frequently than data compilation, since the waste-generating activities and types of waste will remain relatively consistent.

Recording Observations

Use a standard worksheet during each walk-through to record findings. At minimum, the follow information should be recorded for each waste product or material identified (see Appendix P for sample worksheet):

- Waste product/material
- Estimated weight generated per week
- Source of waste (activity and/or equipment)
- Current reduction efforts (applicable to the specific waste item)
- Waste reduction opportunities

This worksheet will serves as a building-specific record of the types of waste, waste-generating activities, and estimated amounts of waste. Compiling each building's findings could be used to generate a waste profile of the county as a whole.

Benefits

While a building walk-through does not necessary produce precise waste generation numbers, it will provide the county with more accurate estimates than simply calculating estimates based on waste container size and frequency of pick-ups.

Additionally, it will provide the Sustainability Coordinator with first-hand accounts of facility-specific operations and will provide information about the main types of waste and waste-generating processes. Completing this observational activity, will allow the walk-through team to identify existing inefficiencies and to consider potential opportunities to improve the efficiency of these operations

Building walk-throughs could prove to be additionally beneficial to the county given the number of different buildings it operates. Different county buildings and even departments may generate significantly different types and amounts of waste. Conducting walk-throughs will allow the Sustainability Coordinator to develop a better understanding of building-specific waste types and the various waste-producing activities, thus more likely resulting in customized solutions or approaches to identified waste inefficiencies.

Waste Examinations

Overview

A waste examination is a structured procedure designed to help quantify the amount and types of waste produced, as well as determine how successfully waste items are being discarded via the appropriate waste streams (i.e. trash stream vs. recycling stream).

The primary objectives of a waste examination include:

- Determining the composition of waste being generated
- Determining the quantities of waste being generated
- Measuring the effectiveness of existing waste systems
- Identifying opportunities for improving waste systems

By collecting, sorting, and weighing a sample of a building's waste, waste components can be identified and measured, and diversion rates can be calculated.

Strategy

Of the three activities discussed, a waste dissection is the most labor and time-intensive, as it requires the physical collection, sorting, and measuring of a waste sample. Ideally waste audits would be performed quarterly or semi-annually. They can also be an effective tool to help measure progress after a waste reduction initiative is implemented. See Appendix Q for complete worksheet.

Follow the subsequent steps to complete a waste dissection:

1. Assemble a small team (2-5 staff members) to conduct a waste dissection. While it would be advantageous for the Sustainability Coordinator to participate, this team can be made up entirely of Green Team members or staff volunteers.
2. Assemble a waste sample that adequately represents all waste produced in a building.
 - a. If recycling exists in the building, keeping them separate, gather both trash and recycling samples
 - b. Also, determine if waste generation is likely to vary significantly enough from one day to the next to impact dissection results. If so, collect and combine smaller multi-day samples to use for the dissection.
3. Begin the waste dissection with the objective of determining how well recyclable materials are being diverted from the trash.
 - a. Weigh the trash sample prior to sorting and record weight
 - b. Sort through the trash sample, extracting any items that could be recycled

- c. Record weight and percentage by volume of the remaining trash sample
 - d. Record weight and percentage by volume of the extracted recyclable items
4. Once this is determined, all waste materials will be sorted and measured to calculate the types and amounts of waste generated.
 - a. Prior to starting, establish categories that the waste will be sorted into. There will be several sorting rounds to help streamline this phase.
 - i. Major categories: trash and recyclables
 - ii. Major components (keeping trash separate): paper, plastics, glass, metals, compostables, other
5. Weigh each grouping and record findings in a standard worksheet.

Benefits

Although waste dissections generally require more time and effort than the other assessment activities, they provide more accurate, quantitative data on both waste generation amounts and specific waste components. Waste dissections help identify strengths and weaknesses in current waste operations. They also provide an opportunity to determine if waste collection services are appropriate for the actual amount of waste generated at each facility. Altering waste collection services based on a waste dissection can result in significant cost savings for the county.

6.3.2 Stage II – Identify & Improve Inefficiencies

After compiling the information gathered from conducting the waste audit activities, the Sustainability Coordinator should review the information with Green Team leader from each building or department to identify inefficiencies that exist in the waste operations. It is advantageous to utilize the opinions and suggestions of those who participated in the waste audits, as they are also involved in their departments' waste producing activities on a daily basis.

After looking at waste operations on an individual building basis and identifying inefficient processes, the Sustainability Coordinator should compile this information to see if the same inefficiencies are repeated in waste operations throughout the county's facilities. Taking a look at county-wide inefficiencies will help the Sustainability Coordinator prioritize improvements.

Additionally, compiling this information may highlight efficient waste operations or practices in one building that could be applied in another. The Sustainability Coordinator should lead a discussion with all the Green Team leaders to review the results of the waste audits and identify solutions to the problem areas.

6.3.3 Stage III – Education & Involvement

Having staff participate in the process of performing waste audits, as well as in the process of implementing initiatives to improve waste operations provides an opportunity to increase employee involvement in the Sustainability Program.

Once inefficiencies have been identified, it is important to relate this information back employees as they have the most significant impact on both waste producing activities and waste disposal. Making staff knowledgeable about their habits relating to waste and how to improve them is a powerful tool in achieving support for changing these behaviors, as well as in achieving waste reduction or diversion goals.

6.3.4 Stage IV - Monitoring Changes

Establishing a standardized waste tracking template for the county will provide a tool from which future activities regarding waste and recycling, including performance, procedure and cost can be measured and tracked.

The waste-tracking template should capture several building specific details regarding waste and waste collection services. Proposed items include:

- Cost of trash services
- Amount of trash (lbs)
- Cost of recycling services
- Amount of recyclables (lbs)

A waste-tracking template was created to allow the Sustainability Coordinator to easily track monthly waste metrics (cost, weight, etc...). By entering the following information for each building on a monthly basis:

- Building name
- Month
- Year
- Trash cost
- Estimated trash weight
- Recycling cost
- Estimated recycling weight

After this information is entered, several additional spreadsheets will be automatically generated for the county. Some of the metrics calculated in these spreadsheets include, county-wide waste collection costs, materials generation, and resources saved from recycling efforts. Building specific information will also be stored in separate spreadsheets. Below are examples of the information that will be generated. Refer to Appendix R for complete template.

Total (county-wide) Waste Collection Services Cost

Cost				
Month	Recycling	Trash	Other (Shred-It)	Total

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Jan-11				
Feb-11				
Mar-11				
Apr-11				
May-11				
Jun-11				
Jul-11				
Aug-11				
Sep-11				
Oct-11				
Nov-11				
Dec-11				
Total 2011				

Total (county-wide) Materials Generation

MATERIAL COLLECTED							
Month	Recycled Materials (lbs)	Trash (lbs)	Total of materials (lbs)	Diversion Rate by Weight	Trash Per Employee (lbs)	Diverted Materials per Employee	Cost per Employee
Jan-11							
Feb-11							
Mar-11							
Apr-11							
May-11							
Jun-11							
Jul-11							
Aug-11							
Sep-11							
Oct-11							
Nov-11							
Dec-11							
Total 2011							

Total (county-wide) Resources Saved

RESOURCES SAVED					
Month	Gallons of water saved	Kilowatt hours of energy saved	Pounds of air pollutants prevented	Cubic Yards of landfill space saved	Trees saved
Jan-11					
Feb-11					
Mar-11					
Apr-11					
May-11					
Jun-11					
Jul-11					
Aug-11					
Sep-11					
Oct-11					
Nov-11					
Dec-11					
Total 2011					

By using this template to track how the total amount of generated waste, the diversion rate, and the cost of collection services change over time, the Sustainability Coordinator will be able to see how different waste reduction or waste diversion initiatives have impacted the county’s waste operations.

The Sustainability Coordinator should utilize the information generated by this template to demonstrate how waste-related initiatives have improved the cost and operational efficiency of waste operations. Using the quantitative data produced by this template when presenting the accomplishments of the Sustainability Program will highlight the substantive results to county leadership.

7. SUSTAINABILITY FUNDING

2012 Goal: Secure Funding for Sustainability Initiatives

Establishing a secure source of funding is imperative to advancing sustainability program in Adams County. For 2011, the county allocated a set budget used to fund the Sustainability Coordinator position and the program's initiatives. Additionally, grant funding that was awarded to the program was also used to pay for a majority of the projects carried out by the Sustainability Coordinator. With budget a perpetual concern for any county government, developing a strategic approach for securing funding for the sustainability program is important. In order to ensure funding is available to implement various sustainability initiatives in the future, as well as to maintain the county Sustainability Coordinator position, the following steps should be considered:

- Publish current sustainability accomplishments
- Engage top leadership
- Identify potential grant opportunities

Creating visibility for the sustainability program in the county by documenting existing practices and their cost saving implications is an important first step in gaining internal support. Engaging top county leaders in the sustainability program and identifying strategic partnerships will provide necessary visible support for sustainability.

7.1 Publish Current Sustainability Accomplishments

Various examples of sustainable practices already exist in the county's internal operations. However, many have gone unrecognized or are not publically tied to the sustainability efforts of the county. Proposed steps for publicizing current sustainability accomplishments include:

- Generating the list of accomplishments
- Identifying value added

Publish a document describing these examples along with their corresponding positive outcomes, from an environmental, financial, safety, and/or social perspective. This documentation will help create visibility for the current sustainability program and highlight accomplishments throughout the county's various departments. This activity also connects the various practices, policies, and initiatives that were previously unnoticed or unrecognized under the sustainability umbrella, bolstering support for the sustainability program.

7.1.1 Generating a list of accomplishments

It is important to compile all examples of sustainable initiative in a single location in order to demonstrate the broad reach of sustainability efforts throughout the county. In addition to green practices and policies, be sure to include any sustainability-related:

- Projects

Adams County Sustainability Management Plan

- Awards
- Certificates
- Research
- Data collection

In order to help capture all of this information in Adams County, a series of interviews was conducted with county employees across the organization. The County Administrator, department directors, facilities staff, past and current Green Team members and other general staff members were interviewed from each department. This diverse group of interviewees helped identify previously unrecognized sustainability efforts across all levels and departments of the county.

While generating examples of sustainability efforts was not the only objective of the interviews, specific questions were geared towards capturing this information. Based on the interviewee's department and position, a customized interview template was used to extract examples of sustainability initiatives that the interviewee is involved with or aware of.

Once gathered, sustainability accomplishments were organized into the following categories:

- Energy conservation
- Waste reduction
- Water conservation
- Transportation
- Social/community outreach
- Other

Energy Conservation

In 2009, received a \$683,800 Energy Efficiency & Conservation Block Grant
County operations GHG report completed in 2010
Mckinstry energy project – Detention Center
(\$200,000 annual savings)

Government Center

- Occupancy sensors
- Automated lighting schedule for janitorial staff

Occupancy sensors in new part of Court House

Hwy division: sensor block heaters

HSB: Automated sleep-mode on computers

All department directors given approval to offer flex time to employees

Energy usage tracking with ENERGY STAR

Animal shelter lighting upgrade

Western Service Center lighting upgrade

Waste Reduction

Recycling implemented in 7 County buildings
OEM & DA's building: self-implemented recycling in department

Planning Department

- Electronic agendas & packets at staff meetings
- Electronic applications
- Recycled content paper

IT Department

- Electronic applications
- Electronics recycling (24,000 lbs since 2009)

Encourage use of non-disposable dishware

Govt Center: centralized trash pick-up

Encourage double-sided printing

Toner cartridge recycling through IT staff in HSB

Parks & Community Resources Dept:

- Scrap metal recycling
- Playground equipment recycling

Public Works Highway Division

- Sediment reuse
- Metal scrap recycling (general fund)
- All purchased asphalt is 20% R.A

Waste Reduction Cont.

HSB- some online applications (assistance programs)

Blanket & towel reuse in Animal Shelter

Formal recycling at County Fair

Water Conservation

Government Center: eliminated water jugs

Parks: Waterless urinals

Public Works: Drainage Master Plan

Transportation

Public Works: decreased fuel use by implementing flex-days scheduling

- Hwy division: 30,000 gallons fueled saved annually
- Tracking fuel use, mpg, idling for fleet

Transportation week

- Commit to commute
- Bike to Work day station
- MIS mapping project completed to encourage ride shares

Social/Outreach

Daily activities/education/outreach during Earth Week

Annual park clean up on Earth Day

Community garden

Recycling booth at fair

Annual community cleanups (hwy division):

Berkley Garden, Goat Hill

Other

Adams County Sustainability Resolution passed by BOCC

Hired Sustainability Coordinator

Green Team established

Green Champions intranet page

7.1.2 Identify Value Added

Identifying the added value associated with sustainable practices or policies will help to justify the importance of advancing sustainability initiatives in county operations. Added value can come in many different forms, including cost savings, resources saved, improved efficiency, improved community relations, and/or safety improvements.

Quantifying the added value is the most effective way to demonstrate how a sustainability accomplishment has positively benefited the county. As sustainability efforts are implemented, consider how to translate the benefits into quantitative values. For instance, if a department commits to double-sided printing, cost savings and the number of trees saved from purchasing less paper can be calculated.

In general, calculating the financial or environmental benefits will be less complicated than trying to quantify other benefits, such as value added from a social or safety perspective. Nonetheless, providing concrete numbers or values that demonstrate the benefits of a sustainability accomplishment can be a powerful tool to justify the program and its efforts.

Transfer the list of accomplishments to a simple spreadsheet that can be used to outline each accomplishment or initiative and its corresponding added values. Maintain this record as each new sustainability initiative is implemented.

7.2 Engage Top Leadership

To date, the county has been able to introduce multiple sustainability initiatives, through a grassroots, bottom up approach. The efforts of individual staff members and members of the Green Team are almost exclusively responsible for the progress made surrounding sustainability efforts. Although some initiatives introduced over the past year have been county-wide, such as the recycling program, most are not far reaching, but rather disjointed and exclusive to specific departments.

Sustainability as a concept has not yet been integrated into the culture of Adams County. In order to make more substantive progress and ensure that sustainability is incorporated into all aspects of county operations, top leadership needs to be a primary driver.

With the aim of realizing the benefits of a top down and bottom up approach, engage with top leadership to demonstrate why the integration of sustainability into the county's culture could be so beneficial.

7.2.1 Present to the Board of County Commissioners

Due to their influence in the budget process, engaging with the Board of County Commissioners is an important step in securing funding. Additionally, visible, public

support from top leadership in the county will inevitably create the momentum needed to build the organizational capacity and sustain participation for the sustainability program throughout the county. With the objective of securing their support, engaging with the BOCC provides the Sustainability Coordinator the opportunity to:

- Explain the importance of the program
- Demonstrate the successes of the program
- Identify how the BOCC

Explain the Importance of the Program

The three (3) primary reasons why sustainability is important for Adams County include:

- Alignment with other cities and counties in the metro region
- Cost Savings
- Reduced impact on the environment

Alignment with other cities and counties in the metro region

Provide an overview of what other local governments in the Denver Metro Area are doing in terms of sustainability. Providing this context will help the BOCC understand how Adams County's sustainability program compares to surrounding cities and counties.

Cost savings

Explain how the county can achieve significant cost savings by implementing sustainability policies or initiatives that address inefficient operations. Express the variety of operations that can be improved to generate these savings, including operations surrounding building energy consumption, internal waste, fuel consumption, and purchasing, among others.

Reduced impact on the environment

Improving inefficient county operations will not only generate cost savings for the county, it will also reduce the county's negative impact on the environment. It is becoming increasingly common for organizations, including local governments, to take responsibility for how their operations impact the environment. Reductions in carbon emissions, waste generation, energy consumption, fuel consumption, and resource consumption are all examples of environmental benefits from incorporating sustainability into county operations.

Demonstrate the Successes of the Program

The BOCC should be presented with the county's most notable sustainability accomplishments to date, along with the benefits that have resulted from their

implementation. Focus on initiatives that have produced visible and/or quantifiable results. For instance, the recycling program is not only highly visible, it also has the potential to result in waste collection services adjustments, resulting in cost savings for the county. Using quantitative data, illustrate the potential impacts of the program's initiatives.

Identify How the BOCC Can Help

Discuss the necessity of visible and vocal support from the BOCC for the county's sustainability program. The guiding document for the program, the Resolution to Approve Adams County Sustainability, was adopted by the BOCC in 2010. However, results from a survey relating to the county's sustainability efforts revealed that 56% of survey respondents said they did not believe county leaders supported the sustainability program. Without visible support for the program, the cultural change that needs to occur to fully integrate sustainability will not happen. Top leadership in the county has the power and influence to propel the organizational change needed fully embrace sustainability.

As previously discussed, incorporating sustainability into an organization can take on many meanings. Given the fact that BOCC involvement is so crucial to the success of the program, the Sustainability Coordinator should request the BOCC to provide direction on priorities to pursue, as well a regular feedback on the program.

Statement of Commitment

A Statement of Commitment attempts to gain public, department support for several identified initiatives relating to the goals of the Sustainability Program. This BOCC-supported document, to be presented to each Department Director, lists sustainability commitments which the department must fulfill on an annual basis. If signed by a Director, he/she is to hold his/her department accountable for meeting the list of commitments included in this Statement. (See Appendix S for more detailed information on developing an annual Statement of Commitment.)

The Statement of Commitment will be publically published on the county's website, showcasing the Directors and their respective departments whom opted to commit to integrating sustainability into their operations. This public commitment is a powerful tool in helping to better internalize and integrate sustainability into the culture of the organization.

7.2.2 Involve & Update Directors on Quarterly Basis

Directors are also key stakeholders that should be regularly engaged in the county's sustainability efforts. Most department directors have more day to day interaction and involvement with their staff, thus they have the ability to significantly influence the outcome of any initiative, as well as the attitudes towards an initiative implemented within their department.

Directors hold a monthly update meeting that should be used a platform to inform and update them on various sustainability program initiatives. The Sustainability Coordinator should present at these meetings at least once a quarter to keep the Directors engaged with the program. Approval from the County Administrator is needed to be involved in a Directors meeting. Obtaining this approval insinuates to the Directors that top leadership is on board with the program, providing the Sustainability Coordinator a certain level of power or influence he/she might otherwise be lacking.

Making regular appearances at these meetings will also serve to increase the Sustainability Coordinator's visibility around this group of county leaders, as well as help build recognition for the initiatives being implemented.

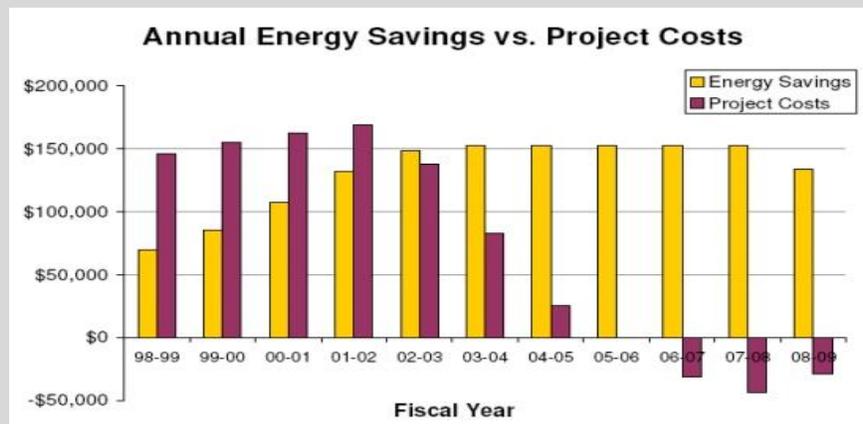
Increasing visibility and engaging key leaders helps justify continued financial support for the program. More specifically, it helps secure funding in the annual budget for the Sustainability Coordinator and the program's sustainability-related initiatives. However, alternative funding strategies also exist. For instance, the Sustainability Coordinator could choose to establish a revolving loan fund to finance future sustainability projects.

A revolving loan fund is a financial strategy that captures the savings recouped by efficiency improvement projects. The money saved from these projects is reallocated to a specific fund that is used to finance additional sustainability initiatives, helping the organization overcome high up-front costs of the projects. The money saved by implementing this next round of projects is also placed back into the fund to be used for future projects, thus eventually creating a self-sustaining financing mechanism.

Case Study: Ann Arbor’s Municipal Energy Fund (Appendix X)

Established by the City’s Energy Commission in 1998, the Energy Fund acts as a self-sustaining source of funds for implementing energy-efficient retrofits at city operated facilities. The Energy Fund is financed by re-investing 80% of the funds saved through energy efficiency measures into new energy saving projects.

Initially, the city budgeted an \$100,000 annual contribution to the fund in fiscal year 1998-99, of which \$87,000 was spent in the first year on energy improvements throughout the city’s facilities. During fiscal year 1999-00 the projects generated \$19,850 in energy savings, of which \$15,880 was re-invested in the Municipal Energy Fund. This money was transferred from the budgets of the facilities that received energy improvements to the Energy Fund at the end of the fiscal year 1999-00 and was made available to finance projects in fiscal year 2000-00. The savings from the first year improvements were re-invested in the Energy Fund for five (5) years, contributing \$15,880 annually or a total of \$79,400 back to the fund. The \$100,000 annual contribution was discontinued after the fiscal year 2003-04 and the Fund has relied on funds saved from past energy efficiency measures to finance new projects.



An initial funding of \$100,000/year proved adequate for the city’s 60 facilities, costing approximately \$4.5 million annually in energy costs.

Benefits:

- Becomes self-sustaining in relatively short time period
- Motivates facility managers to implement energy efficiency projects
- Saves facilities operating dollars, translates to saving tax dollars
- Decreases energy resources used by the City

Critical Components:

- Consistent support from top leadership
- Initial funding source (available for 3-5 years)
- Manager assigned to support and coordinate the fund and corresponding projects

Find out more information at:

http://www.a2gov.org/government/publicservices/systems_planning/energy/Pages/EnergyFund.aspx

7.3 Identify Grant Opportunities

Grants have facilitated many major municipal sustainability efforts and have encouraged innovative work in terms of improving operational efficiency. While the Sustainability Coordinator should not rely on external funding opportunities to fund all future sustainability initiatives, grants and rebated exist as a potential funding source.

7.3.1. Funding for Internal Operations

Qualified Energy Conservation Bonds

Funding Agency: State of Colorado’s Governor’s Energy Office (GEO)

Funding Available: State volume cap of \$3.2 billion

Source:

<http://www.colorado.gov/cs/Satellite/GovEnergyOffice/CBON/1251610998028>

Overview

Qualified Energy Conservation Bonds (QECBs) may be issued by state and local governments to finance a variety of “green” expenditures including:

1. Implementing green community programs,
2. Grants to support research in emerging energy technologies,
3. Rail and bus facilities,
4. Public education programs,
5. Renewable energy facilities, and
6. Demonstration projects for emerging energy technologies.

The Recovery Act provided authority to issue an additional \$2.4 billion, totaling \$3.2 billion of QECBs that were originally authorized in 2008. At least 70% of each state’s volume cap must be used for governmental purpose bonds, bonds intended to fund functions of a local government.

When reviewing projects applying for funding, the GEO will consider a variety of factors including (see Appendix T for a comprehensive review of GEO’s QECB application requirements and review process):

- The ability of the QECB-funded project will to promote alternative energy or energy efficiency through innovative finance options;
- The feasibility of tasks, budget, timeline, and resource capabilities
- The ability to secure financing, strength of the finance plan, and security and stability of a revenue source to pay back QECB
- Geographic and/or market diversity

Solar*Rewards

Funding Agency: Xcel

Funding Available: \$19,522,440 of \$245,000,000

Application deadline: Rolling admission

<https://www.xcelenergysolarrewards.com/Login/Login.aspx?ReturnUrl=/Default.aspx>

Source:

http://www.xcelenergy.com/Save_Money_&_Energy/Find_a_Rebate/Solar*Rewards_-_CO

Overview

The Solar*Rewards program provides incentives for solar system installations for homes and commercial buildings. For Xcel Energy Electric Customers in Colorado, the program offers a 20-30% rebate. Participants must agree to install a rooftop photovoltaic system with a capacity ranging from 0.5 kilowatts to 40 kilowatts. The rebate is expected to cover approximately 30% of installation cost. Xcel will also buy any energy that a system produces in excess of the customer's needs, offering a 10-year solar production payment of \$0.09/kWh.

Grants.gov

Funding Agency: 26 federal grant-making agencies

Funding Available: Various opportunities

Source: <http://www07.grants.gov/search/category.do>

Managed by the US Department of Health and Human Services, this website is a database for available federal grants. Grant categories include:

- Energy
- Environment
- Natural Resources
- Regional Development
- Transportation

Database of State Incentives for Renewables & Efficiency

Funding Agency: U.S. Department of Energy

Funding Available: Various opportunities

Source: <http://www.dsireusa.org/>

Funded by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE), and administered by the National Renewable Energy Laboratory (NREL), this database lists opportunities for federal, state and local incentives for energy efficiency and renewable energy projects.

Energy.gov

Funding Agency: Various

Funding Available: Various opportunities

Source: <http://energy.gov/savings>

Provided by the U.S. Department of Energy, this resource lists various tax credits, rebates and savings opportunities for entities including local governments.

7.3.2 Externally Focused Grant Opportunities

Although sustainability efforts are currently focused on improving internal operational inefficiencies, it is still advantageous to be aware of funding opportunities that benefit other aspects of the county. For instance, the focus of sustainability efforts may eventually shift or the Sustainability Coordinator may find he/she has additional resources to support a community initiative. In cases such as these, being knowledgeable about externally-focused grant opportunities could provide the county additional opportunities to advance the program. Several sources for grant funding are explored below.

EPA Environmental Education Sub-Grants Program

Funding Agency: EPA, Office of Environmental Education

Grant available: \$150,000

Application deadline: November 8, 2011

Source: <http://epa.gov/enviroed/pdf/RFP2011SmallSub-Grants.pdf>

Overview

Grant recipients give sub-awards to organizations of their choice implementing environmental education projects and activities that improve behavior through non-regulatory means and raise public awareness of actions that can be taken to promote environmental stewardship.

Approximately \$150,000 is awarded to one (1) applicant in each of the EPA's ten (10) Regions under this grant.

Each grant recipient is required to use \$92,273.50 of the \$150,000 for a minimum of 19 sub-awards to organizations other than its own over a two-year period.

Adams County

Since sub-grants could not be distributed to the county itself, this grant provides the opportunity to promote sustainability and foster relationships with organizations in the community, such as local schools.

Although the application deadline has passed for the 2012 grant year, the county could pursue next year's request for proposal (RFP).

EPA Community Action for a Renewed Environment (CARE) Program

Funding Agency: EPA, CARE Program

Grants available: 1-3, Level I agreements ranging from \$75,000 - \$100,000
4-6, Level II agreement ranging from \$150,000 - \$300,000

Application deadline: March 22, 2011

Source: <http://www.epa.gov/air/grants/rfp-epa-oar-io-11-08.pdf>

Overview

The CARE program provides funds to community-based, community-driven programs designed to help communities understand and reduce risks due to local toxic pollutants and environmental concerns from all sources.

With an average project funding of about \$90,000, one (1) to three (3) Level I agreements are awarded. Level I cooperative agreements support the following types of activities:

- Working with the recipient to form community-based partnerships;
- Identifying and developing an understanding of local sources of risk from toxic pollutants and environmental concerns, and;
- Setting priorities for the reduction of the identified risks and concerns of the community.

With an average project funding of about \$275,000, four (4) to six (6) Level II agreements are awarded. Level II cooperative agreements support activities that identify and implement actual “on the ground,” community-based projects for the reduction of prioritized risks and concerns in their community. Level II agreements are only available to recipients that previously received a Level I agreement.

Adams County

The CARE program would provide the county with another opportunity to establish and build important partnerships in the community, while also addressing environmental issues that impact community members. Involvement in a program such as CARE demonstrates the county’s commitment to the place and people it governs.

Although the application deadline has passed for the 2012 grant year, the county could pursue next year’s request for proposal (RFP).

Appendix E Equipment Inventory Template – Water

Use Excel version to populate with data

Building:

Date:

WATER FIXTURE INVENTORY						
Location	Toilet		GPF	Faucet		Aerator
	Make	Type		Make	Type	

Appendix H Adams County Interview Guide Template – Facilities

Overview

Interviews with other city and county staff will provide the opportunity for the Sustainability Coordinator develop an understanding of how Fleet Departments outside Adams County are incorporating sustainability into their operations. The information gathered from each interview will help construct a more accurate picture of how the county's fuel related policies and practices compare against other local governments.

Develop Interview Guide

The Sustainability Coordinator should prepare a customized interview guide for each interview conducted.

- **Set Goals**

Prior to designing or selecting interview questions, clearly articulate the primary goal(s) to be achieved in the interview. This will help focus the intent of each question and will hopefully help elicit the desired information during the interview.

- **Prepare Questions**

Avoid "yes/no" questions

Develop questions that encourage the interviewee to explain or elaborate

- Use "how"/"what" questions, rather than "why" which may put the interviewee on the defensive

Focus on one concept per question

Conducting the Interview

The Sustainability Coordinator should begin with the list of general questions, but also improvise questions, adapting to the interviewee's responses. Although the interview is guided, it should still be open-ended enough to provide the opportunity for eliciting unanticipated information. Use the list of questions to direct conversation in the direction of the determined goal, but be flexible enough to pursue unplanned lines of questioning.

The organized, logical nature of these interviews make extracting information and data more efficient, but still allow for the discovery of unexpected topics.

To ease into the interview, generally begin with questions that the respondent will be familiar with, such as an overview of their job responsibilities.

Equipment Inventory

Energy systems

How do you track what equipment exists in your building(s)?

Who is responsible for monitoring/updating?

How do you track equipment replacements?

What is the process/procedure for replacing equipment?

What criterion exists for new equipment?

Lighting

How do you track what fixtures exists in your building(s)?

Who is responsible for monitoring/updating?

How do you track fixture replacements?

What is the process/procedure for replacing fixtures?

What criterion exists for new fixtures?

Water fixtures

How do you track what fixtures exists in your building(s)?

Who is responsible for monitoring/updating?

How do you track fixture replacements?

What is the process/procedure for replacing fixtures?

What criterion exists for new fixtures?

Technology equipment

How do you track what equipment exists in your building(s)?

Who is responsible for monitoring/updating?

How do you track equipment replacements?

What is the process/procedure for replacing equipment?

What criterion exists for new equipment?

Appendix J Adams County Interview Guide Template – Fleet

Overview

Interviews with other city and county staff will provide the opportunity for the Sustainability Coordinator develop an understanding of how Fleet Departments outside Adams County are incorporating sustainability into their operations. The information gathered from each interview will help construct a more accurate picture of how the county's fuel related policies and practices compare against other local governments.

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Prior to designing or selecting interview questions, clearly articulate the primary goal(s) to be achieved in the interview. This will help focus the intent of each question and will hopefully help elicit the desired information during the interview.

- **Prepare Questions**

Avoid "yes/no" questions

Develop questions that encourage the interviewee to explain or elaborate

- Use "how"/"what" questions, rather than "why" which may put the interviewee on the defensive

Focus on one concept per question

Conducting the Interview

The Sustainability Coordinator should begin with the list of general questions, but also improvise questions, adapting to the interviewee's responses. Although the interview is guided, it should still be open-ended enough to provide the opportunity for eliciting unanticipated information. Use the list of questions to direct conversation in the direction of the determined goal, but be flexible enough to pursue unplanned lines of questioning.

The organized, logical nature of these interviews make extracting information and data more efficient, but still allow for the discovery of unexpected topics.

To ease into the interview, generally begin with questions that the respondent will be familiar with, such as an overview of their job responsibilities.

Adams County Sustainability Management Plan

How is fuel consumption tracked?

By car type, model year, department, etc...?

What type of tracking mechanism does your organization use?

Are fuel expenses included?

What is the process/procedure to re-fuel a vehicle?

Does this differ from department to department?

What type(s) of fuel are used?

What fleet operations consume the most fuel?

Would you like to be able to track any additional information that isn't currently recorded?

Who is responsible for compiling fuel consumption data?

How is the consumption data shared/used in your organization?

Fleet: Fuel consumption policies

How has your department attempted to reduce fuel consumption?

What green policies exist related to fuel consumption?

How is staff members educated about these policies?

Do you/your organization track idling?

If so, how is it tracked?

What percentage of fuel consumption is from idling?

How are routes and/or schedules determined?

Who is involved in routing and/or scheduling?

What services/vehicles are routed?

Is a software program utilized to determine routes and/or scheduling?

What are the cost ramifications?

What benefits have been realized from utilizing software?

Explain how your vehicle maintenance process works.

Reactive? Preventative?

How are maintenance services scheduled?

What is used to track or record maintenance services?

Appendix L Adams County Engine Idling Policy

PURPOSE

The purpose of this policy is to establish guidelines to eliminate the unnecessary idling of County vehicles as part of an ongoing effort to reduce fuel consumption, support the County's sustainability efforts, and comply with United States Environmental Protection Agency requests to help reduce emissions. The policy statement is applicable to all County employees who have been assigned or operate a County owned vehicles or other rolling stock powered by gasoline and diesel. The policy has been put in place to help manage Adams County's annual budget for fuel expenditures and to protect the interests of the County's citizens and taxpayers.

BACKGROUND

1. Adams County is concerned about air pollution as a major health risk for Adams County and many metropolitan areas of the United States. These air pollution problems are caused in large part by emissions from automobiles and trucks. Air pollution can cause or aggravate lung illnesses such as acute respiratory infections, asthma, chronic bronchitis, emphysema and lung cancer. In addition, diesel emissions have been identified as an issue that disproportionately affects low-income urban neighborhoods. Evidence suggests that diesel exhaust, particularly particulates, contributes to this urban health problem.
2. Exhaust from vehicles (both on- and off-road) is a substantial source of carbon monoxide, toxic air contaminants and greenhouse gases.
3. A study of idling exhaust emissions conducted by the U.S. Environmental Protection Agency (EPA420-R-02-025, October 2002) indicates that the typical 1980s – 2001 model year truck operating on diesel fuel emits 144 grams per hour of nitrogen oxide and 8224 grams per hour of carbon dioxide emissions and consumes 0.82 gallons of fuel per hour while idling.
4. Turning off and starting an engine uses less fuel than letting the engine run for thirty seconds.
5. Modern vehicles need a maximum of 30 seconds of idle at start up. The best way to warm up a vehicle is by driving it.
6. Engine wear is greater at prolonged idle than during normal operation.
7. Adams County employees can play an important role in improving air quality and reducing the consumption of petroleum products by limiting the amount of time vehicle engines are allowed to idle within its jurisdiction.

IDLING LIMITATION

1. A driver of a vehicle:
 - a. Must turn off the engine upon stopping at a destination; and
 - b. Must not cause or allow an engine to idle more at any location for:
 - i. More than 30 consecutive seconds; or
 - ii. A period or periods aggregating more than five minutes in any one-hour period.
2. An equipment operator of an off-road piece of equipment not identified in (1) above must not cause or allow an off-road piece of equipment to idle at any location for:
 - a. More than 30 consecutive seconds; or
 - b. A period or periods aggregating more than five minutes in any one-hour period.
3. Adams County will ensure that vehicle drivers and equipment drivers, upon employment and at least once per year thereafter, are informed of the requirements of this Policy.

APPLICABLE VEHICLES

There is hereby established a policy to be known as the Engine Idling Policy that applies to the operation of all Adams County vehicles regardless of gross vehicle weight rating, all heavy-duty vehicles regardless of fuel being used, all off-road diesel-powered equipment regardless of horsepower rating and all off-road equipment regardless of fuel being used, except as provided in the Exemptions area below.

EXEMPTIONS

This Policy does not apply to a vehicle or piece of equipment for the period or periods during which:

1. Idling is necessary while stopped:
 - a. For an official traffic control device;
 - b. For an official traffic control signal;
 - c. For traffic conditions over which a driver has no control, including, but not limited to: stopped in a line of traffic, stopped at a railroad crossing or stopped at a construction zone; or
 - d. At the direction of a policeman or other official traffic controller.
2. Idling is necessary for testing, maintenance, repair or diagnostic purposes;

3. Idling is necessary to ascertain that the vehicle and/or off-road piece of equipment is in safe operating condition and is equipped as required by all provisions of law and established safety policies;
4. The vehicle is not expected to restart due to mechanical or electrical problems;
5. Idling the engine is required to power auxiliary equipment other than a heater or air conditioner, e.g. hoist, lift, computers, safety lighting;
6. Idling is necessary to operate defrosters, heaters, air conditioners or other equipment to prevent a safety or health emergency, but not solely for the comfort of the driver or passengers;
7. Idling is necessary to cool down a turbo-charged heavy duty vehicle in accordance with the manufacturer's recommendation.

DEFINITIONS

1. "Driver" means any person who drives, operates, or is in actual physical control of a vehicle.
2. "Equipment Operator" means any person who is in actual physical control of a piece of off-road equipment.
3. "Heavy-Duty Vehicle" means any on-road motor vehicle with a manufacturer's gross vehicle weight rating greater than 14,000 pounds.
4. "Idling" means the engine is running while the vehicle is stationary or the piece of off-road equipment is not performing work.
5. "Official Traffic Control Device" means any sign, signal, marking or device placed or erected by authority of a public body or official having jurisdiction, for the purpose of regulating, warning or guiding traffic, but does not include islands, curbs, traffic barriers, speed humps, or other roadway design features.
6. "Off-Road Equipment" means all non-road equipment with a horsepower rating of 50 or more.
7. "Vehicle" means any on-road, self-propelled vehicle that is required to be registered and have a license plate by the Department of Motor Vehicles.

Appendix M Colorado State Engine Idling Standard

**Session Laws of Colorado 2011
First Regular Session, 68th General Assembly**

CHAPTER 215

MOTOR VEHICLES AND TRAFFIC REGULATION

HOUSE BILL 11-1275

BY REPRESENTATIVE(S) Priola, Barker, Casso, Coram;

also SENATOR(S) Williams S. and Spence, Guzman, Hodge, Tochtrop.

AN ACT

CONCERNING THE CREATION OF AN ENGINE IDLING STANDARD FOR CERTAIN COMMERCIAL DIESEL VEHICLES.

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. 42-4-111 (1), Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW PARAGRAPH to read:

42-4-111. Powers of local authorities. (1) This article shall not be deemed to prevent local authorities, with respect to streets and highways under their jurisdiction and within the reasonable exercise of the police power, except those streets and highways that are parts of the state highway system that are subject to section 43-2-135, C.R.S., from:

(ee) ENACTING THE IDLING STANDARDS IN CONFORMITY WITH SECTION 42-14-103.

SECTION 2. Title 42, Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW ARTICLE to read:

ARTICLE 14

State Idling Standard

42-14-101. Legislative declaration. THE GENERAL ASSEMBLY HEREBY FINDS AND DETERMINES THAT THE OPERATION OF A MOTOR VEHICLE IN COMMERCE HAS IMPORTANT STATEWIDE RAMIFICATIONS FOR COMMERCIAL DIESEL VEHICLE OPERATORS BECAUSE THE TRANSPORTATION OF PEOPLE AND PROPERTY IS NOT CONFINED TO ONE JURISDICTION. THEREFORE, THE GENERAL ASSEMBLY HEREBY DECLARES THAT IDLING STANDARDS ARE A MATTER OF STATEWIDE CONCERN.

42-14-102. Definitions. AS USED IN THIS ARTICLE, UNLESS THE CONTEXT OTHERWISE REQUIRES:

(1) "COVERED VEHICLE" MEANS A VEHICLE TO WHICH THIS ARTICLE APPLIES UNDER SECTION 42-3-104.

(2) "IDLING" MEANS WHEN THE PRIMARY PROPULSION ENGINE OF A COVERED VEHICLE IS RUNNING BUT THE VEHICLE IS NOT IN MOTION.

(3) "LOADING LOCATION" MEANS A PLACE WHERE A COVERED VEHICLE LOADS OR UNLOADS PEOPLE OR PROPERTY.

42-14-103. Uniform standard - local governments. A LOCAL AUTHORITY SHALL NOT ADOPT OR ENACT A RESOLUTION, ORDINANCE, OR OTHER LAW CONCERNING IDLING OF A COVERED VEHICLE THAT IS MORE STRINGENT THAN THIS ARTICLE.

42-14-104. Applicability. (1) THIS ARTICLE APPLIES TO:

(a) COMMERCIAL DIESEL VEHICLES WITH A GROSS VEHICLE WEIGHT RATING OF GREATER THAN FOURTEEN THOUSAND POUNDS THAT ARE DESIGNED TO OPERATE ON HIGHWAYS; AND

(b) LOCATIONS WHERE COMMERCIAL DIESEL VEHICLES LOAD OR UNLOAD IF A LOCAL AUTHORITY HAS ADOPTED OR ENACTED A RESOLUTION, ORDINANCE, OR OTHER LAW CONSISTENT WITH THIS ARTICLE.

(2) THIS ARTICLE DOES NOT SUPERSEDE AN ORDINANCE OF A LOCAL AUTHORITY IF THE AUTHORITY HAS AN AVERAGE ELEVATION OF OVER SIX THOUSAND FEET AND IF THE ORDINANCE WAS IN EFFECT ON JANUARY 1, 2011.

42-14-105. Idling. (1) **Standard.** THE OWNER OR OPERATOR OF A COVERED VEHICLE SHALL NOT CAUSE OR PERMIT THE VEHICLE TO IDLE FOR MORE THAN FIVE MINUTES WITHIN ANY SIXTY-MINUTE PERIOD EXCEPT AS AUTHORIZED BY SUBSECTION (2) OF THIS SECTION.

(2) **Exemptions.** SUBSECTION (1) OF THIS SECTION DOES NOT APPLY TO AN IDLING, COVERED VEHICLE:

(a) WHEN IT REMAINS MOTIONLESS BECAUSE OF HIGHWAY TRAFFIC, AN OFFICIAL TRAFFIC CONTROL DEVICE OR SIGNAL, OR AT THE DIRECTION OF A LAW ENFORCEMENT OFFICER;

(b) WHEN THE DRIVER IS OPERATING DEFROSTERS, HEATERS, OR AIR CONDITIONERS OR IS INSTALLING EQUIPMENT ONLY TO PREVENT A SAFETY OR HEALTH EMERGENCY, AND NOT FOR REST PERIODS;

(c) IN THE CASE OF A LAW ENFORCEMENT, EMERGENCY, PUBLIC SAFETY, OR MILITARY VEHICLE, OR ANY OTHER VEHICLE USED TO RESPOND TO AN EMERGENCY, WHEN IT IS RESPONDING TO AN EMERGENCY OR BEING USED FOR TRAINING FOR AN EMERGENCY, AND NOT FOR THE CONVENIENCE OF THE VEHICLE OPERATOR;

(d) WHEN NECESSARY FOR REQUIRED MAINTENANCE, SERVICING, OR REPAIR OF THE VEHICLE;

(e) DURING A LOCAL, STATE, OR FEDERAL INSPECTION VERIFYING THAT THE EQUIPMENT IS IN GOOD WORKING ORDER IF REQUIRED FOR THE INSPECTION;

(f) DURING THE OPERATION OF POWER TAKE-OFF EQUIPMENT IF NECESSARY FOR OPERATING WORK-RELATED MECHANICAL OR ELECTRICAL EQUIPMENT;

(g) IN THE CASE OF AN ARMORED VEHICLE, WHEN A PERSON IS INSIDE THE VEHICLE TO GUARD ITS CONTENTS OR DURING THE LOADING OR UNLOADING OF THE VEHICLE;

(h) IN THE CASE OF A PASSENGER BUS, WHEN IDLING FOR UP TO FIVE MINUTES IN ANY SIXTY-MINUTE PERIOD TO MAINTAIN PASSENGER COMFORT WHILE NONDRIVER PASSENGERS ARE ONBOARD;

(i) WHEN USED TO HEAT OR COOL A SLEEPER BERTH COMPARTMENT DURING A REST OR SLEEP PERIOD AT A SAFETY REST AREA AS DEFINED UNDER 23 CFR 752.3, FLEET TRUCKING TERMINAL, COMMERCIAL TRUCK STOP, OR STATE-DESIGNATED LOCATION DESIGNED TO BE A DRIVER'S REST AREA;

(j) WHEN USED TO HEAT OR COOL A SLEEPER BERTH COMPARTMENT DURING A REST OR SLEEP PERIOD AT A LOCATION WHERE THE VEHICLE IS LEGALLY PERMITTED TO PARK AND THAT IS AT LEAST ONE THOUSAND FEET FROM RESIDENTIAL HOUSING, A SCHOOL, A DAYCARE FACILITY, A HOSPITAL, A SENIOR CITIZEN CENTER, OR A MEDICAL OUTPATIENT FACILITY PROVIDING PRIMARY, SPECIALTY, OR RESPIRATORY CARE; OR

(k) WHEN IDLING FOR UP TO TWENTY MINUTES IN ANY SIXTY-MINUTE PERIOD IF THE AMBIENT TEMPERATURE IS LESS THEN TEN DEGREES.

42-14-106. Penalties. THE OWNER OR OPERATOR OF A VEHICLE OR THE OWNER OF A LOADING LOCATION THAT VIOLATES THIS ARTICLE COMMITS A CLASS B TRAFFIC INFRACTION, PUNISHABLE BY A FINE OF NOT MORE THAN ONE HUNDRED FIFTY DOLLARS FOR THE FIRST OFFENSE OR A FINE OF NOT MORE THAN FIVE HUNDRED DOLLARS FOR A SECOND OR SUBSEQUENT OFFENSE AND BY A SURCHARGE OF TWENTY DOLLARS IN ACCORDANCE WITH SECTION 24-4.1-119, C.R.S.

SECTION 3. Effective date - applicability. This act shall take effect July 1, 2011, and shall apply to offenses committed on or after said date.

SECTION 4. Safety clause. The general assembly hereby finds, determines, and declares that this act is necessary for the immediate preservation of the public peace, health, and safety.

Approved: May 27, 2011

Capital letters indicate new material added to existing statutes; dashes through words indicate deletions from existing statutes and such material not part of act.

Appendix N Interview Guide – Road/Highway Maintenance

Organization: Department: Highway Maintenance/Transportation

Title: Name:

Date/Time:

Goals:

Questions:

General/background

Can you give us a little background on your role and what falls under your administration?

On a scale of 1-10 how green is your department?

What does your department do that's green?

What was the impetus for this change?

What benefits have you seen from sustainability/green initiatives?

Do you have any ideas/initiatives related to sustainability you would like to pursue?

Highway/Road Maintenance: Levels of Service

Can you give an overview of what types of services your department provides?

How are service levels defined for each service provided?

Grading?

Snow Plowing?

Paving?

What are the determining factors for deciding the service levels for each service?

When was the last time the service levels were adjusted?

How often are service levels adjusted?

What prompts service level adjustments?

What services are the most fuel-intensive?

Can fuel consumption be tracked by service type?

How is it tracked?

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Where do the materials that are used come from?

Gravel?

Pavement?

How many miles of roads are re-paved each year?

How much material (lbs) is used?

How much is recycled?

Do any road maintenance services *not* use recycled materials

How many miles of roads are paved?

How many miles of roads are un-paved?

How many bridges?

Appendix O Recycling Program Survey Questions

NEW BUILDINGS (PRIOR TO IMPLEMENTATION)

1. Where do you currently recycle or have recycled in the past?
2. How successful have your experiences with recycling been?
3. The County identified recycling as an important County initiative to have accomplished in 2011. How do you feel about this?
4. How important do you think it is for the County to implement recycling in County-operated buildings?
5. The County has introduced recycling in 6 County-operated buildings this year. How successful do you think recycling in these buildings has been so far?
6. How confident are you that Adams County can accomplish this change/implementation?
7. How much do you believe implementing the recycling program will have on your job/ability to do your job?
8. What concerns do you have about implementing recycling in your department/building?
9. How would you like to be educated about the recycling program/what can be recycled?
OR What is the most effective form of communication to educate your department about the recycling program/what can be recycled?
10. What materials do you expect to recycle?

RETROACTIVE

1. How often do you recycle at work? / Rate your involvement in the recycling program
2. Please rate your department's involvement in the recycling program.
3. Please rate the County's involvement in the recycling program.
4. How important do you believe it is to implement recycling in all County-operated buildings?
5. Please rate your satisfaction with the program's implementation.
6. What suggestions do you have for improving how recycling was implemented?
7. Did you feel adequately educated about the recycling program when it was implemented?
8. Please rate the convenience of the recycling program?
9. Please rate your overall satisfaction with the current recycling program.
10. What suggestions do you have for improving the current program?

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Appendix T Ann Arbor Municipal Energy Fund By-Laws

I. Selection of Projects

A review committee consisting of not less than three City employees, members of the Environmental Management Team, shall be appointed by the Administrator to review all applications for Energy Fund monies. The committee shall approve or deny project funding based on the following criteria:

- A. The project must fit into one of the following three categories;
 - 1) Have an estimated energy saving payback of five years or less, the shorter the payback, the more desirable the project. At least 70% of the total annual funding must fit this category.
 - 2) Demonstrate and educate about energy saving or renewable energy to a large number of people through the installation of a demonstration system. No more than 20% of annual total funds may be expended on this category.
 - 3) Provide information to facility managers on energy saving opportunities like an energy audit. No more than 10% of the total annual funding may be spent on this category.
- B. The project must be at a City facility (i.e. energy bills are paid for by City fees or taxes).
- C. The project must be completed before the end of the fiscal year.
- D. Projects will be awarded primarily on a first come, first serve basis for projects with a payback of three years or less. Projects with longer paybacks, or which fit into categories 2 and 3, will be awarded at the discretion of the committee as funds are available.

Payback Requirements

The projects (other than special demonstration or energy audits) are expected to payback the energy fund by contributing 80% of the resultant energy savings over the next five years. The facility will therefore be able to make these payments from the excess amounts in their natural gas and electricity budgets. Because of the lag time in receiving energy bills and the need for time to prepare the energy savings reports, the

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annual energy saving will be computed on an April to March fiscal year. This will allow payments to be made from the current year's energy budget.

Upon completion of the Energy Fund financed improvements, and after a two month break-in period, the energy use for the facility will be compared to the past three years energy use and actual savings computed. Whenever possible, energy savings will be based on metered consumption at each facility with corrections for changes in utility costs, weather extremes, and other factors which may have influenced energy consumption during the year. In cases where it is not possible to identify the effect of a particular measure based on meter data, calculated savings will be used. These savings will be accrued through the end of the Energy Funds fiscal year (April - March) reported to the facility manager for payment before the end of the City's fiscal year.

Reporting Requirements

At the end of each City fiscal year a detailed accounting of expenses and savings will be performed under the direction of the Energy Coordinator for the projects financed by the Energy Fund. Project costs will be compiled using data from Finance Department records and the facility managers involved. The report will be submitted to the City Administrator for review.

