City of Lee's Summit

SUSTAINABILITY ACTION PLAN

May 2012

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Chapter 1

INTRODUCTION

About This Plan

Cities across the country are using Sustainability Action Plans to create a framework for resource efficiency. These plans provide long-range, comprehensive strategies to leverage existing plans and programs, and to prioritize and increase community benefits. The recommendations outlined in this plan maximize the cost-benefit of sustainability measures initiatives for the City of Lee's Summit and reflect community values expressed through the process of their development and implementation.

In preparing this Sustainability Action Plan (SAP), the City of Lee's Summit is advancing local sustainability efforts across Missouri and other states by taking action in its own operations and providing guidance for the broader community. The SAP includes actions in which every part of the community can participate – residents, property owners, businesses, and City government.

The goals and objectives in this Plan will help make Lee's Summit a more attractive and healthier place to live – with energy and water savings, enhanced bicycle and pedestrian facilities, improved air quality, reduced waste, and more local amenities. Working together, the City and its citizens can reduce their impact on the environment and Lee's Summit can remain a regional sustainability leader.

Purpose and Scope

Lee's Summit already has a firmly established foundation in sustainability through strategic planning and policy commitments at the local government level. Sustainability initiatives have included creating the Livable Streets Advisory Board, developing the Greenway Master Plan, and adopting Lee's Summit 360 (LS360), the City's long-term strategic plan. In addition, City actions and investments have improved resource efficiency to reduce municipal operating costs. The following list summarizes recent municipal investments and community programs that have made Lee's Summit a regional sustainability leader:

- purchased hybrid vehicles for the police department,
- explored the development of a methane gas collection system for the City's landfill, with the near-term goal of using methane as fuel,
- installed lighting improvements to increase efficiency,
- developed recycling centers,
- established the Downtown Farmers' market,
- provided rain barrel workshops and environmental study classes, and
- established the Green on Green Sustainability Fair.

The City prepared this SAP as the next step to continue its leadership on sustainability issues and actions and to serve as an example for other communities.

The SAP is a prioritized action plan with a 2025 horizon year that will be implemented by both the City and community members. The Plan outlines a course of action to meet the City's goals to improve resource efficiency, reduce waste, and cut costs for the City, residents, and business community. The Plan identifies partnerships and funding resources to ensure action that leverages existing communitywide initiatives and investments.

The Plan includes a greenhouse gas (GHG) emissions inventory and projections, emissions reduction targets, analysis of existing City sustainability programs and policies, and new action steps to achieve the identified sustainability strategies.

In preparing the Plan, the City and community stakeholders prioritized the following six sustainability focus areas:

1. Energy Use and Efficiency
2. Transportation and Mobility
3. Land Use and Community Design
4. Water Conservation and Stormwater Management
5. Water Use Reduction and Management
6. Education, Advocacy, and Outreach

An evaluation of the economic, social, and political feasibility of implementing action steps associated with these focus areas was incorporated into Plan preparation during public and inter-agency meetings.

Content

The SAP is organized into four chapters and supporting appendices.

Chapter 1, Introduction discusses the City's vision and purpose in preparing the Plan. The Introduction describes sustainability measures already underway within the community; outlines the content of the SAP; and summarizes the results of community participation, including the community's definition of 'sustainability'.

Chapter 2, Planning Process describes the 2009 communitywide emissions inventory and 2025 projections for municipal operations and communitywide activities. The emissions inventory and projections describe present and future sources of GHG emissions in the community, within the energy, transportation, solid waste, wastewater, and water sectors. The chapter also introduces emissions reduction targets for municipal operations and communitywide activity. Progress toward these targets would be made through a combination of local and federal actions.

Chapter 3, Sustainability Focus Areas presents strategies and action steps for each of the six focus areas that, when implemented, would result in numerous community benefits. Quantified benefits include energy and fuel savings, reduced water consumption, financial savings, and reduced waste and emissions generation. Action steps describe specific actions to be taken, implementation costs, responsible agencies, and resulting community co-benefits, where applicable. The estimated progress towards emission targets, based on implementation of SAP action steps, is also described.

Chapter 4, Implementation describes how the City will implement the action steps presented in Chapter 3, including a discussion of available funding. It also discusses the need for and process of ongoing evaluation and evolution of the SAP.

"Sustainability in Lee's Summit means: 'A long-term commitment to enhancing our community's quality of life through careful management of resources that ensures affordability and balanced development for future generations.'"

– Sustainability definition developed by community stakeholders and finalized by the Sustainability Advisory Committee, 2011

Community Participation

Lee's Summit residents, property owners, business leaders, and City officials participated in the development of the SAP. Many community members provided valuable input that has been used to determine the sustainability focus areas and select appropriate action steps.

The planning process began in May 2011 with a series of meetings with the City Management Team, Green Team, and Sustainability Advisory Committee.

The City Management Team is an interdepartmental project team that oversaw and assisted in the development of the SAP. The initial meetings covered specific information needs of the project as well as identification of key staff to provide specific expertise and insight on the various focus areas. Additionally, these meetings were used to clarify roles, project milestones, and schedule, and featured discussion of the desired public outreach process and key stakeholders.

The Green Team meeting included key City staff to discuss data needs, SAP format, roles and needs for City staff, and the overall timeline for the GHG emissions inventory.

The City created a Sustainability Advisory Committee to support the SAP process. The Committee is composed of interested community leaders and key stakeholders to provide strategic support and guidance for the development of the SAP. The Committee helped develop a vision statement for the Plan and guiding principles to support the vision statement. The Committee also identified a priority to be a regional leader in all six focus areas that are addressed in this plan.

In addition, the Sustainability Advisory Committee reviewed progress and provided input on the Plan at key stages. A preliminary kick-off meeting helped to gather input and preferences for development of the Plan's focus areas from a cross-section of the community. In addition, it helped to develop an understanding of existing conditions and rekindled momentum for existing sustainability initiatives.

Stakeholder Interviews

In July 2011, stakeholder interviews were held with elected officials, business owners, developers, and other stakeholders to understand community priorities as well as political and financial feasibility of various sustainability actions. These stakeholders prioritized the importance of the six focus areas outlined above, placing primary importance on the energy efficiency; education, advocacy, and outreach; and waste reduction and management focus areas.

Chamber of Commerce

Community outreach and participation continued on August 4, 2011 at a meeting with the Chamber of Commerce Sustainability Committee. This included a presentation on the proposed scope of the SAP and how stakeholders could participate in its development and implementation.

August 2011 Workshop

The City also hosted a stakeholder workshop on August 30, 2011 to seek guidance on the community's vision for a more sustainable Lee's Summit, to discuss opportunities for expanding practices by both the City government and community, and to understand priorities for achieving more sustainable practices in the City. With approximately 60 stakeholders in attendance, the workshop was structured to provide an overview of the status of the SAP process and solicit feedback on the proposed focus areas. Community members participated in small group discussions on general sustainability concepts in the morning and more specific conversations on each focus area in the afternoon. Each group reported back to all workshop participants for additional information sharing and idea exchange.

A post-workshop Sustainability Advisory Committee meeting was held on October 5, 2011 to provide updates on feedback from the visioning workshop and seek input on the vision statement and sustainability measures that shape the strategies for the SAP.

Action Step Feasibility

On November 11, 2011, a series of Action Step Feasibility Meetings were organized around each focus area and involved discussion of specific draft recommendations and action steps. The City hosted several small group meetings with City staff and Green Team members to solicit feedback on the developing Plan and evaluate political and financial feasibility of recommendations.

In general, the role of stakeholders throughout the process of developing and implementing the SAP is to share ideas and practices; create input and buy-in from community members; and foster ongoing engagement and education by showcasing best practices and exemplary projects. The City will be in a better position to meet the goals of the SAP with the community and private sector involved in Plan implementation and acting as local advocates for strategies and actions outlined in the focus areas.

Vision Statement

"We will be the regional sustainability leader in energy efficiency; transportation; land use; water conservation and stormwater management; waste reduction and management; and education, outreach and advocacy. Our leadership will influence the region and result in Lee's Summit:

- Enhancing residential and commercial property values;
- Reducing operations and maintenance costs in both homes and businesses;
- Improving neighborhood health and safety for residents of all ages; and
- Ensuring balanced consideration of the effects future development will have on the economy, community, and environment."

Chapter 2

PLANNING PROCESS

Planning Strategy

Implementation of the strategies in the Sustainability Action Plan (SAP) will result in numerous benefits to the community including a higher quality of life, efficient management of resources, and cost savings (for the community and the individual). However, in many cases, it is difficult to quantify these benefits, particularly when measuring the results of implementing the recommended strategies to show overall achievement of the plan. Greenhouse gas (GHG) emissions reduction is a common denominator metric that can be used to measure the benefits of these strategies over time.

This chapter examines current and projected GHG emissions for municipal operations and communitywide activity in the City of Lee's Summit. The chapter first examines emissions trends and identifies an emissions baseline for year 2009. It presents current annual emissions using empirical data collected from energy and water providers, waste collection providers, and the regional transportation planning authority. Using data on existing emissions levels, future emissions are then projected to 2025. These future emissions are based on projected activity data and future land use data presented in the Lee's Summit Comprehensive Plan.

This chapter also establishes a GHG emissions efficiency goal that anticipates a high level of projected future growth. The goal aims to accommodate growth more efficiently than in 2009 and provide a sustainability benchmark for other regional cities and counties. Local and federal actions to reduce emissions are presented, along with an estimate of their effects within Lee's Summit. These estimated reductions are then used to project the City's progress toward emissions efficiency with implementation of the SAP.

In order to understand the current emissions profile for Lee's Summit, a GHG emissions inventory was developed for communitywide activities and municipal operations using 2009 data to establish a baseline year. The GHG inventory evaluates a range of activities and operations within six emissions sectors: energy consumption (i.e., electricity and natural gas), transportation (e.g., gasoline and diesel vehicles), solid waste, wastewater generation, potable water consumption, and high global warming potential (GWP) gas generation. The baseline data was then projected to year 2025, assuming business-as-usual conditions (e.g., resource consumption rates remain the same, and land uses change consistent with the City's Comprehensive Plan).

The Lee's Summit GHG inventory is described in terms of communitywide activities and municipal operations, with municipal operations representing a subtotal within the total inventory. Municipal operations inventories typically account for 2% to 5% of total emissions in most communities. Therefore, although the City has more control to change the operations they manage, non-municipal emissions represent a much larger potential for reductions (e.g., 95% to 98% of total emissions).

Bottom-Up Inventory

A GHG inventory can be developed using two different approaches: bottom-up or top-down. A top-down approach uses an over-arching inventory (e.g., some states prepare statewide inventories) and allocates emissions proportionately to smaller jurisdictions using an indicator such as population or jobs. Although this does not require a strenuous data collection effort, a top-down approach limits the accuracy and precision of a GHG inventory. Furthermore, updates to the overarching GHG inventory would not capture the changes that occur within the jurisdiction as a result of initiatives, actions, and programs (e.g., fewer kilowatt-hours used, less waste generation).

A bottom-up inventory is more precise, using empirical data from the jurisdiction to calculate GHG emissions; this approach was selected for the GHG inventory developed for this SAP, including residential, commercial, and industrial land uses within Lee's Summit. For example, electricity and natural gas consumption were obtained from Kansas City Power and Light (KC P&L) and Missouri Gas Energy (MGE), respectively, and used to calculate energy-related GHG emissions in Lee's Summit. In the future, as the City updates its GHG inventory, the data obtained from local utilities will empirically show increases or decreases in energy consumption and GHG emissions. Therefore, the effects of the City's and community's actions can be measured more accurately using this approach. The bottom-up approach also provides a more accurate and precise measurement for reporting purposes and future grant applications.

Municipal operations typically account for 2-5% of total emissions in most communities.

Emissions Sectors

The six emissions sectors are presented below, with a description of how each contributes to the GHG inventory and which data sources were used to calculate emissions levels.

Energy

The Energy sector consists of electricity and natural gas consumption. Due to the climate extremes in Lee's Summit, electricity and natural gas consumption during the summer and winter for air conditioning and space heating, respectively, is a large source of GHG emissions. Therefore, energy use represents a key sector that can be affected by the SAP. The inventory presents electricity and natural gas emissions separately, further dividing each into four subsectors: residential use, commercial use, industrial use, and municipal operations.

Energy data was collected from utility providers. The City obtained historical (2009) consumption data from Kansas City Power and Light (KC P&L) for electricity data. The City also obtained historical (2009) consumption data from Missouri Gas Energy (MGE) for natural gas use. KC P&L and MGE provided consumption data for all city accounts as well as communitywide data aggregated by land use (i.e., residential, commercial, and industrial).

Transportation

The Transportation sector includes the City-operated vehicle and equipment fleet, as well as communitywide vehicle miles traveled (VMT). The sector includes GHG emissions associated with the operation of the fleet for City departments such as the police department, public works, fire department, and animal control, among others. The inventory presents three transportation subsectors: diesel vehicles, gasoline vehicles, and municipal operations.

The VMT and fuel consumption data for City vehicle and equipment operations were obtained from the City's Fleet Department, Lee's Summit Sanitary Landfill, and Lee's Summit Airport. The City's Fleet Department keeps detailed records of City vehicle use (e.g., miles or hours of operation), vehicle model year, and fuel use.

When considering communitywide transportation, there is no available single source providing the same level of detail. Therefore, for the communitywide transportation sector, VMT was determined from a compilation of regional transportation modeling documented in the *Lee's Summit Thoroughfare Master Plan*, the City's Public Works department, and the Mid-America Regional Council (MARC), then used to quantify mobile source emissions, using general assumptions about vehicle ages and types.

Solid Waste

Solid waste GHG emissions associated with the Lee's Summit Sanitary Landfill are generated from decomposing waste in place and methane management activities. The City operates the landfill, which provides waste disposal services for Lee's Summit City operations as well as for a number of other cities and counties in the region. Therefore, only a small portion of the Lee's Summit Landfill GHG emissions would be the responsibility of the City and attributable to municipal operations. The current waste management system does not provide accurate data describing the quantity and origin of waste; however, the City's Environmental Department provided estimates of annual solid waste generated by municipal operations, which were used to complete the municipal inventory.

Communitywide solid waste data was provided by contract waste haulers that report quarterly haul tonnage data for residential and commercial land uses to the City's Environmental Department.

Wastewater

Wastewater treatment plants generate GHG emissions (e.g., nitrous oxide, methane) as a byproduct of the processes used to break down organic materials in the untreated water. Emissions associated with the energy used at wastewater treatment plants are included in the energy sector.

The City Water Utilities Department provided wastewater data describing annual gallons processed by the Little Blue Valley Sewer District that serves eastern Jackson and northern Cass counties' local wastewater treatment.

Water

Unlike the wastewater sector, emissions from the water sector come from the electricity used to treat, convey, and distribute potable water. Total water consumption for both municipal operations and communitywide land uses was obtained from the City's Water Utilities Department.

High Global Warming Potential Gases

High Global Warming Potential (GWP) GHGs are associated with industrial processes, refrigerants, semi-conductor manufacturing, and electrical transmission. The City operates buildings and refrigeration units that use high-GWP refrigerants, which have the potential to deplete ozone, thereby degrading air quality. The chemical structure and composition of refrigerants such as hydrofluorocarbons (HFC) and chlorofluorocarbons (CFC) have a greater ability to trap heat in the atmosphere than other GHGs such as carbon dioxide (CO_2) and methane (CH_4). Because the City is a single entity that tracks its high-GWP refrigerant use, these emissions have been included in the municipal inventory. However, for the communitywide inventory, which deals with multiple residents, businesses, and facilities that use high-GWP refrigerants, the tracking process is not yet feasible. The Central Building Services Department provided the amount and type of refrigerants used for City operations.

Energy and transportation accounted for 97% of communitywide emissions in 2009.

Communitywide Inventory

2009 Emissions Inventory

The communitywide baseline (2009) inventory is composed of the six previously described emission sectors. The overwhelming majority of Lee's Summit's communitywide emissions in 2009 originated from the energy (59.3%) and transportation (37.8%) sectors, which collectively accounted for approximately 97% of the total emissions inventory. Solid waste accounted for about 2% of communitywide emissions. Wastewater, water, and high GWP gases combined made up less than 1% of emissions (see Figure 2.1).

Within the energy subsectors, residential uses accounted for about 43% of electricity use and 68% of natural gas use. Within the transportation subsectors, about 79% of emissions were from gasoline-fueled on-road vehicles, and about 21% were from diesel-fueled on-road vehicles.

Communitywide Emissions Comparison

Although it is important to understand and focus on the activity levels and processes that are occurring within the City, it can be helpful to evaluate the GHG levels of other similar cities and counties. Therefore, in order to provide context for the City's emissions inventory, Table 2.1 presents the GHG emissions and populations of Midwestern cities that experience climate and cultural conditions similar to Lee's Summit. The comparison is presented in terms of GHG efficiency levels, in which the City's annual emissions are divided by its population to arrive at emissions per person per year. Although useful for general emissions comparisons, discrepancies in how each city's inventory was calculated do not support direct comparisons.

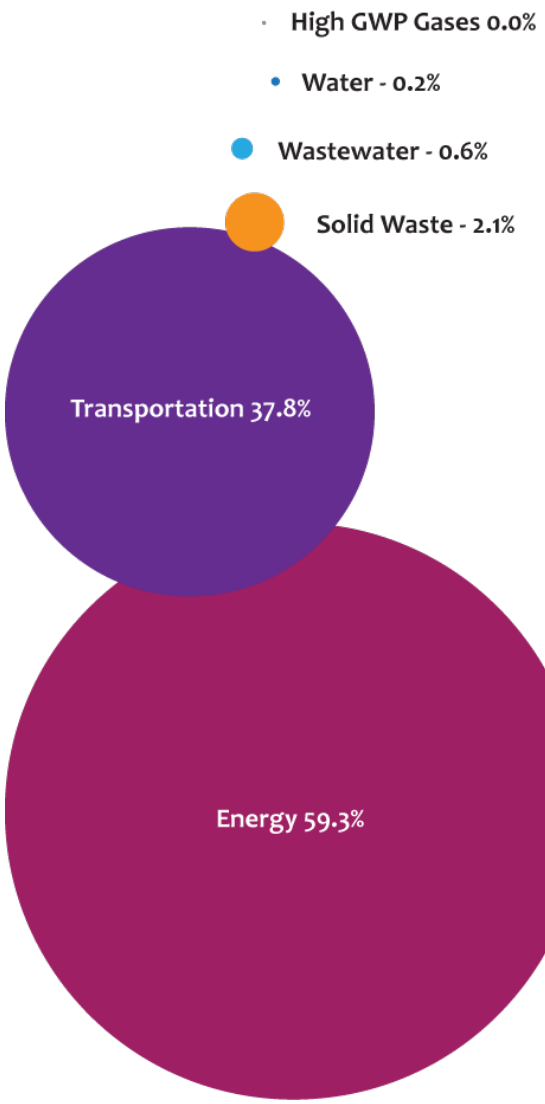

Figure 2.1 – 2009 Communitywide Greenhouse Gas Inventory

Table 2.1 – Greenhouse Gas Inventory and Efficiency Comparison

Jurisdiction	Annual Emissions (MT CO_2e/year)	Population	Efficiency Level (MT CO_2e/person/year)
Bloomington, IN	924,479	80,405	11.5
Evanston, IL	996,672	77,693	12.8
Des Plaines, IL	1,085,170	59,518	18.2
Lee's Summit, MO	**1,756,819**	**90,770**	**19.4**
Creve Coeur, MO	794,963	16,868	47.1

Source: AECOM 2011, ICLEI

Emissions Projection Process

To estimate the effectiveness of future reduction measures and strategies, it is necessary to project baseline emissions to a future year. For the Lee's Summit SAP, baseline municipal and communitywide emissions were projected to year 2025 to coincide with the City's Comprehensive Plan horizon year. Aligning the timelines of these two plans allows the SAP to achieve synergies by implementing similar goals and objectives. In addition, future updates and new information can now be synchronized.

A variety of indicators were used to predict 2025 business-as-usual emissions. For example, an increase in retail/commercial building square feet would lead to additional electricity and natural gas consumption. Similarly, population growth would lead to more water consumption, wastewater generation, and solid waste disposal. Table 2.2 provides the activity projection indicators used to calculate the 2025 emissions projections.

Although consumption ***rates*** can change over time due to changed habits or better resource management, business-as-usual projections are based on current consumption rates. Actions proposed in Chapter 3 of this SAP are designed to reduce these business-as-usual emissions.

The methodology used to project future emissions levels for each sector is briefly described below.

Energy

Energy emissions comprise electricity and natural gas end-use consumption for residential, commercial, and industrial land uses. The Comprehensive Plan anticipates additional retail, office, and industrial square footage through 2025. For commercial energy, the anticipated growth in retail and office square footage is used to project baseline 2009 emissions. For industrial energy, the anticipated growth in industrial square footage is used. For residential energy, anticipated population and housing growth are used to project future emissions.

Transportation

Transportation emissions comprise gasoline and diesel vehicle travel. As part of MARC's role as a regional transportation and land use planning authority, it has projected daily VMT (DVMT) calculations from 2009 to 2025 and provided that information to the City for use in the SAP. Anticipated growth in DVMT was used to project 2025 gasoline and diesel vehicle emissions from 2009 baseline conditions.

Wastewater, Water, and Solid Waste

Consumption of potable water and generation of wastewater and solid waste are functions of population as well as businesses in a community. Therefore, these emission sectors have been projected using a combination of population and jobs.

Municipal Growth Projections

The growth of City government is related to the population growth within its jurisdiction. However, City government is unlikely to grow directly proportional (i.e., at a 1:1 ratio) to population. Rather, City operations increase in response to demand for resident services, but avoid over-expansion. Therefore, growth in the City's municipal operations was projected to occur at a more conservative rate of 65% of the population growth from year 2009 to 2025. All emission sectors were projected to increase equally, which assumes City operations will continue to operate at the same emissions ratios as they did in 2009. This represents a business-as-usual projection. In reality, changes in the City's priorities and implementation of the SAP will shift the emission ratios and total mass emissions. Therefore, future updates to the City's municipal emissions inventory should be evaluated considering the economic state of the City during the baseline year to better understand the connections between other factors.

Table 2.2 – Greenhouse Gas Emissions Inventory and Activity Projection Indicators

Indicator	2009	2025	Percent Change
Residents	92,321	103,686	12.3%
Employees	25,738	29,959	16.4%
Service Population (Residents + Employees)	118,059	133,645	13.2%
Retail/Commercial/Institutional Square Feet	9,775,000	12,575,000	28.6%
Industrial Square Feet	2,600,000	3,048,000	17.2%
Daily 1,000 VMT	5,319	6,375	19.9%

Source: City of Lee's Summit, adapted by AECOM 2011
Notes: VMT = vehicle miles traveled

2025 Emissions Projection

Table 2.3 presents the 2009 inventory and 2025 projections. In both years, the energy and transportation sectors are projected to contribute the majority of emissions, accounting for around 97% of total emissions. The energy sector emissions are projected to increase approximately 18% from 2009 to 2025. The largest contributor to the energy sector growth is the commercial subsector, which includes retail and institutional uses, and is projected to grow approximately 29% from 2009 to 2025. This increase in energy consumption is attributed to population growth, expanded retail/commercial/institutional square footage, and expanded industrial square footage projected through 2025. The transportation sector is projected to increase from 37.8% of total communitywide emissions in 2009 to 39.0% in 2025. Other sectors such as wastewater, water consumption, and solid waste remain relatively small parts of the total inventory (i.e., less than 3%). Total communitywide emissions were estimated to increase approximately 20% from 2009 to 2025. This growth is driven primarily by projected growth in commercial and residential land uses.

Commercial energy consumption is projected to grow 29% from 2009 to 2025 based on anticipated increases in commercial and retail square footage.

Table 2.3 – Greenhouse Gas Emissions Inventory and Projections

Emissions Sector	Subsector	2009 Emissions		2025 Emissions	
		MT CO_2e/yr	% of Total	MT CO_2e/yr	% of Total
Energy		**1,041,784**	**59.30%**	**1,232,628**	**58.3%**
	Electricity	***847,997***	***48.3%***	***1,008,208***	***47.7%***
	Residential	364,443	20.7%	409,307	19.3%
	Commercial	294,192	16.7%	378,462	17.9%
	Industrial	172,554	9.8%	202,287	9.6%
	Municipal	16,807	1.0%	18,152	0.9%
	Natural Gas	***193,787***	***11.0%***	***224,420***	***10.6%***
	Residential	131,021	7.5%	147,150	7.0%
	Commercial	33,247	1.9%	42,771	2.0%
	Industrial	28,368	1.6%	33,256	1.6%
	Municipal	1,151	0.0%	1,243	0.1%
Transportation		**664,397**	**37.8%**	**825,482**	**39.0%**
	Gasoline	523,661	29.8%	650,906	30.8%
	Diesel	138,055	7.9%	171,679	8.1%
	Municipal*	2,681	0.2%	2,896	0.1%
Solid Waste		**37,249**	**2.1%**	**42,167**	**2.0%**
	Non Municipal	36,625	2.1%	41,493	2.0%
	Municipal	624	0.0%	674	0.0%
Wastewater		**9,989**	**0.6%**	**11,307**	**0.5%**
Water		**3,304**	**0.2%**	**3,740**	**0.2%**
High GWP Gases	Municipal	**96**	**0.0%**	**104**	**0.0%**
Communitywide Total		**1,756,819**	**100.0%**	**2,115,427**	**100.0%**

Source: AECOM 2011
Note: Columns may not total 100% due to rounding; MT CO_2e/yr = metric tons carbon dioxide equivalent per year
*Includes municipal diesel and gasoline vehicles, as well as off-road equipment (i.e., fleet, airport)

Municipal Operations Inventory

2009 Emissions Inventory

The City's municipal emissions are reported for four of the six sectors: energy, transportation, high-GWP GHGs, and solid waste. As shown in Figure 2.2, the majority of the City's 2009 municipal emissions was from energy use (84%) and transportation (12%). Electricity consumption accounted for about 95% of municipal energy sector emissions. Municipal transportation emissions came from gasoline-fueled vehicles (64%), diesel-fueled vehicles (36%), and off-road diesel equipment (6%).

As previously stated, municipal operations are considered a subset of the total communitywide emissions. Therefore, these emissions should not be added to the communitywide total, as the activity levels are embedded in communitywide emissions. Baseline municipal operations emissions represented about 1.2% of communitywide emissions.

2025 Emissions Projection

Under a business-as-usual scenario, City municipal operations activities are anticipated to increase by about 8% between 2009 and 2025. This represents approximately 1.1% of total 2025 communitywide emissions. Relative contributions from each emissions sector remain constant to 2009 conditions, as previously described. Municipal emissions in 2025 represent approximately 1.1% of projected communitywide emissions. Therefore, although the SAP will recommend action steps and implementation programs for municipal operations, most of the City's focus should be placed on communitywide action steps and implementation to achieve greater emissions reductions.

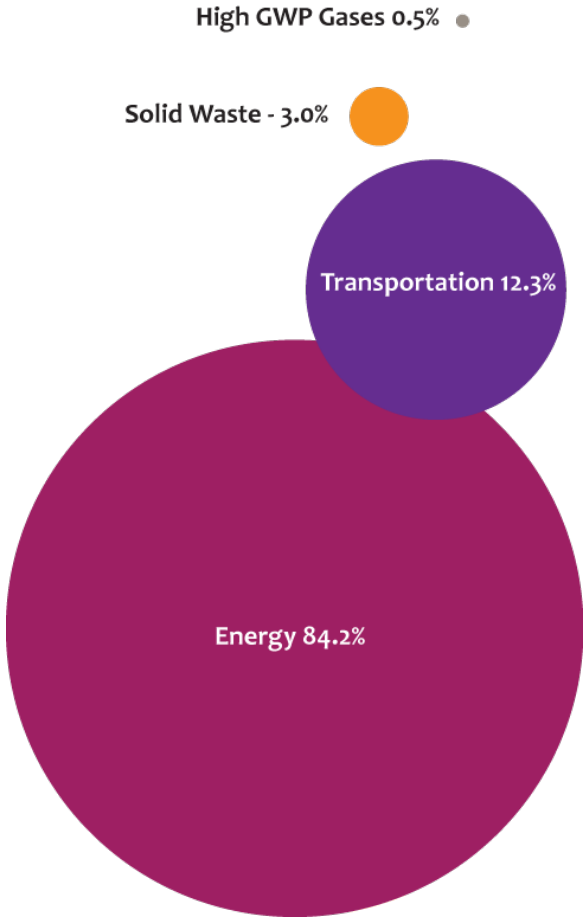

Figure 2.2 – 2009 Municipal Greenhouse Gas Inventory

Emissions Efficiency Goal

The City is projecting significant growth between 2009 and 2025, which would result in a 20% increase in GHG emissions during the same time period. To remain a regional leader in sustainability, the City is striving to grow in a more efficient manner that would reduce GHG emissions per service population (where service population = residents + employees) in 2025 compared to 2009 levels. This approach, which differs from the efficiency calculation used in Table 2.1, allows the City to acknowledge that a significant portion of its projected emissions growth is anticipated from the commercial sector and new employees associated with that growth, even if all of those employees do not live in Lee's Summit. Employment statistics for each city's inventory year were not readily available, and therefore, could not be included in Table 2.1.

This goal demonstrates the City's commitment to reduce communitywide emissions, while still maintaining an environment that welcomes economic growth. An efficiency-based goal will allow the City to encourage and accommodate new growth, but will manage it in a way that results in fewer emissions per resident and employee. Emissions reductions would result from both local and federal actions, as described below.

A number of Midwestern cities have also established GHG reduction targets, although those sampled have chosen a mass emissions reduction goal (e.g., 10% below 1990 by 2020), rather than an efficiency goal as in Lee's Summit. The goals vary in their timeframe and the baseline year from which target reductions are calculated, which makes comparing targets against one another difficult. Table 2.4 provides a sample of reduction targets from Midwestern cities.

Table 2.4 – Emissions Reduction Targets from Midwestern Cities

Jurisdiction	Reduction Target (MT CO_2e/year)
Bloomington, IN	7% below 1990 by 2012
Evanston, IL	7% below 1990 by 2012
Creve Coeur, MO	20% below 2005 by 2015; 50% below 2005 by 2050
Chicago, IL	25% below 1990 by 2020; 80% below 1990 by 2050
Kansas City, MO	30% below 2000 by 2020; 80% below 2000 by 2050

Source: Compiled by AECOM 2011 from city websites

Local Actions

With community and agency input, the City prepared a list of action steps, which could be implemented to provide emissions reductions in the future. Where possible, the action steps were quantified based on realistic assumptions of participation rates during implementation to determine the approximate magnitude of reductions that the SAP could achieve. The 19 quantified action steps would result in communitywide emissions reductions of 60,273 MT CO_2e/yr (metric tons of carbon dioxide equivalent emissions per year). These action steps are presented in Chapter 3, including descriptions of their co-benefits beyond emissions reductions. Starting to implement these local sustainability measures now is critical to enabling the community to meet its reduction goal.

Federal Actions

In addition to local actions to reduce emissions, legislation enacted at the federal level can also lower emissions. The largest anticipated reductions are from federal fuel efficiency improvements to passenger vehicles and light-duty trucks through the Corporate Average Fuel Economy (CAFE) standards. As residents and businesses replace older vehicles with newer ones, people will consume less fuel and generate fewer emissions per vehicle mile traveled. For Lee's Summit, implementation of the CAFE standards would result in communitywide emissions reductions of approximately 128,171 MT CO_2e/yr.

Progress Toward Efficiency Goal

As shown in Table 2.5, the City's baseline (2009) emissions level is 14.8 MT CO_2e per service population per year (MT CO_2e/SP/yr). Without local or federal action, the emissions level would increase to 15.8 MT CO_2e/SP/yr in 2025, a nearly 7% increase from 2009 levels. However, legislation directing the previously described federal actions is already in place, so this scenario is unlikely to occur. If federal actions are considered, but the City took no local action (i.e., did not implement any local actions described in the SAP), the 2025 emissions level would increase slightly to 14.9 MT CO_2e/SP/yr. This represents a 0.7% increase over 2009 levels. The final scenario considers existing federal legislation and assumes local action is taken in Lee's Summit for total emissions reductions of 188,444 MT CO_2e/yr in 2025. This would result in an emissions level of 14.4 MT CO_2e/SP/yr; 2.7% lower than 2009 levels. This combination of local and federal actions will allow the City to accommodate future growth more efficiently, while reducing emissions per resident and employee, as illustrated in Figure 2.3.

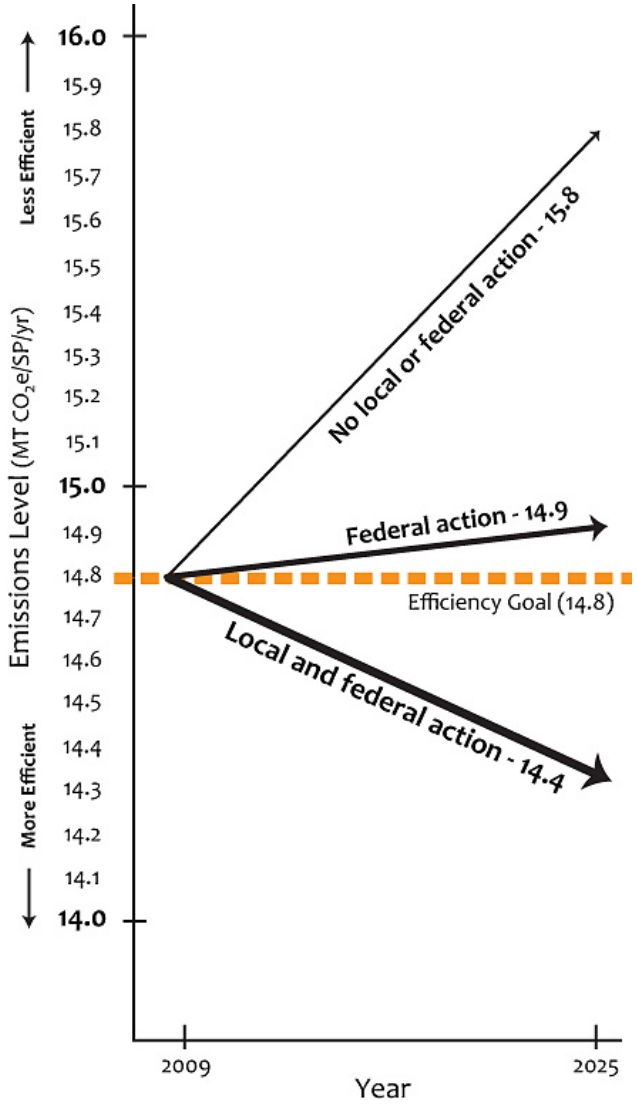

Figure 2.3 – Progress toward Emissions Efficiency Goal

Table 2.5 – Progress toward Emissions Efficiency Goal

Year	Service Population (Residents + Employees)	Emissions (MT CO_2e/yr)	Reductions (MT CO_2e/yr)	Emissions Level (MT CO_2e/SP/yr)	Change from 2009 Efficiency Level
2009	118,059	1,756,819	-	14.8	-
2025 (Business-as-Usual)	133,645	2,115,427	-	15.8	+6.8%
2025 (w/ federal actions)	133,645	2,115,427	-128,171	14.9	+0.7%
2025 (w/ local and federal actions)	**133,645**	**2,115,427**	**-188,444**	**14.4**	**-2.7%**

Source: City of Lee's Summit, AECOM 2011
Note: MT CO_2e/yr = metric tons carbon dioxide equivalent per year

Although total communitywide emissions will be higher in 2025 than in 2009, the City will grow more efficiently, resulting in lower emissions per service population.

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Chapter 3

SUSTAINABILITY FOCUS AREAS

Regional Leadership in Sustainability

Through a collaborative process involving the public and municipal departments, the City developed a list of action steps, organized into six sustainability focus areas that will guide implementation of the SAP. The action steps provide numerous community benefits, including energy and water savings, waste reduction, and lower emissions. The economic costs of each action step were analyzed to allow the City to prioritize its investments, based on available funding and associated benefits. The agencies or departments responsible for leading implementation of the various action steps are also identified to ensure each task has a champion. Through its leadership, Lee's Summit will bring regional sustainability issues to the next level of action.

Selection of Sustainability Focus Areas

Building on the City's tradition of environmental stewardship, the SAP outlines a forward-thinking agenda to support a more sustainable future, focusing on City operations as well as communitywide residential and business practices. The strategies identified in this chapter affect issues within the City's direct influence. Implementing the actions described for each strategy can assist the City in achieving measurable success in improving its built, natural, and social environment.

The City, in collaboration with stakeholders and citizens, has established the following six focus areas as its top priorities for promoting a sustainable community:

- **Energy Efficiency** recommends ways to increase energy efficiency in existing buildings, enhance energy performance for new construction, increase efficient exterior lighting technology, and increase use of renewable energy.
- **Transportation** encourages alternatives to driving alone by car; promotes transit, walking, and bicycling as viable transportation modes; and encourages greater travel efficiency.
- **Land Use** encourages infill and mixed-use development in key areas, provides guidelines for developing higher density housing options in appropriate locations, and offers strategies for green infrastructure and economic development.
- **Water Conservation and Stormwater Management** suggests tools to conserve water in both natural and developed areas, considers strategies to increase indoor water efficiency, and recommends actions to support sustainable stormwater management.
- **Waste Reduction and Management** builds on past City successes by increasing waste diversion, reducing consumption of materials that otherwise end up in landfills, and increasing recycling.
- **Education, Advocacy, and Outreach** identifies opportunities to share sustainability knowledge with citizens, engages new and existing programs, and identifies leaders within the City to advocate for the environment and sustainability-focused programs and activities.

Strategies that support each focus area were developed by (a) evaluating existing community conditions and building off past successes, (b) identifying emission reduction opportunities within the community, including those identified during stakeholder discussions, and (c) reviewing best practices from other jurisdictions and organizations to consider precedents from elsewhere. After considering a wide range of potential options, strategies were recommended based on the following criteria:

- What is the cost of implementation to the City, and what municipal and/or private savings can be achieved?
- Is it technically possible and financially feasible to implement the strategy?
- Would the community support the strategy? Is it politically feasible?
- Does the strategy create additional community co-benefits (e.g., quality of life, public health)?

Sustainability Focus Area Components

This chapter is organized into sub-sections for each of the six focus areas. Each sub-section includes an introduction to the overarching concepts that tie the focus area to community sustainability. The introduction is then followed by a number of strategies that will serve as a road map for the City to achieve success within each focus area and to reduce communitywide GHG emissions in Lee's Summit. The strategies are each supported by specific action steps that include implementation programs, economic considerations, responsible agencies, community co-benefits, and quantified emissions reductions, where possible.

Current City Initiatives

The City is already a regional leader on sustainability issues. A summary of actions the City has taken to date, which contribute to the goals of the SAP strategies, is listed in the introduction to each new focus area.

Funding Sources

Though the City will bear some financial burden to implement strategies in the SAP, a wide range of funding sources and financing strategies can be leveraged to offset costs to the City and local residents and businesses. General types of funding or financing, including grants and rebates, are described for most focus areas. Some of the opportunities listed are available to residents and businesses and some are targeted towards local governments. Most, if not all, of the sources described require additional effort to access. Although information in the SAP is current as of early 2012, the array of funding and financing options is ever-evolving. Additional opportunities for funding or financing will likely emerge as the City implements the SAP.

Action Step Tables

Action step tables are provided for each strategy in the energy efficiency, transportation, land use, water conservation and stormwater management, and waste reduction and management focus areas. Strategies for the education, advocacy, and outreach focus area are described through a narrative to better explain the recommended programs, which have less quantifiable results than the other focus areas. These tables provide a one-page overview of the intent and potential impact of each action step (Figure 3.1). The contents of the action step tables are described below.

Action Steps

The necessary steps required to implement each strategy are defined as action steps. Action step descriptions provide important background information and describe the City's rationale and policy direction. Examples of related past City accomplishments are provided where applicable. A summary table listing all action steps is included in Appendix B.

Implementation Programs

The specific actions necessary to implement the action steps are described as implementation programs.

Metrics (GHG Reductions)

The GHG reductions associated with each action step (when quantifiable) are presented, along with each action's contributions towards total SAP reductions. GHG reductions are measured in metric tons of carbon dioxide-equivalent emissions per year (MT CO_2e/yr).

Reductions were calculated using assumptions about participation rates, efficiencies of technologies to be implemented, the extent of new infrastructure to be constructed, and other factors. For example, to achieve the reductions associated with action step E 3.1 (solar and tankless water heaters) presented later in this chapter, the following assumptions were made:

- 15% of single family residential units install solar water heaters with a 69% cost-effective solar fraction of water heating,
- 15% of multi-family residential units install solar water heaters with a 69% cost-effective solar fraction of water heating, and
- 15% of commercial users install solar water heaters with a 40% energy savings assumption.

If participation in this action step is greater than these assumptions, then additional emissions reductions would be generated. Likewise, if participation rates are lower, actual emissions reductions would be lower than assumed in the SAP. These assumptions can be used as progress indicators to track implementation of the SAP, as described in Chapter 4.

Appendix B includes a table with the quantified action steps, their implementation programs, and associated progress indicators (i.e., assumptions).

Responsible Agencies

The action step tables also identify responsible departments and/or agencies that lead implementation. The following list presents the various City departments and divisions that will be responsible for implementing the SAP, as well as their acronyms referenced in the action step tables:

- Codes Administration Department – CAD
- Development and Planning Department – DEV
- Environmental Coordinator – ENV
- Sustainability Coordinator – SUST
- Missouri Department of Transportation – MoDOT
- Parks and Recreation Department – REC
- Public Works Department – PWD
- Solid Waste Division – SWD
- Traffic Engineering and Operations – TRAF
- Water Utilities Department – H_2O

Simple Cost to City

The financial cost associated with implementing each action is described as Simple Cost to the City, based on the calculated average annual cost to the City. The cost of each action step is categorized according to the following scale and represented with the corresponding icons:

Icon	Simple Cost Range
$	**Very Low:** Less than $50,000
$$	**Low:** $100,000
$$$	**Medium:** $250,000
$$$$	**Medium-High:** $750,000
$$$$$	**High:** Greater than $1,000,000
?	**Not Evaluated**

The cost of some actions could not be evaluated because the action is contingent upon the City acquiring funding, services described were assumed to be provided by current City staff, or there was not enough information provided in the action step to calculate a cost.

In addition to simple costs, the action step tables also provide the calculated average total cost to the City through 2025. Supporting information on financial costs is provided in Appendix C.

Community Co-benefits

Beyond reducing GHG emissions as described in Chapter 2, many recommended SAP actions have the potential to provide other important benefits to the community. These co-benefits represent an improvement in the quality of life in Lee's Summit and protect and/or improve the environment.

The impact of numerous co-benefits can be quantified using existing methodologies. The following co-benefits are quantified in the action step tables using the following metrics:

- Electricity Savings: kilowatt hours per year (kWh/yr)
- Natural Gas Savings: therms/yr
- Household Water Savings: gallons/yr
- Community Water Savings: million gallons/yr
- Waste Reduction: tons/yr
- Methane Reduction: metric tons of methane per year (MT CH_4/yr)
- Vehicle Miles Traveled Reduction: miles/yr
- Fuel Savings: gallons/yr

The icons presented in Figure 3.1 represent these quantified co-benefits in the action step tables.

In addition to the co-benefits listed above, there are other unquantified benefits associated with implementing this SAP, which also result in quality-of-life improvements in Lee's Summit. These unquantified benefits include:

- Lower utility bills
- Enhanced property values
- Regional sustainability leadership and awareness
- Improved air quality
- Improved water quality
- Reduced stormwater runoff
- Reduced urban heat island temperatures
- Promote walking and bicycling

In the future, methodologies may be developed that allow the value of these co-benefits to be quantified.

Figure 3.1 – Community Co-benefits

"Show Me" Projects

"Show Me" Projects are high-visibility demonstration projects that the City can execute to jump-start implementation of the SAP. Many of these projects are currently in the planning process, and were selected based on their ability to be quickly implemented. "Show Me" Projects will allow Lee's Summit to achieve short-term success, thereby building momentum and capitalizing on public visibility of the Plan. "Show Me" Projects are listed with the implementation programs, and are marked with an exclamation point (!).

These projects are essential to the success of the SAP and require coordination among various groups. Many build on existing sustainability infrastructure in the City and will draw attention and public support to Lee's Summit's sustainability profile. The following twelve "Show Me" Projects can be found throughout the action step tables in this chapter, where they are described in more detail:

1. Homebuyer energy audit (E 1.1)
2. Green roof construction (E 1.8)
3. Parking lot lighting efficiency retrofit (E 2.1)
4. Municipal photovoltaic installation (E 3.4)
5. High-use bicycle connection (T 2.1)
6. Bus shelter at park-and-ride (T 3.2)
7. Traffic light synchronization (T 4.3)
8. Residential secondary unit construction (LU 2.2)
9. Rainwater capture cistern (W 2.3)
10. Construction material reuse (WR 1.2)
11. Recycling bins in commercial areas (WR 1.3)
12. Relationship between livable streets projects and planning documents (ED 1.1)

"Show Me" projects are high-visibility demonstration projects to jump-start implementation of the SAP.

Greenhouse Gas Reduction Potential

Implementation of the strategies described in this chapter would result in quantifiable GHG emission reductions. Table 3.1 summarizes the SAP's GHG reduction potential; GHG reductions were not quantified for action steps that are not included in this table. The majority (75%) of reductions come from energy efficiency improvements. Transportation strategies provide 11% of reductions. Water conservation and stormwater management strategies contribute approximately 7% of the reductions. Land use strategies and waste reduction and management strategies make up the remaining 7% of reductions.

Table 3.1: Quantified Greenhouse Gas Emissions Reductions from Action Steps		Emissions Reductions ($MT CO_2e/yr$)	Total Reductions (%)
Energy Efficiency			
Building Energy Efficiency Strategy			
E-1.1	Residential energy efficiency retrofit	676	1.1%
E-1.2	Low-interest loan fund for energy efficiency	120	0.2%
E-1.4	Current International Energy Conservation Code	6,128	10.2%
E-1.6	Residential ENERGY STAR appliances	3,043	5.0%
E-1.7	High-efficiency lighting	1,930	3.2%
Renewable Generation Strategy			
E-3.1	Solar and tankless water heaters	3,745	6.2%
E-3.3	Municipal generation facilities	12,179	20.2%
E-3.5	Commercial solar photovoltaic system	17,123	28.4%
Subtotal		**44,944**	**74.6%**
Transportation			
Pedestrian Strategy			
T-1.1	Sidewalk inventory analysis	2,943	4.9%
Bicyclist Strategy			
T-2.1	Bicycle infrastructure	595	1.0%
Travel Efficiency Strategy			
T-4.2	Traffic signal synchronization	3,000	5.0%
Fleet Upgrade Strategy			
T-5.1	Green fleet policy	325	0.5%
Transportation Demand Management Strategy			
T6.1	Transportation demand management program	23	0.0%
Subtotal		**6,886**	**11.4%**
Land Use			
Mixed Use and Infill Development Strategy			
LU-1.2	Neighborhood commercial and mixed use	460	0.8%
Green Infrastructure Strategy			
LU-3.1	Urban forestry program	990	1.6%
Subtotal		**1,450**	**2.4%**
Water Conservation and Stormwater Management			
Indoor Water Efficiency Strategy			
W-1.1	Water-efficient appliances and fixtures	1,740	2.9%
Outdoor Water Conservation Strategy			
W-2.2	Water-efficient landscape irrigation systems	2,426	4.0%
Subtotal		**4,166**	**6.9%**
Waste Reduction and Management			
Waste Reduction Strategy			
WR-1.1	Organic waste disposal	2,519	4.2%
WR-1.2	Construction and demolition waste reuse	308	0.5%
Subtotal		**2,827**	**4.7%**
TOTAL REDUCTIONS		**60,273**	**100%**

Energy Efficiency Focus Area

The consumption of electricity and natural gas for appliances, lighting, heating and cooling, cooking, and other processes within residential, commercial, and industrial buildings generated just under two-thirds (59%) of Lee's Summit's communitywide GHG emissions in 2009. These emissions can be reduced by improving energy efficiency and increasing the amount of electricity and heat generated from renewable energy sources.

In Lee's Summit, approximately 30% of the housing stock was built before the 1980s. Consequently, this portion of the building stock offers an opportunity for cost-effective energy efficiency retrofits to decrease the use of both electricity and natural gas. The building energy efficiency strategy aims to achieve energy efficiency improvements in both existing and new buildings through a combination of education and incentives programs.

The exterior lighting strategy advances the use of high-efficiency lighting technologies in parking lots and street lights.

Finally, the renewable generation strategy aims to increase communitywide use of renewable energies, including solar energy and methane capture at the City's landfill.

The total GHG emissions reduction potential of this focus area is 44,944 MT CO_2e/yr, or about 75% percent of total reductions in the SAP.

Current City Initiatives

- Incorporated energy-efficient features at City Hall, including daylighting, solar collection for hot water systems, occupancy sensor lighting systems, and energy-efficient appliances
- Incorporated energy-efficient features at the Police Building, including a motion-activated light system, energy-efficient lights, and computerized HVAC management system
- Renovated the Municipal Airport with LED lights installed as part of the Taxiway Charlie Project and installed motion sensor lights in lobby of Terminal Building, resulting in a 15% reduction in electrical usage
- Conducted efficiency renovations and energy audits at multiple parks and community centers
- Enacted Unified Development Ordinance (UDO) amendment to require 50% solar or 100% LED parking lot lighting
- Enacted UDO amendment to allow for wind turbines in the City, including in residential areas
- Installed a plug-in electrical vehicle charging station in the City's downtown public parking garage
- Converted traffic signals (vehicle and pedestrian) from incandescent to LED fixtures

Community Initiatives

- Lee's Summit School District has saved energy through use of performance contracts and other energy saving initiatives
- Lee's Summit Hospital has developed a Sustainability Action Plan for its facility and operations
- New Longview subdivision development initiated a certified Green Home program which included Energy Star-rated appliances, tighter doors and windows, and more durable, less toxic products

Funding Sources

The following rebates, tax credits, loans, and free programs are available to help reduce the cost to residents, builders, and businesses that adopt certain energy-efficient practices.

Kansas City Power and Light Cool Homes Rebate Program

The Cool Homes program offers rebates of up to $850 toward purchase of an energy-efficient air conditioner or heat pump.

Kansas City Power and Light Energy Optimizer

To help manage energy consumption throughout the year, this program offers a free programmable thermostat, including installation, for participating KCP&L residential and small commercial customers.

Kansas City Power and Light Photovoltaic System Rebate

Kansas City Power and Light (KCP&L) offers rebates to its customers for the installation of net metered photovoltaic (PV) systems on their properties. The program is available to all of KCP&L's Missouri retail customers on generally available residential, commercial, and industrial rate schedules. The rebate is set at $2.00 per watt with a maximum rebate of $50,000. Although the program guidelines and application do not list a firm maximum system capacity, the system is required to be net metered; this limits system size to 100 kilowatts (kW), the maximum size allowed under Missouri's net metering rules. This program arises from 2008 Proposition C, a ballot initiative that established a state renewable portfolio standard (RPS) in Missouri and required the state's investor-owned utilities to offer solar rebates of at least $2.00 per watt beginning in 2010.

Weatherization Assistance Program

The Weatherization Assistance Program makes energy efficiency improvements to the homes of low-income households. Weatherization reduces energy bills, on average, by over 30 percent. Typical improvements include installing insulation, caulking windows, and conducting repairs to heating and central cooling systems.

Kansas City Power and Light Affordable New Homes

The Affordable New Homes program is designed to reimburse builders for the costs involved in achieving an energy efficient construction. Builders developing new low-income residential housing may meet the program's efficiency standards by either installing a prescribed set of energy efficiency measures or demonstrating that the home conforms to the program's specified energy-consumption standards. KCP&L provides incentives to builders of up to $1,500 for homes that meet the program's prescriptive requirements, or that demonstrate they meet the program's performance requirements through a Home Energy Rating.

Kansas City Power and Light Commercial and Industrial Rebates

KCP&L provides rebates for the purchase of high-efficiency equipment for commercial and industrial facilities. There are three rebate programs:

- Custom Rebate for Retrofits - Any customer who plans to replace equipment in an existing facility with high-efficiency equipment can obtain a custom rebate for a retrofit project.
- Prescriptive Rebates - Small-business customers who are on KCP&L's Small General Service rate (SGS) can apply for rebates from a pre-qualified list of energy-efficiency measures.
- Custom Rebate for New Construction - KCP&L can develop an energy-efficiency plan designed for a specific new building or major renovation. Individual or combined energy-efficiency measures are eligible.

Kansas City Power and Light Commercial and Industrial Energy Audit

An energy audit can identify ways to improve a facility's energy efficiency. Customers who have an energy audit performed by a KCP&L-certified auditor are eligible for a rebate that covers up to 50% of the cost of the audit. The rebate is provided after the audit's recommended energy-efficient equipment is installed.

Missouri Energy Efficiency Leveraged Loan Program

The Energy Efficiency Leveraged Loan Program provides financial assistance in the form of low interest loans to implement cost-effective energy-efficiency upgrades. Loan repayments are made from the energy savings generated and thus are not considered debt to the loan recipient. Funding is provided by bonds issued by the Environmental Improvement and Energy Resources Authority (EIERA). Any public school, university, college, city or county government, public hospital or water treatment plant is eligible to apply for loan funds to finance implementations of energy conservation projects. The applicant must own and operate the building, facility, or system associated with the proposed project. The building, facility, or system must also have an expected operational life greater than the project's loan repayment period. An energy project may include costs for design, acquisition, installation, commissioning, and other associated project costs determined by the department as eligible.

Federal Tax Credits for Consumer Energy Efficiency

The Federal government offers numerous tax credits for certain specific ENERGY STAR qualified products, including a credit for 30 percent of cost for geothermal heat pumps, small wind turbines (residential), solar energy systems, and fuel cells.

E 1. Building Energy Efficiency Strategy

E 1.1	**Promote existing energy efficiency incentive programs for residential units through additional education and outreach.**
	Nearly one-third of Lee's Summit's housing stock was constructed prior to the 1980's. Homes of this vintage frequently have minimal insulation, antiquated furnace systems, single-pane windows, and gaps in the building envelope. Energy efficiency improvements to residential structures can reduce energy bills for owners and reduce communitywide GHG emissions. Rebate programs currently exist to assist homeowners with energy-efficiency upgrades.

Implementation Programs		
	A.	Identify neighborhoods with older homes that would benefit from energy retrofits.
	B.	Develop a City-sponsored outreach campaign targeting homeowners in older neighborhoods. Promote the City's Minor Home Repair Program, which utilizes low-interest loans, and the regional Home Weatherization Program.
	C.	Reduce/remove permit fees for residential energy efficiency retrofits.
	D.	Provide information on KCP&L's voluntary Home Energy Performance Audit Program and energy bill credits at the proposed Green Construction Resource Center (refer to E 1.3) and/or an informational kiosk in the Planning Department.
	!	**"Show Me" Project #1:** Homebuyer participates in an energy audit and implements at least one item from the audit, case study is summarized and posted on the City's sustainability website. This could be developed into a continuous program, with local success stories posted on the City's sustainability website.

Community Co-benefits		Costs		Responsibility	
		Simple Cost to City	**Total Cost to City Through 2025**		**Department/ Agency**
13,888 kWh/yr	**125,270 therms/yr**	$$$$	$262,600		DEV ENV

GHG Reductions		
	Reductions from Action	**Percent of Total SAP Reductions**
	676 MT CO_2e/yr	1.1%

E 1.2	**Consider developing a low-interest, revolving loan fund program to incentivize energy efficient improvements to commercial buildings.**
	Energy efficiency improvements can reduce both energy bills and GHG emissions, with increased benefit to larger structures. Financing is critical to the success of any energy efficiency program. The City will investigate the development of a Property Assessed Clean Energy (PACE) program to further promote energy efficiency retrofits, which would allow qualified non-residential property owners to repay the cost of energy efficiency retrofits through their property tax bill. Conventional means, such as debt financing, will also be considered to finance energy efficiency retrofits.

Implementation Programs		
	A.	Form a study group to research the benefits of developing low-interest funding programs for commercial energy retrofits, such as developing a non-residential PACE program. Identify ways to encourage small businesses to participate in existing KCP&L programs that provide technical assistance and access to incentives for energy efficiency upgrades (e.g., HVAC, motors).

Community Co-benefits		Costs		Responsibility	
		**Simple Cost to City**	**Total Cost to City Through 2025**	**Department/ Agency**	
144,604 kWh/yr	**20,838 therms/yr**		$52,500	DEV ENV	

GHG Reductions	**Reductions from Action**	**Percent of Total SAP Reductions**
	120 MT CO_2e/yr	0.2%

E 1.3	**Promote existing KCP&L incentive programs for energy performance in new construction.**
	Energy efficiency improvements to residential and commercial structures can reduce energy bills and GHG emissions. The City will partner with KCP&L and community organizations to conduct public education and outreach campaigns that encourage residents and businesses to voluntarily complete energy efficiency improvements within their homes and businesses.

Implementation Programs		
	A.	Establish a Green Construction Resource Center at the Planning Department to act as a clearinghouse where customers can pick up brochures about current energy efficiency incentives and schedule appointments with Planning Department staff to inquire about specific programs.
	B.	Provide technical assistance to developers to leverage current KCP&L incentive programs for new construction.

Costs	**Simple Cost to City**	**Total Cost to City Through 2025**	Responsibility	**Department/ Agency**	GHG Reductions	
	Included in other action steps	N/A		ENV DEV		Not quantified

E 1.4	**Provide incentives for new construction that voluntarily meets the most current International Energy Conservation Code (IECC) standards.**
	The City is considering adopting or developing new standards (IECC, LEED, ENERGY STAR, etc.) for rating the environmental impact of new construction in Lee's Summit, providing incentives for projects that achieve exemplary performance. Where possible, the City will provide technical assistance to aid developers and builder/contractors complying with IECC. The City will also update its permitting fees and processes to reward individuals and businesses proposing to incorporate sustainable development techniques into their building projects.

Implementation Programs		
	A.	Develop standards against which to rate the sustainability of a proposed project. Use existing rating systems, such as LEED and ENERGY STAR, or create standards unique to Lee's Summit.
	B.	Provide green density bonuses for exemplary residential projects.
	C.	Reduce/remove permit fees for projects that exceed IECC standards.
	D.	Provide technical assistance to developers and builders in complying with IECC standards.
	E.	Update energy conservation code standards when considering recurring updates to building code.

Community Co-benefits		Costs		Responsibility	
		Simple Cost to City	**Total Cost to City Through 2025**		**Department/ Agency**
 **5,186,401 kWh/yr**	 **1,030,371 therms/yr**		$568,100		DEV CAD

GHG Reductions	**Reductions from Action**	**Percent of Total SAP Reductions**
	6,128 MT CO_2e/yr	

E 1.5	**Incentivize green construction practices, including high efficiency building materials (e.g., windows and insulation), passive and active solar design, reused materials, on-site stormwater management, and reduced construction waste.**
	Green construction ensures that new buildings will be healthier for residents and use energy and resources more efficiently. The City will consider offering incentives for projects that achieve exemplary status across a range of sustainable indicators, also providing samples and information about building materials and practices that increase energy efficiency, indoor air quality and water conservation. The City will continue to showcase energy efficient building materials in its public buildings and offer public education to increase awareness of energy-efficiency materials and practices. Additionally, the City will consider providing information at the Green Construction Resource Center or Planning Department regarding the availability of recycled building materials in construction. The program will promote use of locally available construction materials (sourced and/or fabricated within 500 miles).

Implementation Programs		
	A.	Develop standards against which to rate a proposed "green" project, using existing rating systems, such as LEED NC 2.2 or Green Globes, or create standards unique to Lee's Summit.
	B.	Provide green intensity bonuses for exemplary commercial projects.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$$$	$220,000		DEV		Not quantified

E 1.6	**Encourage installation of ENERGY STAR major appliances in new and existing residential units.**
	The ENERGY STAR rating is an internationally recognized standard for energy efficient consumer products. According to the EPA, devices that have an ENERGY STAR certification, such as office equipment, home appliances, and lighting products, generally use 20% to 30% less energy than required by federal standards. This measure is designed to encourage voluntary community participation to upgrade home appliances and electronics to ENERGY STAR or other energy efficient models. By promoting ENERGY STAR-rated home and business appliances, the City can help to reduce GHG emissions related to the use of refrigerators, dishwashers, clothes washers, window air conditioning units, computers, photocopiers, and other electronic devices.

Implementation Programs		
	A.	Provide information on the City's sustainability website and at the Green Construction Resource Center advertising U.S. Department of Energy appliance rebates for Missouri.
	B.	Promote the annual statewide sales tax holiday for energy-efficient appliance purchases.
	C.	Promote home appliance upgrades and available rebates in advertisements for the City's annual waste/e-waste disposal events.
	D.	Provide builders and developers with the most current information on ENERGY STAR appliance rebates during the permit stage.

Community Co-benefits	Costs		Responsibility	
	Simple Cost to City	**Total Cost to City Through 2025**		**Department/ Agency**
3,710,362 kWh/yr	$$	$77,600		ENV DEV

GHG Reductions	**Reductions from Action**	**Percent of Total SAP Reductions**
	3,043 MT CO_2e/yr	5.0%

E 1.7	**Incentivize high-efficiency lighting installation and retrofits in both new and existing buildings.**
	Conventional commercial lighting, including T12 fluorescent bulbs and old exit sign lights, consume more energy than new T8 lights and light-emitting diode (LED) technologies. The City will provide outreach and technical assistance to non-residential property owners to encourage participation in lighting upgrades, including information on rebates for fixtures, lamps, accent/directional lighting, controls, and signage.

Implementation Programs		
	A.	Assist small businesses to use KCP&L technical assistance programs and lighting upgrade incentives.
	B.	Develop a public outreach campaign to reach large commercial and industrial energy users (>100,000 sf) to highlight financial benefits of participating in KCP&L lighting upgrade programs.
	C.	Establish funding to provide residents with low-interest loans or rebates to purchase high-efficiency building lighting.

Community Co-benefits	Costs		Responsibility	
	Simple Cost to City	**Total Cost to City Through 2025**	**Department/ Agency**	
2,353,560 kWh/yr	$$	$75,000	SUST ENV	

GHG Reductions	**Reductions from Action**	**Percent of Total SAP Reductions**
	1,930 MT CO_2e/yr	3.2%

E 1.8	**Encourage installation of energy efficient landscaping features in existing and new development, such as shade trees and green roofs.**
	Trees and green roofs can help the City achieve its GHG reduction goal by reducing building energy-related emissions. As trees mature, their canopies increase in size and provide higher levels of shade and greater levels of building cooling in hot weather. Trees with larger canopies and dense foliage provide more shade than other species. Large, deciduous species are ideal for reducing building energy as they provide shade in summer, but allow winter sunlight into buildings for passive solar gain in cooler weather. Green roof systems insulate buildings in addition to their other environmental advantages, providing energy use reductions and cost savings.

Implementation Programs		
	A.	Develop an outreach program to reach residents in neighborhoods with minimal tree coverage. Provide information describing financial benefits of planting shade trees.
	B.	Coordinate with KCP&L to develop a free shade tree program that provides City residents with a shade tree and assistance in selecting an appropriate planting location. Provide materials describing tree care and maintenance.
	C.	Remove regulatory barriers to the installation of green roofs.
	D.	Waive permit fees for installation of green roof.
	!	**"Show Me" Project #2:** Construct a green roof on City Hall or on an entire block in the Downtown area. Provide informational signs at ground level with before/after photos and descriptions of the benefits, including extended roof life, enhanced building insulation, natural habitat for birds and insects, and stormwater management. Organize rooftop tours for building owners interested in green roof installation.

Costs	Simple Cost to City	Total Cost to City Through 2025*	Responsibility	Department/ Agency	GHG Reductions	
		$336,800		ENV SUST DEV PWD		Not quantified

* "Show Me" project was added following economic analysis; cost calculations do not include this program.

E.2 Exterior Lighting Efficiency Strategy

E 2.1	**Promote installation of higher efficiency lamp technologies in commercial and institutional parking lots.**
	High-quality lighting is necessary to provide personal safety and deter theft and vandalism. However, conventional parking lot lighting, including high-wattage metal halide and high-pressure sodium lights, consumes more energy than new light-emitting diode (LED) technologies, which provide comparable lighting quality at a fraction of the energy consumption.

Implementation Programs	**A.**	Collaborate with KCP&L to promote existing lighting efficiency rebates for parking lots.
	!	**"Show Me" Project #3:** Identify a City parking lot to implement lighting upgrades, subsidize a lighting efficiency retrofit, and calculate simple payback for the project. Post before/after energy use and cost/revenue information on the City's sustainability website.

Costs	**Simple Cost to City**	**Total Cost to City Through 2025**	**Responsibility**	**Department/ Agency**	**GHG Reductions**	
	$$	$67,000		PWD SUST		Not quantified

E 2.2	**Continue to monitor available and cost-effective municipal streetlight and parking lot light technologies. Explore the feasibility of retrofitting municipal streetlights and parking lot lights with higher-efficiency lamp technologies.**
	High-pressure sodium (HPS) bulbs, commonly used in streetlights, require more energy and have a shorter lifespan than new induction and/or light-emitting diode (LED) lights. The City will consider phasing the conversion of all existing HPS streetlights, focusing first on high-traffic roadways and downtown areas.

Implementation Programs		
	A.	Routinely evaluate best practices describing currently available street and parking lot lighting technology, comparing upfront costs against proposed energy savings, and ensuring new technologies meet the Public Works Department's current street light output standards.
	B.	Prioritize municipal lights for retrofit once the technology has achieved performance stats and becomes a cost effective solution.
	C.	Explore KCP&L's pilot program for residential lighting upgrades.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$	$40,000		PWD TRAF		Not quantified

E 3.1	**Provide incentives for the installation of solar, tankless, or other water heater technologies in existing and new buildings.**
	Studies show that efficient water heater technologies can reduce energy-related GHG emissions. However, the high capital cost of water heater upgrades can pose a financial burden to building owners. The City will actively promote and facilitate the installation of efficient systems on residential buildings or for private swimming pools. The City will also create outreach programs to provide information about the benefits of solar heaters and installation and maintenance assistance to maximize community participation.

Implementation Programs		
	A.	Develop a community outreach program to provide information on the benefits of solar and tankless water heaters.
	B.	Partner with MGE to provide information about funding sources and financial incentives to support installation and maintenance of upgraded water heaters.
	C.	Reduce or remove regulatory barriers to installing solar water heater systems.

Community Co-benefits	Costs		Responsibility	
	Simple Cost to City	**Total Cost to City Through 2025**		**Department/ Agency**
796,068 therms/yr	$$	$75,000		SUST ENV DEV

GHG Reductions	**Reductions from Action**	**Percent of Total SAP Reductions**
	3,745 MT CO_2e/yr	6.2%

E 3.2	**Continue to provide outreach to developers and builders about renewable energy incentives and energy efficiency programs.**
	Up-front costs of renewable energy systems would be a considerable burden for many homeowners and businesses. The City will develop an outreach program that encourages developers and property owners to install renewable energy systems. The program will aim to maximize community participation in renewable energy generation.

Implementation Programs		
	A.	Work with the Chamber of Commerce's Sustainability Committee to provide information to local developers and builders about available funding sources for purchasing and installing renewable energy systems on homes and businesses.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
		N/A		ENV		Not quantified

E 3.3	**Develop municipal energy generation facilities.**
	Waste disposal creates emissions when organic waste (e.g., food scraps, paper, wood) is buried in landfills and anaerobic digestion takes place, emitting methane as a by-product of the decomposition process. Methane from landfills can be captured and used to generate electricity. The City could install micro-turbine generators at the City landfill capable of producing electricity from the methane and/or could sell the gas to a corporate user. Landfill gas-to-energy systems could provide a valuable source of renewable energy and reduce the community's emissions. Plans for a waste-to-energy system are currently underway.

Implementation Programs		
	A.	Develop a 2.1 MW methane capture generation facility at Lee's Summit Sanitary Landfill (size of facility based on a 2004 Missouri Department of Natural Resources presentation on statewide landfill gas potential).
	B.	Work with proposed landfill-gas end users to evaluate potential for developing combined heat and power systems.
	C.	Conduct a solar power suitability analysis to determine potential for solar PV systems on municipal facilities (e.g., City Hall, fire stations).
	D.	Conduct a rooftop wind suitability analysis to determine potential for roof-mounted wind turbines on municipal buildings. Consult with representatives from the Parks and Recreation Department about potential for wind turbines at Legacy Park.

Community Co-benefits	Costs			Responsibility	
	Simple Cost to City	**Total Cost to City Through 2025***		**Department/ Agency**	
 **14,849,100 kWh/yr**		**$9,800,000**		SWD PWD REC	

GHG Reductions	**Reductions from Action**	**Percent of Total SAP Reductions**
	12,179 MT CO_2e/yr	20.2%

***** Total cost estimate assumes City would pay all up-front costs associated with installation; City will resume discussions with energy providers for a power purchase agreement under which a third party would pay up-front costs for installation in return for a contract in which the City agrees to purchase power at an agreed upon price.

E 3.4	**Continue to explore ways to reduce market inhibitors (e.g., excessive regulation) to the use of solar energy technology.**
	City regulations can unintentionally prohibit the development of solar energy technology, even if the City has a goal of increasing their installation. Additionally, residents and business owners may not know where to begin with pursuing a solar project. The City will review its regulations, ordinances, and codes to identify any barriers to development of solar projects. The City will also explore the option of developing a PACE financing program to assist non-residential property owners with overcoming the financial burden of installing a solar project (see action step E 1.2 for a description of PACE programs).

Implementation Programs		
	A.	Develop outreach and technical assistance programs to encourage the private installation of solar PV systems.
	B.	Continue to remove regulatory barriers to the installation of PV systems on residential buildings (the City is currently utilizing a SunShot Grant from the US Department of Energy to explore ways to reduce regulatory barriers associated with applications for solar panel installation).
	C.	Analyze potential regulatory, structural, and market barriers to installing PV systems on non-residential buildings and parking lots.
	D.	Provide information about rebates and low-interest financing programs for residential solar PV systems on the City's sustainability website.
	E.	Study potential to develop a non-residential PACE financing program.
	!	**"Show Me" Project #4:** Install a municipal photovoltaic demonstration project with electricity generation data and simple payback information posted on the City's sustainability website. This project could be constructed on a municipal building rooftop or incorporated into a parking lot shade structure.

Costs	Simple Cost to City	Total Cost to City Through 2025*	Responsibility	Department/ Agency	GHG Reductions	
		$155,000		DEV SUST ENV CODE		Not quantified

***** "Show Me" project was added following economic analysis; cost calculations do not include this program.

E 3.5	**Incentivize installation of 1 million square feet of solar photovoltaics on large commercial (>200,000 sf) rooftops.**
	Commercial and industrial rooftops and parking lots provide excellent opportunities for solar energy generation. Commercial and industrial facilities tend to have large, flat roofs that are often well-suited for solar PV. The City will work to remove or minimize regulatory and structural barriers that inhibit the installation of commercial and industrial solar PV systems. The City will also facilitate partnerships between interested property owners and proven solar energy companies. By partnering with solar energy companies, building owners may have PV systems installed on their roofs or parking lots at no up-front cost. To maximize participation, the City will provide outreach and technical assistance to interested property owners.

Implementation Programs		
	A.	Remove regulatory barriers to the installation of rooftop PV systems.
	B.	Analyze structural compatibility of new buildings for rooftop solar applications during the initial building permitting process.
	C.	Reduce/remove permitting fees for installation of rooftop PV systems greater than or equal to 50 kW.
	D.	Identify solar power providers in Missouri that offer purchase power agreements (PPAs) or similar financing.
	E.	Identify businesses/campuses that may be interested in large-scale PV installations (e.g., Summit Technology Campus, Exergonix) and provide them with information on the benefits of large-scale solar financing agreements.

Community Co-benefits	Costs		Responsibility	
	Simple Cost to City	**Total Cost to City Through 2025**	**Department/ Agency**	
 **20,876,692 kWh/yr**		$165,000	DEV SUST	

GHG Reductions	**Reductions from Action**	**Percent of Total SAP Reductions**
	17,123 MT CO_2e/yr	

E 3.6	**Encourage use of energy efficiency performance contracts.**
	Energy efficiency performance contracts are designed to provide building and/or facility owners with a comprehensive and site-specific framework for renewable energy, energy efficiency, and energy generation tools. An energy service company (ESCO) provides all of the services and tools to design the system from the initial conceptualization to monitoring and verification of savings. The ESCO guarantees that the improvements will generate energy cost savings sufficient to pay for the project over the term of the contract. These contracts often provide enough savings in the short- and mid-term to finance the cost of the original project.

Implementation Programs		
	A.	Identify local energy efficiency performance contractors.
	B.	Develop an outreach campaign describing the mechanics of a performance contract and provide interested parties with contact information for contract providers.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
		$60,000		DEV SUST		Not quantified

Transportation Focus Area

Transportation-related emissions make up the second largest component (38%) of the communitywide 2009 emissions inventory. These emissions are determined largely by the number of vehicle miles traveled (VMT) by residents and employees. Long vehicle trips between destinations and high numbers of trips create high emissions. Successfully reducing vehicle emissions relies on reducing or shortening vehicle trips, either by making alternative modes of transportation (such as transit, bicycling, or walking) truly viable, or by increasing proximity of diverse land uses. Technological advancements in vehicle fuel efficiency will also reduce vehicular GHG emissions.

The pedestrian strategy aims to continue the City's existing work on improving sidewalk availability and connectivity within the City.

Similarly, the bicyclist strategy seeks to expand bicycle accommodations within the City and between high-visitation areas, as well as encourage more bicycling within the community.

The public transit and carpooling strategy is intended to monitor public transit needs and ensure necessary improvements and expansions are made as ridership increases.

The travel efficiency strategy focuses on physical improvements to roadways that will result in more efficient vehicle trips, while maintaining the safe, quiet character of residential neighborhoods.

The fleet upgrade strategy explores the possibility of transitioning the City's fleet of municipal vehicles to low-emissions vehicles over time.

Finally, the transportation demand management strategy aims to reduce emissions associated with City employees.

The total GHG reduction capacity of the transportation focus area is 6,886 MT CO_2e/yr. This represents approximately 11% of the total reductions achieved by the SAP in each year and facilitates implementation of the City's adopted livable streets resolution.

Current City Initiatives

- Installed bicycle parking racks at City Hall and other public, City facilities
- New Longview subdivision includes "smart growth" features to reduce car use
- Collaborated with neighboring communities and MARC to purchase the former Rock Island Railroad corridor for reuse as a recreational trail and possibly a future commuter rail passageway
- Synchronized traffic signals along arterial corridors
- Adopted a Livable Streets Policy for the City of Lee's Summit
- Applied for *Bicycle Friendly Community* designation by the League of American Bicyclists and received Honorable Mention in Fall 2010
- Applied for *Walk Friendly Community* designation by the Pedestrian and Bicycle Information Center and received bronze designation in 2011
- In the process of converting all pedestrian crosswalk lights to include countdown timers
- Instituted traffic calming features as part of the Neighborhood Traffic Safety Program that addressed traffic speed and volume concerns in residential areas
- Initiated Walking Safe Routes to School Day in 2011
- Installed plug-in station at City Hall
- Provided a weekday commuter bus service for those residents that work in downtown Kansas City as well as a weekday bus service for those needing transportation to keep appointments or run errands

Funding Sources

Federal and state funding sources for transportation program implementation are described below. This list includes available sources as of the writing of this plan. Additional sources may become available throughout the life of the SAP.

Surface Transportation Program and Bridge Program

The Surface Transportation Program (STP) provides flexible funding that may be used by states and localities for projects on any federal-aid highway, including the National Highway System, bridge projects on any public road, transit capital projects, and intercity bus terminals and facilities. MARC allocates these funds using two parallel competitive application processes governed by the MARC Kansas and Missouri STP/BR Priorities Committees, two subcommittees of the Total Transportation Policy Committee. Project applications are solicited in the categories of bridge restoration and rehabilitation, bicycle/pedestrian or livable communities pilot projects, public transportation, roadway capacity, transportation operations and management, and transportation safety.

Transportation Enhancements

The Transportation Enhancements (TE) program was created to support projects that expand travel choices and enhance the transportation experience through improvements to the cultural, aesthetic, historic, and environmental aspects of the transportation network. For Missouri Transportation Enhancements funds, MARC uses a competitive application process governed by the Missouri TE committee to program available funding. Project applications are solicited in the categories of bicycle and pedestrian projects, historic preservation/archaeological projects, transportation aesthetics/scenic value projects, and projects that mitigate water pollution due to highway runoff.

Congestion Mitigation & Air Quality Program

The primary purpose of the Congestion Mitigation and Air Quality Improvement Program (CMAQ) is to fund projects and programs that reduce transportation related emissions in air quality non-attainment and maintenance areas for ozone, carbon monoxide, and small particulate matter. Although the Kansas City metropolitan area was re-designated as an attainment area for air quality in May 2005, SAFETEA-LU (the federal "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users") maintains the eligibility of the region to receive CMAQ funding. MARC programs these funds using a competitive application process. Applications are sought in the categories of bicycle and pedestrian projects, public transportation, alternative fuels, traffic flow, outreach, and diesel retrofits.

Safe Routes to School

MARC is assisting in local Safe Routes to School efforts by providing training and technical assistance to communities. A Safe Routes to School program can be small in scope (such as organizing a Walk and Bike to School Day), or a more involved effort involving education, engineering, and enforcement strategies in collaboration with local government officials, media, and local law enforcement.

Community Initiatives

- School District bought electric delivery vans, which have resulted in over 4,000 gallons annually in fuel savings

T.1 Pedestrian Strategy

T 1.1	**Continue implementing recommendations from the City's Sidewalk Inventory Analysis. Identify missing links and obstacles to a connected sidewalk network and prioritize improvements to safety and access.**
	Providing more connectivity and convenient and enjoyable pedestrian access is essential for improving residents' quality of life. To increase walking, the City will continue to implement recommendations from the Sidewalk Inventory Analysis, which identifies existing barriers and impediments to walking within the City. The *Walk Friendly Community* program recognizes communities that are working to improve a wide range of conditions related to walking, including safety, mobility, access, and comfort. Lee's Summit is currently a Bronze-level *Walk Friendly Community* (3-year designation) and is aiming to achieve Silver-level status.

Implementation Programs		
	A.	Establish an annual process to review and modify (if necessary) improvement priorities identified in the Sidewalk Inventory Analysis.
	B.	Designate funding for projects identified in the Sidewalk Inventory Analysis during the capital improvement planning process.
	C.	Achieve Silver-level *WalkFriendly* community status before December 2025.

Community Co-benefits		Costs		Responsibility	
		**Simple Cost to City**	**Total Cost to City Through 2025**	**Department/ Agency**	
5,996,084 miles/yr	**317,317 gallons/yr**		N/A	TRAF PWD	

GHG Reductions		
Reductions from Action	**Percent of Total SAP Reductions**	
2,943 MT CO_2e/yr		

T 1.2	**Expand on the City's Greenway Master Plan to provide interconnected pathways between neighborhoods and points of interest in the community.**
	The City's Greenway Master Plan identifies guidelines for trail and greenway development in this rapidly growing community. The objective is to maintain and protect open space as well as respond to the needs of recreational trail users such as bicyclists, hikers, walkers and other non-motorized activities. The Plan addresses a 38-mile planned loop encompassing Lee's Summit, Grandview, Kansas City, and rural areas. Over 100 miles of neighborhood connector routes are planned along parks, roadways, stream corridors, and open space that will link to the planned loop. The goal is to complete 4-8 miles of trail connector routes per year. The Plan was revised in 2007, and it would benefit from updates every few years to ensure that connections to new growth areas are properly planned.

Implementation Programs		
	A.	Identify points of interest in the community that would benefit from additional pathways to neighborhoods and other activity areas.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$	$40,000		REC DEV TRAF		Not quantified

T 1.3	**Work with the school districts to promote programs that encourage children to safely walk to school.**
	Providing safe routes between residential neighborhoods and schools is the first step in encouraging parents to let their children walk to school. To that end, the City has completed a number of studies to improve traffic safety and remove barriers to safe walking routes to schools and has implemented a variety of recommendations from those studies. The intent of this action step is to work with school districts, particularly the R-7 District, neighborhood organizations, and parent groups to build on the investments the City has already made. *Safe Routes to School* and *Walking School Bus* programs are found throughout the country, and should be referenced for suggestions on effective public outreach.

Implementation Programs		
	A.	Develop outreach program aimed at helping school districts to promote existing *Walking School Bus* programs and infrastructure improvements already completed, which create safe waking environments for school children.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$	$25,000		TRAF		Not quantified

T 1.4	**Implement the City's livable streets resolution (Resolution 10-17) that provides guidance for considering multi-modal travel accommodations in street construction and improvement (e.g., bicycle accommodations, sidewalks, curb ramps).**
	'Livable streets' is a term used to describe streets that can safely accommodate a variety of users, including public transit service, cyclists, pedestrians, and drivers. Streets are designed to comply with ADA access so that everyone has safe options for mobility. The City adopted a livable streets resolution to show support for these concepts. To continue implementation of the resolution, streetscape design guidelines should be prepared and codified in the City's various development codes.

Implementation Programs		
	A.	Develop livable streets streetscape guidelines that can be included in the Unified Development Ordinance, Design and Construction Manual, Access Management Code, Comprehensive Plan, and Traffic Code. Guidelines should address maximum street widths, bicycle accommodations, sidewalk dimensions, ADA compliance, and related streetscape considerations.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
		$50,000		TRAF DEV		Not quantified

T 2.1	**Enhance bicycle infrastructure throughout the City, including adding bike accommodations and parking racks, to improve the City's *Bicycle Friendly Community* status from Honorable Mention to Bronze level.**
	The *Bicycle Friendly Community* program recognizes communities for bicycle friendliness and provides a roadmap and assistance to become better. The program recognizes four award levels: platinum, gold, silver, and bronze. There are nearly 200 *Bicycle Friendly Communities* in 44 states (Lawrence and Shawnee, KS are other Bronze level communities in the region). Lee's Summit attained Honorable Mention level and would like to improve to Bronze level.

Implementation Programs		
	A.	Partner with businesses at high-visit locations (e.g., shopping centers, major employers, parks and recreation facilities, activity centers) to install bike racks and lockers using a combination of public and private funding. Bicycle accommodations can be privately owned/maintained and installed on private property, privately owned/maintained and installed within the public right-of-way, or publicly owned/maintained and installed within the public right-of-way. The Public Works Department should be consulted regarding installation in the public right-of-way.
	B.	Identify gaps in the bicycle network between high-visit locations.
	C.	Prioritize bicycle network improvements that link high-visit locations. Pursue funding to construct identified improvements.
	D.	Prepare application package for *Bicycle Friendly Community*, and achieve Bronze-level status by 2025.
	!	**"Show Me" Project #5:** Connect two high-visit locations with bicycle accommodations and provide adequate bicycle storage in an active public area for passive security purposes. Install signage at the locations and conduct bi-annual surveys to determine use and vehicle-miles avoided. One possible connection could be constructed between Downtown and the park-and-ride lot, with bicycle racks provided at both locations (may require coordination with MoDOT). Alternatively, a "road diet" on 2nd Street between Downtown and the Gamber Center may provide better space for bicycle accommodation. This option would also encompass multi-family residential areas along the route.

Community Co-benefits		Costs		Responsibility	
		Simple Cost to City	Total Cost to City Through 2025	Department/ Agency	
1,213,184 miles/yr	**64,203 gallons/yr**		$252,225	TRAF MoDOT	

GHG Reductions	Reductions from Action	Percent of Total SAP Reductions
	595 MT CO_2e/yr	1.0%

T 2.2	**Develop a Bike Lee's Summit outreach campaign to promote community amenities that are accessible by bike.**
	A barrier to bicycle ridership could be lack of awareness about the bicycle accommodations currently in place and how they can be used for daily trips. One method to increase community bicycling participation is to advertise the numerous locations that are accessible within the City's bicycle network. A public outreach campaign that provides a map showing places of interest and high-visit locations that are connected on the bike network will help residents to plan their bicycle trips. The outreach campaign should address bicycle routes and storage locations in the City, as well easy ways to incorporate bicycle trips into a weekly routine. For example, mapping out a trip that includes a stop at a local coffee shop and a park.

Implementation Programs		
	A.	Develop *Bike Lee's Summit* posters identifying how bicycle accommodations connect employment centers, neighborhoods, and retail/restaurant areas. Coordinate with the Chamber of Commerce to obtain local business sponsors for the maps (in exchange for being highlighted on the map). Enter this program in MARC's annual transportation competition.
	B.	Organize a bike-to-work competition for local businesses during National *May is Bike Month*. Sponsor a website where participants can log commuting miles.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$	$40,000		TRAF		Not quantified

The City received a 2010 *Bicycle Friendly Community Honorable Mention* from the League of American Bicyclists and Walk Friendly Community bronze designation.

T.3 Public Transit and Carpooling Strategy

T 3.1	**Continue to perform express bus rider demand surveys. If increased demand is demonstrated, increase express bus service frequency during peak transit hours.**
	Express Route #152 serves commuter trips between downtown Kansas City and Lee's Summit. The Lee's Summit pick up/drop off location is the park-and-ride lot near Highway 50 and Chipman Road. This service generally operates between 5-7 AM and between 4-6 PM, Monday through Friday. There is currently not enough demand to require increased trip frequency. However, as the City's population continues to grow, demand for this connection to Kansas City may also increase. The City is also served by MetroFlex Route #252, which is an on-demand bus service that operates like a taxi cab within an established operating area, and OATS, a not-for-profit organization that provides door-to-door transportation service. As with Express Route #152, demand for these services should continue to be monitored and services increased as necessary.

Implementation Programs	**A.**	Coordinate with KCATA to measure demand for Express Route #152 to Kansas City to determine if additional routes or route frequency would be supported by commuters.
	B.	Monitor service demands for Route #252 and OATS to ensure capacity is adequate as the population grows.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
		N/A		TRAF		Not quantified

T 3.2	**Improve express bus service quality with park & ride upgrades, including shelters and seating.**
	Improving the comfort, accessibility and convenience of transit stations can encourage higher levels of transit use. The City will work with MoDOT to provide shade, weather protection, seating, lighting, and route information at the City's park-and-ride lot.

Implementation Programs		
	A.	Pursue funding to construct a bus shelter with seating and transit route and schedule information at the park & ride facility at Hwy 50 and Chipman Road.
	!	**"Show Me" Project #6:** Construct a bus shelter at the US 50/Chipman Road park & ride. Conduct on-site rider surveys to determine use and vehicle miles avoided.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	?	N/A		TRAF MoDOT		Not quantified

T 3.3	**Continue to support efforts to purchase the former Rock Island Railroad corridor with the intention of converting it to a trail and potential transit corridor in the future.**
	The Kansas City Area Rock Island Railroad Corridor Coalition is made up of regional governments with the vision of protecting the Rock Island Railroad corridor, from Pleasant Hill to Kansas City, for recreational trail and future transit transportation. The corridor would eventually connect to the Katy Trail State Park system. This recreational trail network would provide an exceptional amenity for Lee's Summit residents. The City will continue to participate in regional discussions and planning efforts to purchase the corridor.

Implementation Programs		
	A.	Maintain participation as a member of the Kansas City Area Rock Island Railroad Corridor Coalition.
	B.	Support the efforts of Jackson County's commuter corridor Alternative Analysis which is exploring the feasibility of the Rock Island Railroad Corridor as a future transit route.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
		N/A		TRAF DEV REC		Not quantified

T 3.4	**Encourage carpooling through development of a ride-share website.**
	The City will work with MARC and other agencies to facilitate ridesharing opportunities, including carpooling and vanpooling. Specifically, the City will work with partners to develop and/or upgrade ride-matching systems to use current technologies (e.g., cell phone-enabled ride-match applications), and develop a ride-match social networking website and online electronic payment options.

Implementation Programs		
	A.	Develop a rideshare website, linked to the City's Sustainability website and transit website, where commuters can find rides or passengers along their travel routes. The website should allow users to enter origin and destination, providing a map showing common origins and destinations and available routes to those sites.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$	$9,500		TRAF ENV		Not quantified

T 4.1	**Continue to encourage design and construction of traffic calming devices throughout the City.**
	Traffic calming devices, including speed humps, speed tables, roundabouts, bulbouts, chicanes, and pedestrian islands, can slow traffic speeds and guide through-traffic to designated higher-traffic roadways. When installed as part of a comprehensive traffic management system in residential neighborhoods, traffic calming devices can result in quieter streets that are more hospitable to pedestrians and cyclists. The City has had a Neighborhood Traffic Safety Program since 2008, which has resulted in the construction of about 20 speed humps, a traffic circle, raised crosswalks, and other traffic calming devices. The City will continue to identify suitable locations for new installations, particularly in areas with high levels of pedestrian and bicycle use, to encourage non-vehicular travel options in these areas.

Implementation Programs		
	A.	Identify high pedestrian traffic and bicycle areas that may benefit from traffic calming, including downtown shopping districts, schools, and neighborhood parks.
	B.	Identify residential neighborhoods susceptible to through traffic intrusion.
	C.	Select appropriate types and locations for traffic calming devices, including speed humps, pedestrian islands, bulbouts, forced turns, traffic circles, and "road diets", and support public outreach efforts prior to construction.
	D.	Conduct transportation modeling analyses to identify origin and destination Traffic Analysis Zones for trips that occur within Lee's Summit, and regional trips that pass through the City. (Note: implementation cost of this action is to add a VMT reporting component, not to perform full transportation modeling analysis).
	E.	Develop Access Management Implementation Program that reduces congestion (e.g., on Douglas Road) and increases safety through improved pedestrian and bicycling environments.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
		$250,000		TRAF DEV		Not quantified

T 4.2	**Continue synchronization of traffic signals to minimize stop-go travel along major thoroughfares, and continue participation in the Kansas City Metropolitan area *Operation Green Light*.**
	Building an effective intelligent transportation system (ITS) can reduce transportation-related emissions. The City already participates in *Operation Green Light*, which is a regional effort to improve traffic flow and reduce vehicle emissions. The City synchronizes the timing of traffic signals to improve traffic flows and reduce idling times. Reducing frequent "stop-and-go" traffic situations can reduce emissions caused by vehicle idling. Synchronized traffic signals can be made more effective by installing ITS equipment that enables the City to divert and re-route vehicles during peak hours to reduce traffic congestion. The City will continue signal synchronization along major roadways.

Implementation Programs		
	A.	Identify priority circulation routes and synchronize traffic signals. As synchronized traffic signals can lead to higher traffic speeds and less attentive drivers, consider the location of high pedestrian traffic areas when identifying priority circulation routes.
	!	**"Show Me" Project #7:** Traffic lights have already been synchronized along Chipman Road and 291 North. In the future, this program could be applied to Douglas Road as well.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency
	$$$	$187,500		TRAF

GHG Reductions	Reductions from Action	Percent of Total SAP Reductions
	3,000 MT CO_2e/yr	5.0%

T 4.3	**Promote greater street connectivity and fill missing links within the City street network.**
	Street connectivity provides direct connections between locations in the City and neighboring areas. The City will coordinate and collaborate with MARC and neighboring communities to ensure that regional seamless connectivity is maintained at the edges of the community, particularly in relation to walking, biking and transit. The City will work in partnership with regional agencies to identify gaps and prioritize filling these gaps to improve regional connectivity.

Implementation Programs		
	A.	Identify missing links in the City's street network, particularly those that could reduce through-traffic in residential neighborhoods. Refer to the Greenway Master Plan, Sidewalk Inventory Analysis, and other previous plans that describe the City's circulation networks.
	B.	Expand M150 overlay standards to new subdivision design standards.

Costs			Responsibility		GHG Reductions	
	Simple Cost to City	**Total Cost to City Through 2025**		**Department/ Agency**		
	?	N/A		DEV PWD TRAF		Not quantified

T.5 Fleet Upgrade Strategy

T 5.1	**Consider adoption of a Green Fleet Policy to evaluate converting the City vehicle fleet to low-emission vehicles where financially feasible and applicable to proposed use.**
	Transportation emissions accounted for 12% of municipal emissions in 2009. Compressed natural gas (CNG), hybrid vehicles, and plug-in electric vehicles are increasingly being incorporated into municipal fleets nationwide to help reduce vehicle-related emissions and show sustainability leadership at the local government level. The City will consider adopting a policy to gradually convert its vehicle fleet to low-emission vehicles, if purchases are financially feasible.

Implementation Programs		
	A.	Automate tracking of the City vehicle fleet to compile data on vehicle miles travelled, hours of operation, and/or gallons of fuel consumed, per vehicle.
	B.	Using data collected on the City's fleet, evaluate the benefits of converting the City's passenger vehicle and light-duty truck fleet to models rated at 25 mpg or higher.

Community Co-benefits	Costs		Responsibility	
	Simple Cost to City	**Total Cost to City Through 2025**		**Department/ Agency**
 **36,486 gallons/yr**		$50,000		PWD

GHG Reductions		
	Reductions from Action	**Percent of Total SAP Reductions**
	325 MT CO_2e/yr	0.5%

T.6 Transportation Demand Management Strategy

T 6.1	**Develop a Transportation Demand Management program for City employees, including alternative work schedules and transit fee subsidies.**
	Transportation demand management (TDM) programs are a collection of policies and incentives that focus on changing or reducing travel congestion, particularly at peak commute hours, instead of increasing roadway supply or width. A TDM program for City employees could include incentivizing ridesharing, offering telecommuting or alternative work schedules (e.g., 10:00 AM – 6:00 PM to avoid rush hour traffic), or subsidizing public transit costs.

Implementation Programs		
	A.	Establish a TDM program for City employees that promotes rideshare opportunities, offers telecommuting and/or alternative work schedule where possible, and provides subsidies for employees who use public transit.
	B.	Appoint a TDM program coordinator to provide information on current program offerings and procedures for participation. Ensure all new City employees are made aware of the program during their work orientation.

Community Co-benefits		Costs		Responsibility	
		Simple Cost to City	**Total Cost to City Through 2025**		**Department/ Agency**
 **47,393 miles/yr**	 **2,508 gallons/yr**		$50,000		TRAF SUST

GHG Reductions	**Reductions from Action**	**Percent of Total SAP Reductions**
	23 MT CO_2e/yr	0.0%

Land Use Focus Area

Land use and transportation issues are closely related. The GHG inventory does not account for any specific land-use related emissions, but rather considers the effects of land use comprehensively within the transportation sector. Where people live determines how far they travel to work, to shopping, and to other destinations, and influences whether they choose to walk, bike, use public transit, or drive. If residents live near bus stops, neighborhood-serving commercial centers, or their work places, they are more likely to use alternative, lower-emission travel modes than to drive.

The land use strategies focus on redevelopment and infill development in the historic downtown area. In areas beyond the downtown core, the City promotes sustainable development strategies to ensure that safe, walkable, and livable community infrastructure is in place for its residents and businesses. The land use focus area also includes strategies for non-development land uses such as public parks and conservation areas. Finally, the economic development strategy is intended to assist the City in attracting new "green industries" to the area.

Emissions reductions associated with the land use focus area total 1,450 MT CO_2e/yr, or approximately 2.0% of total emissions reductions. The recommended strategies in this focus area are primarily supporting measures that largely cannot be individually quantified, but have been included in the SAP to support land use strategies identified within the Old Lee's Summit Development Master Plan.

Current City Initiatives

- Developed City Hall on a brownfield site
- Supported development of a regional strategic plan
- Designed new Longview neighborhood with "smart growth" features to reduce car use
- Redeveloped downtown buildings rather than build on greenfield lots
- Reactivated Land Clearance Redevelopment Authority (LCRA) to promote sustainable redevelopment of existing, underused property
- Applied for a federal TIGER II planning grant of $250,000 from HUD/DOT to plan a 'Green Technology' Corridor along View High Drive; this corridor would feature energy-efficient commercial buildings and "smart growth" features such as bike and pedestrian amenities

South M-291/M-150 Corridor Study

The City has also prepared a corridor study in the Central/South Planning Area of Lee's Summit. The corridor encompasses the surrounding area nearly one half mile of future right-of-way on both sides of the M-150 Highway, west to east across the south City limits. The corridor study includes land use and regional growth projections and aims to promote smart growth principles and a mix of activities in contrast to typical strip development.

The corridor study recommends the establishment of design guidelines or standards that promote sustainable land use, walkability, alternative modes of transportation, and traffic calming, which will be a critical next step to sufficiently guide future development

LU.1 Mixed Use and Infill Development Strategy

LU 1.1	**Encourage infill development to reduce need for new infrastructure extensions.**
	Infill development takes advantage of existing infrastructure (e.g., roads, sewers), thereby reducing the need to construct and maintain new facilities. Infill projects in a downtown environment can also contribute to local economic activity, bringing commercial and retail uses closer together and increasing their attraction to shoppers and visitors. It also helps to lessen development pressure on agricultural lands and natural areas.

Implementation Programs		
	A.	Evaluate existing plans, ordinances, and development standards to identify and remove regulatory barriers to infill development.
	B.	Create new zoning district for mixed-use and higher density housing.

Costs		Responsibility		GHG Reductions	
Simple Cost to City	**Total Cost to City Through 2025**		**Department/ Agency**		
	N/A		DEV		Not quantified

LU 1.2

Encourage additional neighborhood-serving commercial uses and mixed-use development within the City's existing commercial districts; strive to provide access to daily goods and services within ¼-mile of residences.

The distribution of land uses and the degree of street connectivity within a city influences how people travel. Land use strategies that place everyday needs close to each other provide a foundation for the use of alternative modes of transportation. The majority of Lee's Summit's shops and services are located in commercial strips along major arterial streets. These commercial areas tend to be heavily automobile-oriented and contain only commercial land uses.

During the SAP development process, numerous residents, business owners, and developers identified opportunities to retrofit existing commercial areas into pedestrian-oriented, mixed-use, neighborhood-serving centers and to encourage additional mixed-use centers (e.g., ground-floor commercial with residential above). Such development also reduces dependency on cars and time spent in traffic, and more closely links residents to jobs and services.

The City is currently planning for mixed-use developments in the M150 project, in the New Longview development, and along the Green Technology Corridor. Additionally, the pending update to the Downtown Master Plan would be oriented to infill development. The City will continue to plan for future mixed-use developments as it begins its Comprehensive Plan update.

Implementation Programs

A.	Evaluate appropriateness of residential or mixed uses for sites within or adjacent to commercial corridors, to help make additional commercial development economically viable.
B.	Continue planning for future mixed-use development through long-range planning documents, such as the City's Comprehensive Plan. Propose mixed-use land uses near existing and planned transit stops to facilitate transit-oriented development.

Community Co-benefits

937,040 miles/yr

49,589 gallons/yr

Costs

Simple Cost to City	Total Cost to City Through 2025
?	N/A

Responsibility

Department/ Agency
DEV

GHG Reductions

Reductions from Action	Percent of Total SAP Reductions
460 MT CO_2e/yr	0.8%

LU 1.3	**Encourage infill development in the Downtown core, per the Old Lee's Summit Development Master Plan.**
	Infill development provides financial, environmental, and social benefits to a City. By their very nature, infill sites are already served by existing infrastructure, and therefore do not require expensive upfront costs to extend roadways and sewer lines, or incur maintenance costs in the future for additional infrastructure. They also do not extend the service area for life and safety services, such as police and fire, or require additional bussing expenses for school districts. In a downtown environment, infill development can also result in increased downtown populations, which is beneficial to local businesses providing daily goods and services (e.g., restaurants, dry cleaners, corner stores). New buildings also fill in the "missing teeth" along streets punctuated by vacant lots. This can create a more welcoming pedestrian environment, attracting visitors for window shopping and people watching. Reusing previously developed land also helps to protect agricultural and natural areas from development pressure. The City will continue to work with developers interested in downtown infill development, per the strategies described in the Old Lee's Summit Development Master Plan (2004).

Implementation Programs		
	A.	Reduce permit fees for development within the Downtown core.
	B.	Update the Old Lee's Summit Development Master Plan to reflect recent development activity and revised priorities. Revisit elements such as opportunity sites for infill development, potential infrastructure constraints to more intensive development, and priorities for addressing any identified constraints. An updated plan should provide additional illustrative examples of desirable infill projects for opportunity sites based on recent plans and established priorities, to help inform the development community of what types of projects will receive quicker approval.
	C.	Study feasibility for need and location of new structured parking structures in Downtown area, per identified parking strategies in the Master Plan. Consider developing a parking structure with ground-floor retail or commercial uses to maintain a welcoming pedestrian realm.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$$$	$130,000		DEV		Not quantified

LU.2 Higher Density Housing Options Strategy

LU 2.1	**Provide public information about the benefits of well-designed, higher-density housing and relationships between land use and transportation.**
	Opposition to higher-density housing often stems from aesthetic concerns and the fear that higher-density developments will end up hurting property values. Higher-density housing in Lee's Summit does not imply the construction of skyscrapers, rather, it encourages development that maximizes basic infrastructure and supports walkable and livable communities that use existing resources more efficiently. Higher-density housing can be designed to blend in with adjacent lower-density properties, and is often desirable in downtown locations to increase patronage to local businesses. Locating higher-density housing around designated or planned transit stops or along transit corridors also helps to encourage additional transit use.

Implementation Programs	**A.**	Develop a public education campaign describing the relationship between land uses and transportation that includes information on minimum residential densities required to make various transit options viable (e.g., bus, light rail, bus rapid transit).
	B.	Include photo examples with pictures of various residential density projects from Lee's Summit as well as other locations, and allow participants to guess the density of the projects shown. Correlate pictures to the type of transit they would support.

Costs		Responsibility		GHG Reductions	
Simple Cost to City	**Total Cost to City Through 2025**		**Department/ Agency**		
	$25,000		DEV		Not quantified

LU 2.2	**Explore opportunities to promote development of loft dwelling units and granny flats in applicable residential zones to increase housing stock diversity.**
	Loft dwelling units and granny flats are smaller, living spaces often constructed above a garage or at the back of a deep property lot. They are fully-functional units, with kitchens and entrances separate from the main house. The units have been used to provide independent living experiences for older family members that might still need to be in close proximity to family support. The units can also be rented, which provides an additional income stream to the property owner and increases price diversity within the City's real estate market.

Implementation Programs		
	A.	Meet with local developers and builders to discuss potential barriers to developing loft dwelling units and other small secondary units, as the City currently allows the type of development, but few take advantage. Identify and work to remove barriers.
	B.	Meet with neighborhood groups to identify residents' concerns regarding secondary unit development and jointly discuss solutions to create local support. Partner with a local architect to provide photos of "best practice" examples.
	!	**"Show Me" Project #8:** Work with a local developer/builder to construct a secondary unit that can be displayed and publicized as a model unit before being occupied as a permanent residential unit; existing examples of above-garage lofts in New Longview may be an appropriate model.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$$	$75,000		DEV		Not quantified

LU 3.1	**Establish a formal Urban Forestry program to expand the City's tree coverage.**
	Urban forests provide shade and reduce the heat island effect, which causes temperatures to increase in areas with concentrations of exposed pavement and rooftops. These higher temperatures can lead to increased air conditioner use, which increases energy consumption and can strain utility infrastructure at peak hours of the day. Urban forests also provide a visual amenity for residents and habitat value for wildlife. Any urban forestry program should be coordinated with the local Public Works Department to minimize damage to infrastructure from tree canopies and root systems, and to plan for future maintenance activities.

Implementation Programs		
	A.	Establish a formal urban forestry program with guidelines for planting new street and park trees and replacing unhealthy and unsafe trees. Provide educational resources for the community describing tree health issues and tree selection criteria for private landscapes based on the City's climate and soil characteristics.
	B.	Establish planting standards designating setbacks from the public right-of-way to minimize street tree impacts on utility lines. Select trees species according to the width of the right-of-way, with larger species in areas with wider rights-of-way, and smaller species in areas with narrower rights-of-way. Plan before planting to ensure compatibility with utility alignments.
	C.	Plant 5,000 new trees in the public right-of-way, City parks, and private landscapes by 2025.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency
		$2,231,000		REC PWD DEV

GHG Reductions	Reductions from Action	Percent of Total SAP Reductions
	990 MT CO_2e/yr	

LU 3.2	**Encourage preservation of agricultural lands by promoting local agricultural products at farmer's markets, grocery stores, and local restaurants.**
	Increasing the consumption and production of local agricultural products improves the local economy and can reduce food-related GHG emissions. Local farms produce a tremendous variety of products. While many residents, restaurants, and institutions have access to these products through existing markets, the City would like to further facilitate this consumption by establishing local product marketing efforts, expanding the number of businesses and agencies that use local food, and increasing opportunities for the direct sale of local food. The City currently hosts a Downtown farmer's market, which is a strong first step in promoting local agricultural products.

Implementation Programs		
	A.	Partner with local farming organizations, school districts, and the Chamber of Commerce to develop a local foods campaign. Promotional events could include a local foods fair with restaurants offering a special prix fixe menu featuring local products.
	B.	Plan public events to be held Downtown to coincide with the day and time of the farmer's market when feasible to increase visitation at both activities.
	C.	Identify a larger location for farmer's market as need increases.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
		$260,000		SUST ENV DEV		Not quantified

LU 3.3	**Develop sustainable infrastructure concurrency standards for new development.**
	Sometimes the additional amenities planned as part of a development, such as bike trails, street trees, striped cross walks, and community gardens, are not ever built or are built years after occupancy has begun. Sustainability concurrency standards are a way to ensure these features are included throughout development phasing. The M150 plan is looking at incorporating such a system, whereby new development would need to reach a sustainability threshold (e.g., through a point-based checklist) in order to be approved.

Implementation Programs		
	A.	Prepare a concurrent development ordinance requiring installation of energy efficiency features, sidewalks, bike facilities, street trees, renewable energy infrastructure, and other sustainable project features described in the SAP prior to project occupancy.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
		N/A		DEV		Not quantified

LU 4.1	**Encourage "green industries" to locate within Lee's Summit.**
	"Green Industry" can include a wide range of activities, products, and technologies. In Lee's Summit, green industry could mean producing renewable energy, manufacturing products to improve the environment or using industrial processes with fewer waste and emissions, providing research and development for other green industries, or providing sustainable goods and services. To be successful in developing a market for green industry, the City must ensure that regulatory processes are in place to incentivize their development. The City has recently attracted Exergonix to develop a manufacturing plant in Lee's Summit, which will produce energy storage systems.

Implementation Programs		
	A.	Continue to identify and remove potential regulatory barriers to the development or expansion of green industries; the current study of potential redevelopment at 291/50 would facilitate this.
	B.	Study the potential costs/benefits of reducing development fees for certain industries (e.g., renewable energy storage centers, manufacturing facilities).
	C.	Continue to partner with local technical schools and community college districts to develop course curricula aimed at energy-efficiency retrofits.
	D.	Build on existing synergies between green businesses and the University of Central Missouri at Lee's Summit, directed at establishing a Green Innovation Center on campus.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$	$50,000		DEV		Not quantified

Water Conservation and Stormwater Management Focus Area

Water-related GHG emissions are mainly caused by energy used to pump, transport, heat, cool, and treat potable water. Emissions associated with this energy use accounted for less than 1% of the communitywide GHG inventory. With water supplies expected to continue declining over the coming decades, water conservation strategies have the double benefit of reducing GHG emissions and aligning demand with future water availability.

Strategies in this focus area are intended to raise awareness of water conservation techniques for use in the home, office, and landscaped areas. The sustainability benefits of low impact development for stormwater management and cleaner streams and lakes are also presented.

The total GHG emissions reduction potential of the water focus area is 4,166 MT CO_2e/yr, which represents approximately 7% of total reductions.

Current City Initiatives

- Installed water-efficient toilet fixtures in all restrooms at the Police building
- Planned three bio-swales to treat rain water with native plants in order to remove pollutants and minimize flooding
- Planted native vegetation to stabilize stream banks, protecting public infrastructure
- Installed rain gardens at local public buildings and parks
- Sponsored rain barrel and rain garden workshops to teach residents how to build and install rain barrels and gardens at their homes and businesses
- Organized volunteer stream clean-up activities; City is expanding work with local "Stream Teams" to organize volunteer groups to clean local parks and waterways

Funding Sources

The grant program described below represents the currently available source of water conservation implementation funding, as of the writing of this plan. During the lifetime of the SAP other sources of funding may become available.

MARC Water Quality Education Grant Program

MARC and the Water Quality Education Committee annually request proposals from individuals and community groups to implement events, projects, and educational activities aimed at improving water quality in the Kansas City area. The Committee's focus is on educating citizens about stormwater as a primary source of water pollution and about actions that they can take to reduce the amount of polluted stormwater that enters the watershed. Individuals, non-profit organizations and community groups are eligible to apply for grant funding under this program. Government entities and religious organizations are not eligible to apply. Grant funds must be used to support activity and/or event planning, project implementation and associated costs.

W.1 Indoor Water Efficiency Strategy

W 1.1	**Promote communitywide water conservation programs through additional outreach.**
	Reducing water demand results in fewer emissions because less energy is used to pump, treat, deliver, and collect water and wastewater. One-third of houses in Lee's Summit are more than 30 years old, and water fixtures and appliances have improved considerably since these units were built. Replacing plumbing fixtures in older buildings (e.g., houses, office, schools) can provide water conservation benefits, which translate into lower utility bills and reduced communitywide emissions. The City is also anticipating significant growth through 2025, which will result in the construction of new homes and buildings. Emissions reductions associated with this action step are based on moderately aggressive assumptions for installation of efficient fixtures in new construction. In addition to efficient plumbing fixture retrofits and new installation, changing water use habits is another beneficial tactic to promote conservation. The City currently has a conservation-based, tiered rate structure in place for water users. This rate structure should be revisited over time to ensure that desired conservation rates are being achieved. A public outreach program should be developed that directs interested homeowners and property managers to currently available water-efficient appliance and fixture rebates.

Implementation Programs		
	A.	Provide water conservation information on the City's Water Utilities website or link to the City's Sustainability page, including information on currently available rebates or other incentives for high-efficiency fixtures (e.g., toilets, faucets, showerheads).
	B.	Continue to work with the State of Missouri to identify new studies and research regarding the energy intensity of potable water use in the state.
	C.	Review the tiered-rate structure for water utilities every five years to ensure conservation rates are achieved.

Community Co-benefits		Costs		Responsibility	
		Simple Cost to City	**Total Cost to City Through 2025**		**Department/ Agency**
32,657 gallons	**507 mil. gallons/yr**	$	$2,600		H_2O ENV

GHG Reductions		
Reductions from Action	**Percent of Total SAP Reductions**	
1,740 MT CO_2e/yr	2.9%	

W 2.1	**Promote water-efficient landscaping design through public outreach.**
	The City of Lee's Summit has already taken actions to conserve water in municipal buildings and in City operations. The City can continue to serve as an example to the community by using water more efficiently in landscape conditions. Conserving water not only leads to direct resource savings but also reduces GHG emissions associated with pumping and transporting water and treating wastewater.

Implementation Programs		
	A.	Develop a water-efficient landscaping campaign to reach residential households and large irrigation users (e.g., office campuses, universities).

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$$$	$150,000		ENV		Not quantified

W 2.2	**Provide outreach regarding the benefits of climate-appropriate and low-water landscaping and water-efficient landscape irrigation control systems.**
	Low-water landscaping does not mean only using desert vegetation. It means using climate-appropriate plants, or native plants, that have adapted to the existing conditions and can survive without additional irrigation. In Missouri, this includes a wide range of shade trees, flowering trees, shrubs, perennial flowers, and ornamental grasses. The University of Missouri Extension is an excellent resource for suggestions of plant selection and planting strategies. In addition to plant selection, water-efficient irrigation systems can help eliminate overwatering. Soil moisture sensors can determine when irrigation is necessary, which helps eliminate instances of sprinkler systems turning on during a thunderstorm. The City will provide information on low-water landscaping and irrigation systems on its sustainability website, as well as links to additional related landscaping resources.

Implementation Programs		
	A.	Provide information about water-efficient irrigation systems, including possible resources for rebate programs, on the City's sustainability website. Provide general information on the benefits of low-water landscaping and water-efficient irrigation systems, and links to additional resources where residents can find answers to specific questions. Consider organizing an annual Lee's Summit Garden Tour and showcase local examples of landscapes planted with native and low-water species.
	B.	Remove regulatory barriers to the installation of graywater and rainwater systems, including updates to the Unified Development Ordinance.

Community Co-benefits			Costs			Responsibility	
				Simple Cost to City	**Total Cost to City Through 2025**		**Department/ Agency**
				N/A		ENV DEV
53,608 gallons/yr	**1,301 mil. gallons/yr**						

GHG Reductions	**Reductions from Action**	**Percent of Total SAP Reductions**
	2,426 MT CO_2e/yr	4.0%

W 2.3	**Develop a program to promote the installation of graywater and rainwater systems for use in landscape irrigation.**
	Reuse of graywater and rainwater on-site is an effective strategy for reducing water demand. Graywater and rainwater systems collect water from buildings and landscapes and then reuse it in other indoor and outdoor applications that do not require water quality beyond a basic level of treatment. Graywater is composed of all non-toilet wastewater generated in a typical household from bathtubs, showers, bathroom sinks, and washing machines. Rainwater can also be captured and used in the same fashion as graywater.

Implementation Programs		
	A.	Remove regulatory barriers to the installation of graywater and rainwater systems.
	B.	Provide information on the City's sustainability website about the benefits of graywater and rainwater catchment systems, including approximate costs of installation and average irrigation water savings.
!		**"Show Me" Project #9:** Work with the Prairie View Elementary School to install a rainwater capture cistern and vegetative filters that can be used for irrigation purposes (the school is currently exploring this opportunity on its own). Provide informational displays on-site and on the City's website explaining the benefits and functions of the system, irrigation water savings, and costs/benefits of the project.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$	$24,100		DEV ENV H_2O		Not quantified

W 3.1	**Develop Low Impact Development (LID) design guidelines.**

Impervious surfaces causes rainwater to run off a site, and into streets and sewer systems (when available). During large storm events, roadways and sewers can become inundated with the runoff, and begin to overflow or backup the entire system.

Low Impact Development (LID) is an approach to land development (or redevelopment) that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective impervious areas to create functional and appealing site drainage that treats stormwater as a resource rather than a waste product. There are many methods to realize these principles, such as bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed. Applied on a broad scale, LID can maintain or restore a watershed's hydrologic and ecological functions.

Often, one of the biggest barriers to innovation within the private land development sector is the lack of built examples of new techniques and technologies, and aversion to being the test case for new approaches. Luckily for the City, there are already built examples of LID solutions in the community: Langsford Plaza, Ritter Plaza, and Lee's Summit West High School all have rain garden features. Additionally, Prairie View Elementary School is exploring the possibility of installing a rainwater capture cistern and vegetative filters that can be used for irrigation, and will provide educational benefits to nearly 2,000 school children. By facilitating the development of exemplary or demonstration projects that can achieve adequate environmental and financial performance, the City can confirm the feasibility of LID practices in Lee's Summit, and promote more widespread adoption of these practices. Built projects also serve as an education tool and template for landowners, developers, and residents to follow.

Introduction of a Stormwater Utility fee would allow the City to allocate costs associated with stormwater management according to each resident and customer's contribution to the overall system load. It would be based on each property's impervious area footprint, which would encourage residents and businesses to consider alternative stormwater management techniques for the property.

Implementation Programs		
	A.	Prepare LID guidelines that provide best management practices for addressing stormwater runoff in residential and non-residential environments, including constructed wetlands, bioretention facilities, infiltration systems, alternative driveway designs, and filter strips.
	B.	Develop a Stormwater Utility Fee based on a property's impervious surface area. Money collected would fund the City Department for Stormwater Management and stormwater infrastructure improvements.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$$	$75,000		DEV PWD		Not quantified

Waste Reduction and Management Focus Area

Waste-related GHG emissions result from product consumption and disposal, and from pre-consumer commercial and industrial processes. In Lee's Summit, only 2% of GHG emissions are associated with solid waste generation and disposal in landfills. Waste disposal creates emissions when organic waste (e.g., food scraps, yard clippings, paper, wood) is buried in landfills and anaerobic digestion takes place, emitting methane. Additionally, extracting and processing raw materials for consumer products, distributing them to consumers, and disposing of them creates a large portion of global GHG emissions.

Waste reduction strategies are aimed at diverting organic waste from landfills, reusing construction materials when possible, increasingly communitywide recycling rates, and promoting zero-waste strategies at community events. The landfill operations strategy addresses the need to plan for construction of a new landfill.

The total GHG emission reduction potential of the waste reduction focus area is 2,827 MT CO_2e/yr. This represents about 5% of total reductions.

Current City Initiatives

- Reclaimed over 6,000 pounds of scrap steel last year from daily maintenance and repair of City fleet, also recycling over 1,500 gallons of used oil and reusing 200 gallons of recycled automotive antifreeze
- Expanded existing recycling program to include toner cartridges, cardboard, paper goods, plastic items, batteries, aluminum, and small electronics
- Incorporated recycle bins in each public employee's work area and expanded recycling programs in public buildings
- Awarded grant for purchase of recycling containers for placement at Summit Waves Aquatic Park
- Included construction recycling of brick/concrete/rock/asphalt recycling, clean dirt/acceptable silt, clean lumber, asphalt shingles, automotive tires, car batteries, and major appliances
- Diverts yard waste from landfill: recycles grass, leaves, brush, and limbs; processes materials; and sells to the public
- Awarded grant for purchase of portable recycle containers for use at music festivals and other special events.
- Grant for recycling bins downtown

Community Initiatives

- Ripple Glass private glass recycling initiative
- School recycling
- Longview Arts Festival Zero Waste initiative

Funding Sources

The following funding sources are available to assist in implementation of the waste reduction strategies.

Mid-American Regional Council Solid Waste Management District Grant Program

The MARC Solid Waste Management District Grant Program provides grant funds to local governments, private businesses, not-for-profit organizations and individuals for implementing waste reduction, reuse and recycling projects. Funds can be used for various programs including education, waste reduction, re-use, recycling, composting, collection and processing, research and development, and market development for products made with diverted materials.

Missouri Market Development Program

The Missouri Market Development Program's financial assistance is targeted towards developing and expanding manufacturing capacity in Missouri by assisting businesses with the purchase of equipment needed to enable manufacturing facilities to use recovered materials. This program may fund up to 75% of specific equipment costs with a maximum funding level of $50,000. Eligible expenses include only the purchase of manufacturing equipment and machinery to manufacture products that contain recovered materials. Also eligible is equipment purchased for the final processing of recovered materials to be used by others in the manufacture of recycled content products.

WR 1.1	**Encourage use of existing organic waste disposal opportunities.**
	According to the US EPA, food waste constitutes almost 14% of the total municipal solid waste stream in the United States. Less than 3% of the 34 million tons of food waste discarded annually is recovered and recycled. Organic waste materials, like food scraps and wood, contribute significantly to waste-related emissions. Residential trash haulers offer curbside yard waste collection to their customers. In addition, Missouri Organic Recycling is a local provider of food waste composting services. At their facilities, food waste is mixed with yard waste to create compost that can then be sold for home or commercial use. Diverting yard and food waste for composting helps to increase landfill life spans, and significantly reduces the volume of methane off-gassing. A public outreach campaign describing the benefits of yard waste collection, home composting, and commercial food-waste composting services for larger waste generators can help the City reduce its solid waste emissions.

Implementation Programs		
	A.	Develop a public outreach campaign for households and restaurants to publicize benefits of using existing food waste disposal providers, such as Missouri Organic Recycling.
	B.	Develop a public outreach campaign to encourage participation in the existing curbside yard waste collection program.

Community Co-benefits		Costs		Responsibility	
		Simple Cost to City	**Total Cost to City Through 2025**		**Department/ Agency**
 **709 tons/yr**	 **109 metric tons/yr**		$150,000		ENV SWD

GHG Reductions	**Reductions from Action**	**Percent of Total SAP Reductions**
	2,519 MT CO_2e/yr	

WR 1.2	**Promote reuse of construction and demolition-related project waste through recycling, reuse, or other diversion from landfill.**
	Various construction materials can be salvaged during the demolition process for reuse or recycling. For example, concrete can be crushed and used as base fill, and bricks can be reused for landscaping, paving, and façade treatments. The City already has a Pallets and Clean Wood Diversion program, and provides concrete recycling (crushed and reused) services. The City is also evaluating the purchase of a mini-excavator to sort and divert construction and demolition waste, including shingles and carpet. Another method of diverting construction and demolition waste is to establish a Re-Store facility. These are locations, often co-located with other landfill or recycling uses, where anyone can drop off salvaged construction materials in exchange for a tax deduction. These materials can then be resold, with proceeds funding the operation and maintenance of the facility. In successful examples of Re-Store facilities, the facility manager develops relationships with local contractors to create a steady supply of salvaged materials and potential clients.

Implementation Programs		
	A.	Coordinate with the Public Works Department on pursuing funding to develop a Re-Store facility in Resource Recovery Park.
	B.	Develop a construction and demolition ordinance, consistent with current Leadership in Energy and Environmental Design (LEED) benchmarks that would require recycling 50% of demolition materials for new construction and remodeling/reconstruction projects that affect 50% or more of the original floor area. Individual single family residential projects would be exempted.
	!	**"Show Me" Project #10:** Partner with the local chapter of Habitat for Humanity to incorporate recycled materials and waste diversion techniques in a current project. Coordinate with the project team leaders to provide informational boards and media coverage of the project's sustainability components, highlighting ways to incorporate these techniques into home renovations or new construction projects.

Community Co-benefits		Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency
 1,083 tons/yr	 13 metric tons/yr			N/A		PWD SWD DEV SUST

GHG Reductions	Reductions from Action	Percent of Total SAP Reductions
	308 MT CO_2e/yr	0.5%

WR 1.3	**Expand existing public recycling program into commercial areas, with recycling bins co-located with public trash cans.**
	According to the US EPA, 30% to 40% of waste is generated outside of the home. Therefore, providing opportunities to recycle while outside of the home is an essential component of any waste diversion strategy. The intent of this action step is to expand the City's public recycling efforts into high-visit commercial areas; the City currently has 10 recycling bins Downtown..

Implementation Programs		
	A.	Identify high-visit commercial locations that would benefit from co-located trash and recycling bins. Begin with a pilot program, as described in "Show Me" Project #11 below. Expand the program based on the success of the pilot. Annually evaluate the need for expansion to ensure that the City's growing population continues to have convenient access to recycling outside of the home.
	!	**"Show Me" Project #11:** Coordinate with the City's contracted waste hauling provider to also expand the recycling bin program into commercial areas. Track recycling and waste diversion rates resulting from the pilot program and report on the City Sustainability website.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$	$24,000		SWD DEV SUST		Not quantified

WR 1.4	**Adopt a resolution to purchase recycled and recyclable materials for municipal use and municipal events (i.e., a Green Procurement Policy).**
	The City can reduce paper and paper-based product waste generation through an enhanced municipal recycling and procurement program. According to a Lawrence Berkeley National Laboratory study, the average office worker in the US uses 10,000 sheets of copy paper each year, which translates to approximately two pounds of paper products every day. The City will conduct an inventory of all municipal operations generating waste and consider adopting a policy to go paperless whenever feasible. This measure will help the City to lead by example by reducing municipal waste generation, while also helping to reduce municipal operations and maintenance costs. Improving waste recycling at municipal events also represents an opportunity for the City to support its waste diversion strategy. The City will explore purchasing environmentally preferable products (EPPs), which have beneficial environmental attributes as compared to standard products, such as higher energy or water efficiency, non-toxicity, and lower life-cycle carbon emissions. However, some EPPs can be significantly more expensive than standard products. To ensure better implementation of this program, the City will explore potential revisions to the budget allocation process to account for price differential of EPPs, where possible, and identify what products should be included in the policy.

Implementation Programs		
	A.	Research common materials used at public events (e.g., name tags, paper plates, plastic utensils, plastic water bottles) that can be sourced from recycled or recyclable materials for minimal or no additional cost.
	B.	Adopt a policy stating that the City will purchase recycled or recyclable materials for municipal use when financially feasible.
	C.	Consider adopting paperless office goals, where feasible, and increasing use of electronic documents. Conduct an inventory of existing municipal recycling programs and paper waste generation rates to identify where improvements can be made. Organize friendly competitions between City departments to increase paper waste diversion through recycling or paperless operations.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	$	$24,000		SUST		Not quantified

WR 1.5	**Develop a Center for Hard to Recycle Materials facility where items can be dropped off for a cover charge at the gate.**
	Certain materials cannot be recycled through curbside recycling programs, such as electronics, plastics (e.g., bubble wrap, foam packaging materials), textiles (e.g., bedding, towels, shoes, fabrics), and scrap metal. A Center for Hard to Recycle Materials (CHARM) facility would allow the public to drop off hard to recycle materials at one location, usually for a minimal facility fee.

Implementation Programs		
	A.	Pursue funding to develop a CHARM facility located within Resource Recovery Park. Work with the Consortium Cities to develop this as a regional resource.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
		N/A		SWD		Not quantified

WR 1.6	**Increase community recycling rates through implementation of a curbside recycling program.**
	Currently recycling rates in the city of Lee's Summit are below that of the national average. In an effort to increase recycling rates throughout the community, the City Council engaged in extensive discussions in 2011 about creating a single solid waste hauler system for the City, instead of the current free market system. The later would have a curb-side recycling component allowing for more direct, easier recycling opportunities for residents. In addition, a single solid waste hauler system would have the extra benefit of reducing truck traffic on residential streets and carbon emissions. This action step is pending future City Council discussion of the issue.

Implementation Programs		
	A.	Consider contracting with a single trash and recycling hauler through a competitive bid process for the purpose of making recycling more convenient for residents and reducing truck traffic on city streets.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
		N/A		SWD		Not quantified

WR 1.7	**Develop 'zero-waste' guidelines for community events.**
	Large public events generate large volumes of waste. The City currently requires any public event to have a recycling plan in place, a trash hauler contracted to collect recyclables, and to provide a report describing how much was recycled. Additionally, the City has banned the use of styrofoam at public events. Through this action step, the City will prepare 'zero-waste' guidelines for community events to ensure that in the future, 100% of materials associated with the event can be diverted from the landfill.

Implementation Programs		
	A.	Prepare 'zero-waste' guidelines for community events and post them on the City's sustainability website for communitywide use. Guidelines should address low-cost recyclable alternatives to frequently used event materials (e.g., disposable flatware, paper plates, name tags) and suggestions regarding how to forgo paper materials that could be provided electronically (e.g., printed presentation slides, workshop materials). The guidelines will also provide suggestions for reducing food-related waste (e.g., packaging materials, leftover food waste).

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
		$17,600		DEV SUST		Not quantified

WR 2.1	**Work with the Consortium Cities to build landfill #2 and to maintain funding for existing recycling and waste reuse programs.**
	The Lee's Summit Landfill is currently estimated to be closed in approximately 2016. The City prepared a Solid Waste Management Plan in 2006 to identify solid waste disposal options, following closing of the current landfill. The favored option is to work with the Consortium Cities to build a new landfill to serve regional waste disposal needs. If a new landfill is not constructed, waste haulers will need to find a new location to dump the collected waste, which could increase the distance they need to drive, possibly resulting in increased trash service rates for City residents. The current landfill also provides an economic benefit to Lee's Summit. Not only does it provide jobs, but revenues generated from tipping fees fund or subsidize the City's programs for yard waste/brush composting; household hazardous waste collection; recycling programs for tires, lead-acid batteries, appliances, and clean wood; and the recycling drop-off center. For these programs to continue after closure of the landfill, the City will be required to find alternate funding sources.

Implementation Programs		
	A.	Track the amount and origin of solid waste disposed of at the Lee Summit Sanitary Landfill (e.g., City's municipal operations, surrounding jurisdictions, Lee Summit community, surrounding communities). This will help the City to prepare more accurate updates to its GHG emissions inventory.
	B.	Work with the Consortium Cities to build landfill #2. Require waste haulers to send collected waste to a Consortium-owned facility to ensure a revenue stream to fund recycling and other environmentally-beneficial programs.
	C.	Identify a means to continue funding existing recycling, resource recovery, and Hazardous Household Waste programs once the City's landfill closes, and identify opportunities to build upon and expand these programs.

Costs	Simple Cost to City	Total Cost to City Through 2025	Responsibility	Department/ Agency	GHG Reductions	
	?	N/A		SWD		Not quantified

Education, Advocacy, and Outreach Focus Area

Community engagement and effective participation are essential to the successful implementation of the SAP. During the SAP implementation period, the City will conduct outreach programs that involve residents and businesses in various activities, assessments, and actions.

Effective public participation will increase the likelihood that the measures recommended in this Plan achieve estimated participation rates. Furthermore, Lee's Summit will see higher participation rates if outreach and education programs are adapted over time to meet the changing needs of the community. Increased participation rates will result in increased emissions reductions.

The City is also responsible to achieve the goals outlined in this SAP. Stakeholder feedback during the planning process identified the importance of City leadership in communicating sustainable practices as a top priority, and identified the need for a clear message and vehicle for implementing sustainable practices within City operations. This message should come from the City leadership to ensure implementation at the department level.

Feedback also indicated the importance of communicating sustainability efforts already underway, and stakeholders identified showcasing implementation and reporting progress as a helpful educational tool. In general, it was felt that education is needed for all stakeholder groups in the community: citizens, business owners, council members, and City employees.

Coordination amongst leadership and City departments regarding current sustainability practices is understood as critical to the creation of successful partnerships and leveraging of existing efforts. Tracking and reporting activities would help increase overall awareness and potentially identify new opportunities for cross-department collaboration.

Community feedback provided considerable insight into the strengths and weaknesses of sustainable activities already underway in the community, while identifying opportunities for further development and engagement. While each previously discussed focus area includes its own education and public outreach action steps, this focus area is dedicated to the coordination of the overall message and strategy for sustainability. Strategies for this focus area are described through a narrative rather than tables to better explain the recommended programs, which have less quantifiable results than the other focus areas.

ED.1 Community-Wide Sustainability Education Strategy

ED 1.1: Provide information regarding the City's progress related to the complete and livable streets program.

There is significant benefit to developing broader understanding and educating the community through demonstration projects that highlight the impact of specific strategies to help the City meet its sustainability goals.

The livable streets policy for Lee's Summit, "creating guiding principles and practices to be considered in transportation projects to encourage walking, bicycling, and transit while promoting safe use and operation for all users," was adopted by City Council on November 9, 2010 (Lee's Summit City Council Resolution 10-17). This program is intended to promote the livable streets concept throughout the community and metropolitan area, provide public road safety education in multimodal transportation contexts, and encourage participation among citizens to walk, bike, and take public transportation.

It is important to showcase the relationship between the livable streets projects and their corresponding planning documents, such as the Comprehensive Plan and the Sidewalk Inventory Analysis, to demonstrate progress implementing these long-term plans. Furthermore, by reporting the progress of this program, the City can demonstrate the benefits of this policy and the outcomes of its implementation in the community, substantiating the intent of the policy with actual data.

This information should be readily available to the community on the City website. By making this project information accessible, the City can create an environment of collaboration and resource sharing, potentially fostering new partnerships as the community is empowered with the information needed to participate in similar actions.

"Show Me" Project #12: Highlight the relationship between livable streets projects and their corresponding planning documents, such as the Comprehensive Plan and the Sidewalk Inventory Analysis, to demonstrate progress implementing these long-term plans. Post this information on the City website.

ED 1.2: Continue to develop a broad sustainability public outreach campaign.

The City will develop a website to act as a clearinghouse for all City efforts regarding sustainability. A variety of existing programs are currently available to residents and business owners, but this information is not available from a single source; users currently must navigate a variety of separate department webpages to identify available programs and services. By consolidating this information, the City can more efficiently educate the community about sustainable options while allowing for better coordination of programs among departments.

To encourage frequent visits by the broader community and generate regular opportunities for outreach to this webpage, a calendar of regular content updates should be developed to draw users to the site and encourage sharing among stakeholders. Content updates should include:

- Sustainability tips and facts posted regularly to help refresh the content on either a weekly or monthly basis – creating opportunity for "viral" sharing of this information through social media networks in the community.
- A "Green Community Member of the Month" program where community members can nominate and vote for citizens who exemplify Lee's Summit's commitment to sustainability. This provides valuable recognition for great work by individuals, potentially creating opportunities for further collaboration by connecting community members to local resources and a growing knowledge base from within Lee's Summit.
- Sustainability success stories that highlight best practices with real world experience and feedback from those who have implemented these actions. A case study on a small business that has completed an energy efficiency retrofit, for instance, will help other business owners understand the costs, benefits, and other considerations to keep in mind when evaluating their own sustainability commitment and will encourage participation when successful.

The City will also identify a trusted local spokesperson for the overall sustainability campaign to help with outreach and promotion of various efforts, to report to the community on the progress of each measure, and ultimately to encourage broader participation through awareness.

ED 1.3: Support the University of Central Missouri National Energy Retrofit Institute Program.

The City will engage the National Energy Retrofit Institute Program at the University of Central Missouri to perform detailed surveys of energy consumption in Lee's Summit's existing housing stock to establish a baseline for energy efficiency measures.

In turn, as the University expands its program to the broader region, Lee's Summit will be an established leader, setting a benchmark to help other communities gauge their own efficiency.

Based on the results of the energy efficiency survey, the City will identify cost-effective energy efficiency retrofit packages appropriate to different stakeholder groups such as residential, commercial, and industrial businesses.

By leveraging a partnership with an existing resource and knowledge-base, the City will benefit from the expertise of the program and the valuable data it collects to help establish future priorities. In turn, by supporting a regional educational program, the City will be an effective partner that will contribute to program effectiveness through practical experience.

ED 1.4: Continue support for the Green on Green sustainability fair.

Launched in October 2010, the Lee's Summit Green on Green sustainability fair is intended to educate Lee's Summit residents and businesses about simple and complex sustainable practices that can be implemented at home and work to improve the sustainability of the entire community.

The City will work with the Lee's Summit Chamber of Commerce and other community organizations to transition the leadership and organizing role of the annual Green on Green sustainability fair from the City to the community. This will help ensure that the fair continues to evolve to address the needs and priorities of the community and transition the responsibility of organizing the event to a broader stakeholder committee.

The City should continue to participate in the fair by sponsoring a booth showcasing recent sustainability actions and upcoming programs.

ED 1.5: Report on participation in the EPA's WasteWise Program to provide annual waste diversion reports for the City.

WasteWise is a free, voluntary EPA program through which organizations eliminate costly municipal solid waste and selected industrial wastes, benefiting their bottom line and the environment. WasteWise helps its partners meet goals to reduce and recycle municipal solid waste and selected industrial wastes.

The City is already enrolled in the WasteWise program although it is currently only reporting internal government waste and diversion and has not yet grown involvement beyond its own operations. Additionally, reporting can be expanded to include scrap metal recycling, battery recycling, and asphalt recycling.

The City will post the results of annual diversion efforts on the sustainability website and incorporate the information into future municipal and community emissions inventories. The City will also provide this information to key decision-makers within the City, such as City Council and the Solid Waste Committee within the Department of Public Works, to encourage ongoing evaluation and commitment to diversion strategies.

ED.2 Citywide Sustainability Education Strategy

ED 2.1: Create a position for a City Sustainability Coordinator and permanently establish the role of the Sustainability Advisory Committee.

The City of Lee's Summit will create a position for a full-time Sustainability Coordinator to oversee implementation of the SAP and other sustainability programs, on a funds-available basis. This position would ideally be located within the City Manager's office, but alternatively could be part of the Development Department or Public Works Department.

Roles and responsibilities of Sustainability Coordinator position would include:

- Updating the municipal and communitywide emissions inventories every 3-5 years;
- Maintaining contact with KCP&L and Missouri Gas Energy to ensure consumption data is readily available for future inventory updates;
- Coordinating with the Finance Department to develop a tracking system for the City's own energy consumption rates;
- Identifying new studies and research related to potable water conservation;
- Continuing City programs that track refrigerant purchases and uses;
- Evaluating available studies regarding wastewater effluent testing to support future inventory updates;
- Promoting sustainability messaging throughout all City departments.

The Sustainability Coordinator will be the primary staff liaison to the Sustainability Advisory Committee. This committee, comprised of community leaders and key stakeholders, will continue to provide strategic support and guidance as the City works to enhance its internal operations with a focus on the financial efficiencies and payback of program implementation. The Sustainability Coordinator will help implement action items that require interdepartmental coordination or City coordination with outside agencies, organizations, and companies. The Sustainability Coordinator will engage City departments and focus on internal communication to help Lee's Summit reduce waste, improve efficiency, and save money. This role would differ from the existing Environmental Coordinator position, which will still focus on external outreach and providing communitywide sustainability information to encourage participation in the City's initiatives.

ED 2.2: Provide leadership to help establish community partnerships through a Lee's Summit Sustainability Compact.

The City of Lee's Summit will continue to support the Chamber of Commerce's green business certification program as a means to encourage private sector involvement in efficiency programs and to create consumer awareness about the choices made by businesses in the community.

Green products and services have enormous market growth potential, with both industry and consumer demand projected to increase over time. By encouraging involvement in and expansion of programs such as the green business certification program, Lee's Summit will continue to provide a sustainability leadership role among surrounding communities.

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Chapter 4

IMPLEMENTATION

Implementation

Lee's Summit has displayed a strong commitment to sustainability and continues to establish itself as an environmental leader in the region. The SAP provides an implementation pathway for the City's goal to reduce its environmental impact. This chapter describes how the City will implement SAP strategies and action steps. It also addresses the need for Plan evaluation and evolution, in order to update and amend the SAP over time, ensuring that strategies and action steps remain effective and current.

Implementation of Action Steps

Ensuring that the strategies translate from policy language into on-the-ground results is critical to the success of the SAP. To facilitate this, each technical strategy described in Chapter 3 contains a table that identifies the specific action steps that the City will carry out. The tables also identify responsible departments or agencies for each action. Upon adoption of the SAP, the City departments identified in Chapter 3 will become responsible for implementing assigned actions. Key staff in each department will facilitate and oversee implementation. In order to assess the status of City efforts, SAP implementation meetings should take place approximately quarterly. Some actions will require interdepartmental or interagency cooperation and appropriate partnerships will need to be established and meet more frequently.

As described in Chapter 3, progress indicators were created based on the assumptions used to generate the emissions reductions calculations, and can be used to track the progress of the quantified action steps. Appendix B includes a table with the quantified action steps, their implementation programs, and associated progress indicators.

The implementing departments may find it helpful to develop interim progress indicators (e.g., indicators for 2018). Interim progress indicators are important, as they provide mid-course checks to evaluate if an action step is on the right path to achieving success. Unquantified action steps do not currently have progress indicators. Implementing departments should determine how best to track progress of these actions. Progress indicators need to be developed in a way that is easily measureable because monitoring implementation progress is important to ensuring that the SAP actually achieves the emissions reductions projected at the time of Plan preparation.

Progress indicators will enable City staff, the City Council, and the public to track measure implementation and monitor overall progress. The City may also want to create annual sustainability reports that summarize progress to date on each of the SAP's action steps.

The SAP needs to be evaluated over time to ensure the strategies are effective and the City is on track to achieve its sustainability goals.

Program Evaluation and Evolution

The SAP represents the City's best attempt to create an organized, communitywide sustainability agenda at the time of preparation. Staff will need to evaluate the Plan's performance over time and be ready to make alterations or amendments if it is not achieving the City's overall vision.

Program Evaluation

Two types of performance evaluation are important: evaluation of the SAP as a whole and evaluation of the individual component action steps. Subsequent communitywide GHG emissions inventories will provide the best indication of SAP effectiveness, although it will be important to reconcile actual growth-to-date in the City versus the growth projected when the SAP was developed. Conducting these inventories periodically (i.e., every 3-5 years) will enable direct comparison to the 2009 baseline inventory and will demonstrate the SAP's ability to achieve the adopted emissions efficiency goal. The City will coordinate communitywide inventories in 2015, 2020, and 2025 to assess the level of emissions reduction.

While communitywide inventories provide information about overall emissions reductions, it will also be important to understand the effectiveness of each action step. Evaluating the emissions reduction capacity of individual action steps will improve staff and decision makers' ability to manage and implement the SAP. The City can promote successful action steps and re-evaluate or replace under-performing ones. Evaluating individual performance will require data regarding actual community participation rates and measurement of GHG reduction capacity.

The City's Planning Department, in conjunction with the previously recommended Sustainability Coordinator, will coordinate evaluation of the action steps on the same schedule as the communitywide inventories, and summarize the progress towards meeting the SAP goals in a report that describes:

- Estimated annual GHG reductions to date
- Achievement of progress indicators or interim progress indicators
- Participation rates (where applicable)
- Remaining barriers to implementation

If a more frequent progress review period is deemed appropriate, it would be necessary to institute an annual or bi-annual monitoring program that tracks the performance of individual measures. The data collection and processing necessary to establish performance levels would be conducted by the responsible parties identified for each action step (as noted in the action step tables in Chapter 3), and summarized at the level of each focus area, as well as the SAP as a whole.

Program Evolution

To remain relevant, the SAP must be regularly revisited, and the City must be prepared to adapt and transform the SAP over time. It is likely that new information about environmental issues will emerge and new technologies and innovative municipal strategies will be developed, new financing will be available, and State and federal legislation will advance. It is also possible that communitywide inventories will indicate that the community is not achieving the goals of the SAP. The City will assess the implications of new scientific findings and technology, explore new opportunities for innovation, respond to changes in climate policy, and incorporate these changes into future updates to the SAP to ensure an effective and efficient program.

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Chapter 5
CONCLUSION

Conclusion

Over the past decade, Lee's Summit has initiated many programs and policies that support a sustainable future and contribute to reducing the City's impact on the planet. The City's active citizens, government agencies, and business community are committed to sustainable progress, and are leading the way forward in the region. Building upon this commitment, the adoption of the SAP displays a strong dedication to a future marked with innovative progress and environmental consciousness.

While Lee's Summit works to implement the SAP's top priorities, "Show Me" Demonstration Projects, and long-term objectives, it will do so with an eye toward making financially sound investments in the future that will increase the quality of life for all of its residents.

By implementing the SAP, Lee's Summit will accommodate future growth in an efficient manner, reduce energy and water consumption, decrease waste generation, attract new businesses and green industries, and continue the numerous sustainability programs already underway in the City. Achieving the varied strategies included in the SAP will require the hard work and dedication of every City department, organization, business, and household. This shared commitment toward achieving the goals outlined in this Plan is what has made Lee's Summit a regional sustainability leader, and is what will ultimately drive the successful implementation of this Plan.

Lee's Summit Sustainability Action Plan
May 2012