DRAFT

THE CITY OF WILDWOOD, MISSOURI
POLLUTION REDUCTION PLAN

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U.S. GREEN BUILDING COUNCIL—MISSOURI GATEWAY CHAPTER
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WILDWOOD
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Missouri Gateway
CHAPTER

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Sincerely,

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Missouri Gateway Chapter, U.S. Green Building Council

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Introduction

The City of Wildwood: Planning Tomorrow Today

The City of Wildwood occupies 68 square miles in western St. Louis County. The City is bordered on the west by the Franklin County Line; on the south by Interstate 44, the City of Eureka, and the Meramec River; and on the east and north by the Cities of Ellisville, Clarkson Valley and Chesterfield.

The incorporation of the City was the culmination of a grassroots effort to halt development practices that were causing environmental degradation. Since its incorporation, the City of Wildwood has demonstrated a commitment to environmental stewardship, addressed existing environmental damage, and established regulations that prevent similar damage in the future.

For instance, Wildwood was one of the first cities in the St. Louis Metropolitan Region to adopt a tree preservation ordinance; the only city in Missouri to employ a Natural Resource Protection Standards requirement; one of the leaders among communities in St. Louis County to accept and apply the new Metropolitan St. Louis Sewer District's stormwater standards in 1997; and the only jurisdiction to create a Master Plan linking them all together.

With this pollution reduction plan, and the greenhouse gas (GHG) inventory that preceded it, the City continues its legacy of environmental leadership. The GHG inventory estimated community-wide and local government greenhouse gas emissions. This report builds on those estimates; it explores opportunities to conserve energy, fuel, and resources while cutting costs and reducing future GHG emissions.

Climate Change And Its Impacts

In its report, *America's Climate Choices*, the National Research Council states that "Climate change is occurring, is very likely caused by human activities, and poses significant risks for a broad range of human and natural systems."[1]

The impacts of global climate change will be numerous. The U.S. Global Change Research Program's (USGCRP) report "Global Climate Change Impacts in the United States" outlines the impacts that are anticipated throughout the nation. In the Midwest, average annual temperatures have already increased over the last several decades, with more frequent heat waves and fewer cold periods. Over the coming decades, the Midwest will likely begin to experience milder, wetter winters and hotter, dryer summers.

These changes will have a marked impact on public health. Longer, hotter summers increase the risk of heat-related deaths. Mosquitos and ticks, both vectors for disease, will survive milder winters in larger numbers, causing their populations to increase. Some areas in the St. Louis Region already do not meet national standards for

[1] Committee on America's Climate Choices, National Research Council, *America's Climate Choices* (Washington, DC: The National Academies Press, 2011), 1

ground-level ozone, a pollutant that can harm lung tissue when inhaled. Longer, hotter summers are likely to increase ozone formation, leading to more health issues such as asthma, especially in children or the elderly.[2]

In addition to public health threats, climate change threatens the stability of the Midwest's water and wastewater systems. Increased intensity of rain events makes flooding more likely and would strain drainage systems. Longer periods between rain events could lead to drought or water shortages.

With immediate action, the risks associated with the impacts of climate change can be reduced. However, even with immediate action, some of the impacts of climate change are unavoidable; carbon dioxide, a greenhouse gas, can remain in the atmosphere for a century. Reducing greenhouse gas emissions is necessary to mitigate climate change, but it is also prudent for communities to begin to plan for the coming impacts of climate change[3].

Sustainability in the St. Louis Metropolitan Area

In 2009, FOCUS St. Louis published *The Environmental Sustainability Roadmap: A Toolkit for Local Governments*, a report meant to provide communities in the St. Louis Region tools to measure their progress toward sustainability. A citizen task force convened by FOCUS St. Louis identified sustainability standards and best practices for local governments, including the roadmap pictured at the right.

FOCUS St. Louis Roadmap

1. Commit to Action
2. Assess the Situation
3. Make Plans
4. Implement
5. Measure and Celebrate Success

This report contributes toward step three, "Make Plans," of FOCUS's five-step roadmap. The City's recently completed GHG inventory contributed to step two, "Assess[ing] the Situation." This document contains a menu of strategies that have the potential to conserve energy, reduce fuel and utility costs, and lower greenhouse gas emissions. It is designed to act as a planning tool for the City's residents, staff, and elected officials.

Numerous municipalities in the St. Louis Region have written similar plans to conserve energy, save resources, and reduce GHG emissions. These municipalities include the City of Richmond Heights, the City of Clayton, the City of Creve Coeur, the City of Maplewood, the City of St. Louis, and St. Louis County. The combined efforts of local governments throughout the region have the potential to create a large positive environmental impact.

Other aspects of environmental sustainability, while very important, were not included in this report. These aspects include air quality outside of greenhouse gas emissions, protecting water quality, managing stormwater, protecting biodiversity and ecology, supporting local agriculture, and facilitating future LEED, Sustainable SITES, or Living Building certification.

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[2] USGCRP, *Global Climate Change Impacts in the United States* (New York: Cambridge University Press, 2009), 117-122

[3] "EPA Climate Change Basics," Environmental Protection Agency, last modified June 14, 2012, accessed November 26, 2012, http://www.epa.gov/climatechange/basics/

Wildwood's Pollution Reduction Success

The City of Wildwood was incorporated in response to the threat of environmental degradation. In the eighteen years since its incorporation, the City has demonstrated its commitment to conservation and environmental stewardship in numerous ways, and has already achieved significant pollution reduction success.

Comprehensive Master Planning and New Urbanism

The City of Wildwood utilizes a master planning to ensure that future development contributes positively to Wildwood's existing dynamic, sustainable community. Wildwood Town Center, a mixed use environment developed using the principles of New Urbanism, is the focal point of this community.

New Urbanism emphasizes the importance of walkable, human-scale neighborhoods that foster community, reduce urban sprawl, and encourage diverse methods of travel. Careful, thoughtful master planning and the use of the principles of New Urbanism have assisted the City to mitigate the creation of excessive air and water pollution, manage stormwater, and reduce greenhouse gas emissions, while encourage sustainable economic development and feelings of community.

Providing and Protecting Open Space

The City of Wildwood contains some of St. Louis County's largest green spaces. Babler State Park, Rockwoods Reservation, Greensfelder County Park, and Rockwoods Range are all located in Wildwood. In addition, the City manages numerous neighborhood parks and is working to develop a community park. In 2009, the City acquired a 66 acre site near the intersection of State Route 109 and State Route 100. The stewardship and protection of these open spaces provides residents with opportunities for recreation, ensures the conservation of existing natural resources, and preserves their environmental benefits to the entire St. Louis Region.

Active Lifestyles and Alternative Transportation

In addition to the protection of open space, the City has promoted alternative transportation and healthy lifestyles through the development of its network of multi-use trails. With cooperative partnerships between the City, the Missouri Department of Natural Resources, the St. Louis County Department of Parks and Recreation, and Great Rivers Greenway, the City has provided residents and visitors with opportunities to enjoy Wildwood's open space and enjoy alternative transportation.

Recycling Success

The City of Wildwood has achieved remarkable results from its residential recycling program. When rebidding the existing residential waste-hauling contract, the City kept the Master Plan's emphasis on expanding recycling services in mind and integrated improvements to its recycling program into this new agreement. Requirements included providing recycling services at no cost to residents, providing large toters, and accepting unsorted recyclables. The impact of implementing these changes was significant; Wildwood experienced a 108% increase in residential recycling tonnage between 2007 and 2008.

In addition, the City holds several bulk recycling events every year: a shredding event diverted 18,055 pounds of paper; an annual bike recycling event collected over 300 used bikes to be reconditioned and given to families in need; an electronics recycling event filled five tractor trailers with used electronic equipment; and a holiday light recycling event kept old holiday lights from damaging heavy equipment in the landfill. In addition, the City of Wildwood incorporates recycling into all of its municipally sponsored events, and commissioned a study to identify ways to analyze and increase recycling rates at these events.

Community-Wide Greenhouse Gas Inventory Results and Reduction Targets

The City of Wildwood's Greenhouse Gas Inventory is composed of two parts; first, it quantifies GHG emissions associated with the City of Wildwood as a whole; second, it breaks out emissions associated with the City's local government operations.

2010 community-wide emissions in the City of Wildwood totaled 269,026 mt CO_2e, with emissions from residential (62%), transportation (25%), and commercial (11%) sectors comprising the largest portions of the inventory. A more in depth analysis of the City's greenhouse gas emissions, including a comparison between the City of Wildwood and other local municipalities is included in *The City of Wildwood, Missouri 2010 Greenhouse Gas Emissions Inventory*[4].

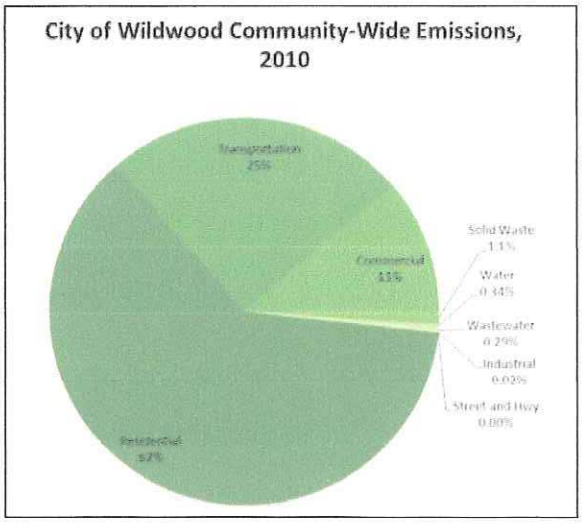


Figure 1: City of Wildwood Community-Wide Emissions, 2010

The Greenhouse Gas Inventory revealed that the City of Wildwood has significantly lower levels of greenhouse gas emissions than other St. Louis area municipalities. However, even given the City's relatively low emissions, there are still significant opportunities for affordable, effective GHG emissions reduction. Many of the strategies outlined in this report are relatively inexpensive to implement, will conserve resources, and have the potential to save significant amounts of money for residents and their local governments.

Future Emissions Levels

As the City of Wildwood grows, its GHG emissions levels will also increase. In order to account for this increase, future GHG emissions levels were estimated based on the City's population growth rate. Considering the amount of available land, the City's land use policies, and the number of new lots approved each year, the City of Wildwood's Department of Planning estimated that the City's population will increase at an estimated annual rate of 1.6% until 2016[5]. Using the 1.6% population growth factor, this report projects that the City will create 315,305 mt CO_2e in 2020, and 507,624 mt CO_2e in 2050.

This estimate of future emissions levels accounts for population increases, but there are numerous factors that could also impact future GHG emissions levels. For example, this estimate does not account for increases in federal fuel efficiency requirements, federal or state renewable fuel standard requirements, or renewable energy

[4] Ofner, Johanna, *The City of Wildwood, Missouri 2010 Greenhouse Gas Emissions Inventory* (Wildwood, 2013), http://www.cityofwildwood.com/egov/docs/1364230971_755676.pdf

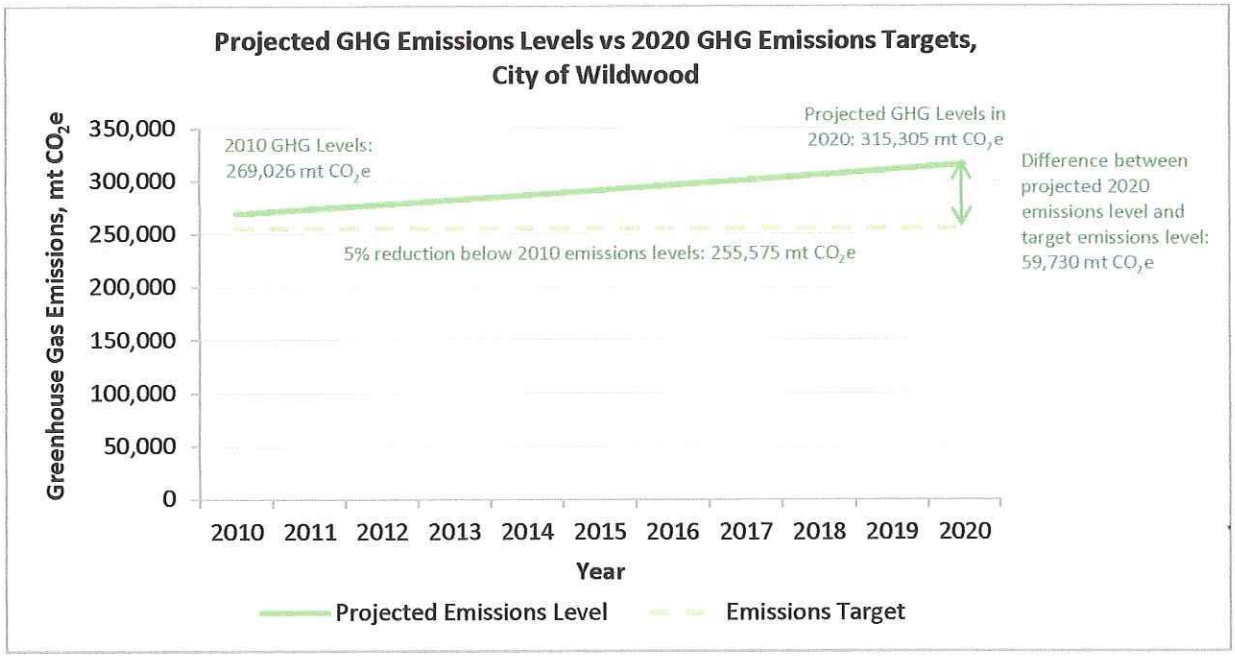
[5] "City of Wildwood Demographics" City of Wildwood, accessed March 25th, 2013, http://www.cityofwildwood.com/category/subcategory.php?fCS=1-9

production. While this is an estimate, it provides a framework for prioritizing and selecting emissions reduction actions.

Greenhouse Gas Emissions Reduction Targets

Municipalities commonly set target levels for GHG emissions reduction and use their targets to inform the selection and prioritization of GHG emissions reduction strategies. Multiple municipalities in the St. Louis Region signed the US Conference of Mayor's Climate Protection Agreement, in which they agreed to meet or surpass the Kyoto Protocol targets: a 7% reduction from 1990 greenhouse gas emissions levels by 2012. These municipalities include Clayton, Creve Coeur, Kirkwood, Maplewood, Florissant, Richmond Heights, the City of St. Louis, University City, and Sunset Hills[6]. Additionally, several of these municipalities have established their own GHG emissions reduction targets beyond those of the Mayor's Climate Protection Agreement. For instance, the City of St. Louis recently announced that it will target a 25% reduction in city-wide greenhouse gas emissions by 2020 and an 80% reduction by 2050[7].

To date, no GHG emissions reduction target has been adopted by the City of Wildwood. For illustrative purposes only, this report provides an evaluation of emissions reduction measures that could be implemented to achieve a 5% reduction below 2010 levels by 2020. The difference between projected 2020 emissions levels and the 2020 emissions target is 59,730 mt CO_2e.



[6] "Cities That Have Signed On: Missouri" Mayors Climate Protection Center, accessed March 6th, 2013, http://www.usmayors.org/climateprotection/cities.asp?state=MO

[7] Office of St. Louis Mayor Francis Slay, Mayor Slay's Sustainability Action Agenda: 2013-2018 (St. Louis, 2013) http://stlouis-mo.gov/government/departments/mayor/documents/upload/Mayor%20Slay%20Sustainability%20Action%20Agenda%202013--2018.pdf

Community-Wide GHG Emissions Reduction Targets
5% reduction from 2010 levels by 2020

Emissions Reduction Target	Projected Emissions Level, 2020 (mt CO_2e)	Targeted Emissions Level, 2020	Reductions From Projected Emissions Level Needed to Meet Target (mt CO_2e)
5% reduction below 2010 levels by 2020	315,305 mt CO_2e	255,575	59,730

Strategies to Implement by 2020 to Achieve a 5% Reduction Below 2010 Levels

Overarching Strategies

Create a Citizen Sustainability Commission
Periodically Inventory GHG Emissions
Conserve Existing Tree Cover
Continue to Implement New Urbanist Development Strategies

Residential and Commercial Energy Consumption

Strategy	Estimated Savings		Estimated Community Cost Savings ($)	Estimated GHG Emissions Reduced (mt CO_2e)
	Electricity (kWh)	Natural Gas (therms)		
Adopt Existing Energy Conservation Initiatives	41,753,535	2,150,720	$7,752,256	24,241
Promote Low Cost Energy Improvements	41,753,535	2,150,720	$7,752,256	24,241
Promote the St. Louis Green Business Challenge	5,627,735	80,173	$577,230	2,762
Promote the Production or Purchase of Green Power[8]				7,058
Residential and Commercial Energy Consumption Total	**89,134,805**	**4,381,613**	**$16,081,742**	**58,302**

Transportation

Strategy	Fuel consumption reduced (gallons)	Estimated Community Cost Savings ($)	Estimated GHG Emissions Reduced (mt CO_2e)
Promote Pedestrian and Alternative Transportation	43,697	$115,361	348
Promote Ridesharing	42,824	$113,054	341
Reduce Idling	31,800	$83,952	260
Promote Use of Transit	10,705	$28,263	85
Transportation Totals	**129,026**	**$340,630**	**1,034**

[8] Energy and cost saving estimates were not included for the *Promote the Production or Purchase of Green Power* Strategy

Solid Waste		
Strategy	Waste Diverted (pounds)	Estimated GHG Emissions Reduced (mt CO_2e)
Continue to Promote Recycling	100,000	252
Promote Residential and Commercial Composting	*1,000,000*	157
Solid Waste Totals	800,000	439
Emissions Reductions Total (mt CO_2E)		59,775

Over-arching Strategies

Create a Citizen Sustainability Commission

Public input and support is an important part of any plan's success; however, the timing and resources available for this report did not allow for public input during its development. For this reason, the implementation of a citizen-led Sustainability Commission or Green Team is included as an important overall emissions reduction strategy. A citizen-led Sustainability Commission could assist City staff and elected officials perform the final selection and oversee the implementation of any of the emissions reduction measures included in this report.

Case Studies:

The City of Maplewood's Sustainability Commission "is devoted to making Maplewood a healthy, economically prosperous and environmentally friendly community."[9] One of the commission's core goals is to support resident's efforts to independently make their lifestyles more sustainable, healthy, and connected with community. The City recently completed a GHG inventory and, at the time of writing, was working with an intern to complete a plan to reduce GHG emissions.

The City of St. Peters' Green Team was established "to advise the St. Peters elected officials and staff on energy and environmental issues, and assist in efforts to inform and educate the St. Peters community on the wise use of natural resources, sustainable energy use, new recycling opportunities and other pertinent environmental matters."[10] The team meets monthly and is made up of St. Peters residents and subject-matter experts. The Green Team has gone door-to-door to promote recycling, and assists the City with Shred it and Forget it events, Clean Stream events, and Open Houses at the Recycle City Facility. It also assists the City green its own operations; it has established composting programs for City yard and food waste, educated employees on making sustainable decisions at work, and assisted with the development of the City's recently passed Sustainability Resolution.

Estimated Savings

Creating a Citizen Sustainability Commission will contribute to the successful implementation of all of the following emission reduction strategies.

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[9] "Maplewood Sustainability Commission," City of Maplewood, Missouri, Accessed February 25th, 2013, http://www.cityofmaplewood.com/index.aspx?NID=364

[10] "St. Peters Green Team," St. Peters, Missouri, Accessed March 22nd, 2013, http://www.stpetersmo.net/green-environmental-and-solid-waste-issues-advisory-committee.aspx

Periodically Inventory GHG Emissions

Re-inventorying greenhouse gas emissions will allow the City to estimate the progress being made and evaluate the success of adopted initiatives. Should the City choose to formalize the emissions reduction targets included in this plan, completing a second greenhouse gas inventory of emissions in 2015 will allow the City to evaluate progress made towards its goals and recalculate emissions projections. Inventorying emissions again in 2020 would allow the City to evaluate whether or not it met its targets.

Implementation Strategies:

- Re-inventory greenhouse gas emissions associated with the City of Wildwood community and the City's local government in 2015 and 2020. Evaluate the success of any emissions-reduction strategies implemented, and re-evaluate emissions reduction goals.

Continue to Preserve Existing Tree Cover

The City of Wildwood contains extensive forested area. The City contains over thirteen square miles of publicly held open space owned by the State of Missouri, St. Louis County, including Babler State Park, Rockwoods Reservation and Range, and Greensfelder County Park.

Vegetation absorbs Carbon Dioxide (CO_2), a greenhouse gas, during the process of photosynthesis. In addition to their ability to reduce greenhouse gas emissions, trees provide numerous other benefits: increasing property values, decreasing utility costs if strategically located, reducing the heat island effect, reducing erosion, and increasing quality of life.

One of the least expensive ways to maintain the City's relatively low levels of greenhouse gas emissions is to continue to ensure that existing trees are not unnecessarily cleared. The City has a number of ordinances and regulations in place that protect this tree cover when new development proposals or improvements are planned by developers, utilities, or residents. Additionally, maintaining green space and tree cover benefits not only benefits the City of Wildwood, it improves air quality and quality of life for the entire St. Louis Metropolitan Region.

Continue to Implement New Urbanist Development Strategies

As mentioned previously, the City's Master Plan established the Town Center area which is based on the principles of New Urbanism. New Urbanism draws on historic design strategies that were common, until the rise of automobile travel. The Charter of New Urbanism states:

> *We advocate the restructuring of public policy and development practices to support the following principles: neighborhoods should be diverse in use and population; communities should be designed for the pedestrian and transit as well as the car; cities and towns should be shaped by physically defined and*

universally accessible public spaces and community institutions; urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice[11].

The City of Wildwood's Town Center is designed around these principles, and the City has realized numerous social, environmental, and economic benefits from incorporating walkability and urban character into Town Center. Continuing to incorporate New Urbanist design strategies into future development will continue to contribute to the development of a sustainable, vibrant community.

Residential and Commercial Energy Use

Adopt Existing Energy Conservation Initiatives

Numerous energy conservation initiatives already exist in the St. Louis region, managed by the State of Missouri, St. Louis County, local utilities, and the Environmental Protection Agency (EPA). Promoting these already-existing initiatives would be an effective way for the City to reduce residential energy consumption while conserving valuable staff time.

Existing Programs Available to the City:

- ***St. Louis County Saves:*** Loan program for residential and commercial energy assessments and energy efficiency retrofits (www.stlouiscountysaves.com)
- ***Missouri Personal Income Tax Deductions:*** 100% of the cost (up to $1000) of a Home Energy Audit performed by a certified auditor may be deducted from Missouri personal income tax (www.dnr.mo.gov/energy/residential/homeenergyaudits.htm)
- ***Utility Rebates:*** Ameren Missouri offers residential rebates for refrigerator recycling, HVAC measures, and water heaters. (www.ameren.com/sites/AUE/UEfficiency/ForYourHome/Pages/Default.aspx) Laclede Gas offers residential rebates for installation of energy savings, high-efficiency heating systems, thermostats, and natural gas water heaters. (www.originalgreenenergy.com/rebatesandsavings/residentialhighefficiencyheating/)
- ***Become a "Change the World, start with ENERGY STAR" pledge driver:*** Pledge drivers encourage individuals to take the ENERGY STAR pledge. Each participating individual pledges to take action to conserve energy, contributing to the pledge driver's targeted total. (https://www.energystar.gov/index.cfm?fuseaction=join_change_the_world.showGetInspired)

Implementation Strategies:

- Promote these opportunities at existing City events, website, newsletter, and social media to share information and encourage participation.
- Hold events or workshops specifically to promote energy conservation.

Case Studies:

- The ENERGY STAR pledges collected by the City of Fort Lauderdale, Florida conserved an estimated 4,551,094 kWh, equaling approximately $677,047 and reducing 3,828 metric tons of GHG emissions[12].

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[11] "Charter of the New Urbanism" Congress for the New Urbanism, accessed March 20th, 2013, http://www.cnu.org/charter

Energy Savings, Cost Savings, and Emissions Reductions *(Assumed a 25% reduction in average energy use per participating household)*			
Estimated Average Annual Electricity Savings per Household			4,175 kWh
Estimated Average Annual Natural Gas Savings per Household			215 therms
Estimated Average Annual Cost Savings per Household: Electricity and Natural Gas			$775
Number Of Households Participating	**2,000**	**5,000**	**8,000**
Total Estimated Annual Electricity Savings (kWh)	10,438,384 kWh	26,095,959 kWh	41,753,535 kWh
Total Estimated Annual Natural Gas Savings (therms)	537,680 therms	1,344,200 therms	2,150,720 therms
Total Estimated Annual Cost Savings (dollars)	$1,938,064	$4,845,160	$7,752,256
Total Estimated Annual Emissions Reductions	6,060 mt CO_2e	14,151 mt CO_2e	24,241 mt CO_2e

Promote Low Cost Energy Improvements

In contrast to the previous strategy *Adopt Existing Energy Conservation Initiatives,* this strategy explores the potential impacts of creating a new City initiative to promote low cost energy improvements.

Low cost energy improvements include:

- Upgrading light bulbs and fixtures,
- Sealing leaky doors and windows,
- Turning off and unplugging electronics when not in use,
- Installing programmable thermostats,
- And upgrading to high-efficiency home appliances at time of replacement.

Implementation Strategies:

- Use existing City events, website, newsletter, and social media to share resources and encourage adoption of low-cost energy improvements
- Hold workshops specifically to educate the community and promote energy conservation.

Case Studies:

The City of St. Peters holds "Improving Home Energy Efficiency" Workshops, where Missouri Department of Natural Resources certified Home Energy Auditors share information about how to make homes more energy efficient. They also distribute DVDs containing this information.

Energy Savings, Cost Savings, and Emissions Reductions *(Assumed a 25% reduction in average energy use per participating household)*	
Estimated Average Annual Electricity Savings per Household	4,175 kWh
Estimated Average Annual Natural Gas Savings per Household	215 therms
Estimated Average Annual Cost Savings per Household: Electricity and Natural Gas	$775

[12] "City of Fort Lauderdale" ENERGY STAR Pledge Campaign, accessed February 15th, 2013, https://www.energystar.gov/index.cfm?fuseaction=join_change_the_world.showPledgeDriverDetails&cpd_id=22113

Number Of Households Participating	2,000	5,000	8,000
Total Estimated Annual Electricity Savings (kWh)	10,438,384 kWh	26,095,959 kWh	41,753,535 kWh
Total Estimated Annual Natural Gas Savings (therms)	537,680 therms	1,344,200 therms	2,150,720 therms
Total Estimated Annual Cost Savings (dollars)	$1,938,064	$4,845,160	$7,752,256
Total Estimated Annual Emissions Reductions	6,060 mt CO_2e	14,151 mt CO_2e	24,241 mt CO_2e

Promote the St. Louis Green Business Challenge

The St. Louis Green Building Challenge, developed by the St. Louis Regional Chamber, helps companies and organizations adopt sustainable business practices that can reduce environmental impacts, conserve resources, and reduce greenhouse gas emissions. The challenge includes many aspects of sustainability, such as organizational green teams, internal and external sustainability communication, sustainable purchasing policies, energy conservation, internal environmental quality, solid waste and recycling, water conservation and workplace commuting[13]. The Regional Chamber also offers the Sustainable Business Advantage Program. This program assists organizations and companies with the first steps toward sustainability, and covers energy and waste reduction strategies.

Implementation Strategies

- Promote the St. Louis Green business Challenge among Wildwood businesses
- Participate in the St. Louis Green Business Challenge or the Sustainable Business Advantage Program

ST. LOUIS GREEN BUSINESS CHALLENGE

Figure 2: Green Business Challenge Logo

Case Studies[14]

- Madison County, Illinois participated in the St. Louis Green Building Challenge. They created a sustainability plan, hosted a clean air forum, and developed a greenhouse gas inventory.
- Schnucks installed a refrigeration waste heat recovery system.
- The St. Louis Rams offset 100% of the electricity used in 2012 home games and the fuel used in travel to away games.
- US Bank installed a 25 kW solar array on their Clayton building and currently display real time energy savings in an interactive lobby kiosk
- HOK's "Turn Off Computers" campaign reduced energy use by 57%. Their building-wide composting program diverted 45 tons of food waste.
- The City of St. Peters, Missouri held an Open House at Recycle City, a central materials processing facility that serves St. Charles County. The City also operates a nitrogen tire filling station, utilize solar lighting on park trails, and canvas neighborhoods to promote recycling.

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[13] "St. Louis Green Business Challenge" St. Louis Regional Chamber, accessed March 20th, 2013, http://www.stlouisgreenchallenge.com/

[14] All case studies were drawn from the following: "St. Louis Green Building Challenge Award Ceremony," St. Louis Regional Chamber, accessed March 20th, 2013, http://stlouisgreenchallenge.com/images/Final_Show.pdf

Energy Savings, Cost Savings, and Emissions Reductions *(Assumed a 20% reduction in average energy use per participating business)*			
Estimated Annual Electricity Savings per Business (kWh)		22,511 kWh	
Estimated Annual Natural Gas Savings per Business (therms)		321 therms	
Estimated Annual Cost Savings per Business		$2,309	
Number Of Businesses Participating	50	100	250
Total Estimated Annual Electricity Savings (kWh)	1,125,547 kWh	2,251,094 kWh	5,627,735 kWh
Total Estimated Annual Natural Gas Savings (therms)	16,035	32,069	80,173
Total Estimated Annual Cost Savings	115,446	230,892	577,230
Total Estimated Annual Emissions Reductions mt CO_2e	552	1,105	2,762

Promote the Production or Purchase of Green Power

Green Power is a subset of renewable energy that is produced with no greenhouse gas emissions, typically from solar, wind, or geothermal sources. Green power typically consists of two types of products: on-site generation and Renewable Energy Certificates (RECs). The purchase or production of green power by Wildwood residents, businesses, and industry can lower the City's community-wide greenhouse gas totals, reduce energy costs, and stimulate the regional economy.

Renewable energy is produced in a myriad of ways, including solar panels, wind turbines, and solar water heaters. Residential or commercial renewable energy production provides the individual or business with increased property values, reduced utility costs, and a potential source of income.

If production of renewable energy is not an option, Renewable Energy Certificates (RECs) allow individuals and organizations to purchase renewable energy. When renewable electricity is produced and fed into the utility grid, it becomes indistinguishable from traditionally produced electricity. The REC, sold separately from its corresponding electricity, represents the environmental benefits of the renewable energy produced. Ameren Missouri's Pure Power Program offers customers the opportunity to purchase RECs from Midwest renewable energy resources, such Missouri wind farms.

EPA's Green Power Communities purchase or produce at least 3% of their total electricity consumption renewably. The Green Power Communities program requires local governments to purchase or produce green power for their own operations and launch an initiative encouraging residents and businesses to do the same. The Cities of Clayton, Creve Coeur, and Webster Groves currently participate.

Emissions Reductions *(Assumed that 5% of total community-wide electricity consumption was produced renewably or purchased green through Ameren's Pure Power program)*	
Total Community Electricity Consumption, 2010 (kWh)	309,298,439 kWh
5% of Total Community Electricity Consumption	15,464,922 kWh
Estimated Emissions Reduction	7,058 mt CO_2e

TRANSPORTATION

PROMOTE MULTIMODAL TRANSPORTATION

Designing infrastructure for pedestrians and cyclists encourages individuals to lead active lifestyles, decreases congestion, conserves fuel, and encourages the use of non-motorized transportation. The City has an Access and Mobility Plan that identifies existing sidewalks and trails as well as future areas for planned connections[15].

IMPLEMENTATION STRATEGIES

- Integrate pedestrians' and cyclists' needs into street and neighborhood design processes.
- Ensure that bike and pedestrian infrastructure is present throughout Wildwood:
    - Ensure bike lanes are present and appropriately marked,
    - Install or require installation of bike racks at popular community destinations, at parks, the Wildwood municipal building, and throughout Town Center
    - Ensure that curb cuts are present
    - Implement "Complete Streets" designs

ENERGY SAVINGS, COST SAVINGS, AND EMISSIONS REDUCTIONS

AVERAGE ONE-WAY LENGTH OF AVOIDED TRIPS (MILES)		4 miles[16]	
AVERAGE FUEL ECONOMY (MILES PER GALLON)		23.8 miles per gallon	
WEEKLY TRIPS SWITCHING FROM CAR TO BIKE	***500***	***1,000***	***2,500***
TOTAL ESTIMATED ANNUAL FUEL SAVINGS (GALLONS)	8,740 gallons	17,479 gallons	43,697 gallons
TOTAL ESTIMATED ANNUAL COST SAVINGS	$23,072	$46,145	$115,361
TOTAL ESTIMATED ANNUAL EMISSIONS REDUCTIONS	70 mt CO_2e	139 mt CO_2e	348 mt CO_2e

PROMOTE RIDESHARING

When individuals rideshare, or carpool, they reduce traffic and congestion, cut fuel and vehicle maintenance costs, reduce air pollution, and reduce greenhouse gas emissions. The average travel time for St. Louis County commuters is 26.7 minutes, and 92.5% of St. Louis commuters reported that they drive to work alone[17]. Several ridesharing services exist in the St. Louis Region.

RIDESHARING SERVICES

- Ridefinders (ridefinders.org or (800) VIP-RIDE) is a free ride matching service that connects individuals with similar commutes, enabling them to form carpools or vanpools. Ridefinders offers a free guaranteed

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[15] "City of Wildwood Access and Mobility Plan- Executive Summary (2007)" City of Wildwood, accessed May 15th, 2013, http://www.cityofwildwood.com/egov/docs/1194279113_282409.pdf

[16] No data was available concerning the average trip distance of Wildwood residents. The four miles figure was provided by ICLEI's Clean Air and Pollution Planning Assistant (CAPPA) tool.

[17] US Census Bureau, *SO804, Means of Transportation to Work by Selected Characteristics for Workplace Geography, St. Louis County, Missouri*, (Washington, DC, 2011).

ride home program, and has a free program for K-12 schools that provides parents with a secure, online matching service to enable them to form carpools, walking school buses, or bike trains.

- MODOT's commuter lots provide places for commuters to meet, park, and carpool. (map: http://www.modot.org/services/Commuters/CommuterLotsMap.htm)
- A vanpool is a group of five or more riders who want to save time, money, and reduce stress as they commute to work. Vanpoolers typically meet in a common location and travel to work together, sharing gas and vehicle maintenance costs. Employers can promote this service to their employees, or individuals can form their own vanpool. Enterprise Ride Share offers vanpool packages for individuals. They estimate that vanpooling can cut commuting costs 50% to 75%. (https://www.enterpriserideshare.com/vanpool/en.html)

Potential Implementation Strategies

- Promote Ridesharing services on City website, in its newsletter, and at City events.
- Invite RideFinders to showcase their services at existing City events, at sustainability-themed City events, or carpooling and vanpooling workshops.

Energy Savings, Cost Savings, and Emissions Reductions			
Average one way commute length (miles)		9.8 miles[18]	
Number of One-Way Trips Avoided per Week	***100***	***500***	***1,000***
Total Estimated Fuel Savings (gallons)	4,282 gallons	21,412 gallons	42,824 gallons
Total Estimated Annual Cost Savings	$11,305	$56,527	$113,054
Total Estimated Annual Emissions Reductions	34 mt CO_2e	171 mt CO_2e	341 mt CO_2e

Reduce Idling

Idling contributes to air pollution, wastes fuel, and increases wear and tear on the vehicle engines. No-idling policies are a cost-effective way to improve air quality, conserve fuel, and save money. Policies can be implemented city-wide, in school zones, or at specific facilities.

Implementation Strategies:

- Designate, at a minimum, public facilities as "no-idling zones" and install signage communicating the new policy.
- Create a local no-idling initiative, encouraging local schools and businesses to create policies. Promote initiative at City events, on City website, in its newsletter, and on social media. Provide signage free or at cost to interested organizations.

Figure 3: No Idling Signage, Clean Air Partnership

Case Studies

- Clean Air St. Louis is a collaboration of the City of St. Louis, the American Lung Association, Grace Hill Settlement House, the St. Louis Regional Chamber, and the Partnership for Downtown St. Louis to improve health

[18] No data was available concerning the average commute distance of Wildwood residents. The 9.8 miles figure was provided by ICLEI's Clean Air and Pollution Planning Assistant (CAPPA) tool.

and air quality in the St. Louis region. Its current focus is a no idling initiative. Clean Air St. Louis partners agree to install signage at their place of business.

- Students at Rockwood's Center for Creative Learning petitioned their school board to ban idling at all district facilities, emphasizing the potential harmful health effects of ozone and poor air quality. Students surveyed drivers at the school and encouraged them to pledge to no longer idle their vehicles.

Energy Savings, Cost Savings, and Emissions Reductions			
(assumed reduced idling of passenger vehicles and light trucks by 5 minutes per day)			
Estimated Annual Fuel Savings per Vehicle		6.4 gallons	
Estimated Annual Cost Savings per Vehicle		$17	
Number Of Vehicles Participating	***1,000***	***2,500***	***5,000***
Total Estimated Annual Fuel Savings	6,360 gallons	15,900	31,800
Total Estimated Annual Cost Savings	$16,790	$41,976	$83,952
Total Estimated Annual Emissions Reductions	52 mt CO_2e	130 mt CO_2e	260 mt CO_2e

Promote Use of Transit

Metro Transit's #57 Maplewood-Wildwood Route connects Wildwood residents to jobs, services, and retail along Manchester Road (State Route 100). In addition, the #57 Route connects to the Maplewood-Manchester MetroLink Station, allowing passengers to easily connect with other forms of transit.

Route #410X Eureka Express collects riders from three MoDOT Park and Ride Lots and travels to Downtown St. Louis along I-44, connecting riders with multiple Metro Transit centers. The route operates eastbound in the morning and westbound in the evening.

Implementation Strategies:

- Promote use of transit in newsletter, on City website, through social media, and at City events
- Invite a Metro Transit speaker to present or work a booth at an existing City event, or host an event specifically to promote the use of transit.

Energy Savings, Cost Savings, and Emissions Reductions			
Average Trip Length		9.8 miles[19]	
Number Of Trips Switched to Transit Per Week	***50***	***100***	***250***
Total Estimated Fuel Reduction (gallons)	2,141 gallons	4,282 gallons	10,705 gallons
Total Estimated Annual Cost Savings[20] ($)	$5,653	$11,305	$28,263
Total Estimated Annual Emissions Reductions	17 mt CO_2e	34 mt CO_2e	85 mt CO_2e

[19] No data was available concerning the average commute distance of Wildwood residents. 9.8 miles figure was provided by ICLEI's Clean Air and Pollution Planning Assistant (CAPPA) tool.

[20] This figure accounts for community-wide cost savings from reduced fuel consumption. It does not include the cost of purchasing transit tickets.

Solid Waste

Continue to Promote Recycling

The City of Wildwood has already achieved remarkable results from its residential recycling program, as described in the *Recycling Success* Section. Wildwood experienced a 108% increase in residential recycling tonnage between 2007 and 2008. On top of its residential recycling success, the City holds several bulk recycling events every year, for everything from bikes to electronics to holiday lights. Additionally, the City is working to reduce waste and increase recycling at all of its community events.

Implementation Strategies:

- Continue to promote and educate residents about residential recycling
- Continue to hold large-scale recycling events- bicycle, electronics, shoe, and holiday light recycling, paper shredding, etc.

Energy Savings, Cost Savings, and Emissions Reductions
(assumed 200 additional pounds of waste diverted from landfill per household per year)

Number Of Households Engaged	500	1,000	2,000
Total Estimated Annual Waste Diverted from Landfill	100,000 pounds	200,000 pounds	400,000
Total Estimated Annual Emissions Reductions	63 mt CO_2e	126 mt CO_2e	252 mt CO_2e

Promote Residential and Commercial Composting

As organic waste decomposes in an anaerobic environment, such as a landfill, it produces methane, a greenhouse gas. In contrast, greenhouse gases emissions are avoided, when food and yard waste are composted. Additionally, compost improves soil quality and reduces the need for purchased chemical fertilizers.

Implementation Strategies:

- Promote residential composting by educating residents on composting techniques and benefits through City events, newsletter, social media, or website.
- Some municipalities sell composting systems to residents at cost or at subsidized levels

Case Studies

- St. Louis County and St. Louis City both have websites devoted to home composting techniques:
  - http://www.stlouisco.com/HealthandWellness/RecyclingandSolidWaste/OrganicsandComposting/ResidentialComposting
  - http://stlouis-mo.gov/government/departments/street/refuse/recycle/howtocompost.cfm
- Mason County, Washington, the Olympic Region Clean Air Agency, and the Washington State Department of Natural Resources partnered to provide free compost bins to residents in exchange for burn barrels. This program reduced the threat of wildfires, improved air quality, and provides recipients with an opportunity to create compost for their yards and gardens.

Energy Savings, Cost Savings, and Emissions Reductions
(assumed 500 pounds of waste diverted from landfill per household per year)

Number Of Households Participating	1,000	2,000	4,000
Total Estimated Annual Waste Diverted from Landfill	500,000 pounds	1,000,000 pounds	2,000,000 pounds
Total Estimated Annual Emissions Reductions	39 mt CO_2e	78 mt CO_2e	157

Local Government Operations Strategies

Local Government Greenhouse Gas Inventory

Greenhouse gas emissions associated with the City's local government operations totaled 1,426 mt CO_2e in 2010, with emissions from contracted services such as residential waste hauling (52%) and police vehicle fleet (18%), and local government buildings and facilities (14%) comprising the largest sectors of the inventory[21]. The inventory estimated the City's emissions in 2010, before the Wildwood City Hall was completed, and the move's effects on the City's GHG emissions inventory are, as of yet, unknown.

Unlike the community inventory, where future growth of GHG emissions was estimated using growth in City population, changes in local government greenhouse gas emissions over time will be impacted most by changes in City operations, especially those activities that create new sources of energy or fuel consumption. For instance, additional facilities, public lighting, or contracted services could potentially increase energy and fuel consumption and contribute to the growth of the City's greenhouse gas emissions. Planning for energy and fuel conservation from the beginning of any new project can lead to significant resource conservation and cost reduction.

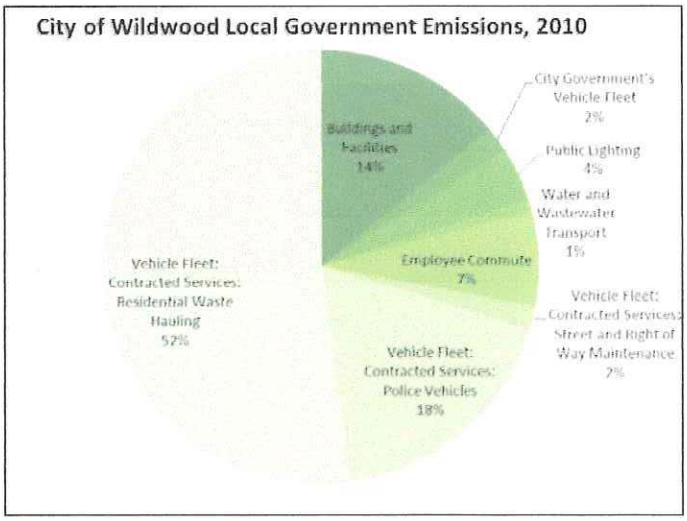


Figure 4: City of Wildwood Local Government Emissions, 2010

Because the potential impacts on local government greenhouse gas emissions are varied and difficult to predict, no emissions projection was included for that portion of the inventory. It is assumed for the purposes of this inventory that without significant operational changes the City's GHG emissions, excluding the buildings and facilities sector, will remain at 2010 levels until 2020.

[21] A more in depth analysis of the City's greenhouse gas emissions, including a comparison between the City of Wildwood and other local municipalities is included in *The City of Wildwood, Missouri 2010 Greenhouse Gas Emissions Inventory.*

Ofner, Johanna. *The City of Wildwood, Missouri 2010 Greenhouse Gas Emissions Inventory* (Wildwood, 2013), http://www.cityofwildwood.com/egov/docs/1364230971_755676.pdf

Community-Wide Emissions Reduction Targets

10% reduction from 2010 levels by 2020

Emissions Reduction Target	Projected Emissions Level in 2020 (mt CO_2e)	Targeted Emissions Level (mt CO_2e)	Reductions From Projected GHG Levels to Meet Target (mt CO_2e)
10% reduction by 2020	1,226 mt CO_2e[22]	1,104 mt CO_2e	122 mt CO_2e

Strategies to Implement by 2020 to Achieve 10% emissions Reduction

Buildings And Facilities

Operate Municipal Facility To Optimize Energy Efficient Design
Use Green Building Techniques In Any Future Construction

Administrative Strategies

Participate in the St. Louis Green Business Challenge

City Government Fleet

Strategy	Fuel consumption reduced (gallons)	Estimated Cost Savings ($)	Estimated GHG Emissions Reduced (mt CO_2e)
Choose Fuel Efficient Vehicles at Vehicle Replacement	1,484	$4,052	12
Follow Proper Maintenance Schedules	138	$378	1.1
Use Fuel Efficient Driving Habits	156	$472	1.4
Transportation Total	1,778	$4,902	14.5

Street and Park Lighting

Strategy	Estimated Electricity Savings (kWh)	Estimated Cost Savings ($)	Estimated GHG Emissions Reduced (mt CO_2e)
Switch to LED or High Efficiency Fixtures at Replacement or During New Construction	11,241	$796	5.1
Street and Park Lighting Total	11,241	$796	5.1

Contracted Services

Strategy	Estimated GHG Emissions Reduced (mt CO_2e)
Incorporate Fuel Conservation Measures into Future Contracts	51.3
Reduce Idling	51.3
Contracted Services Total	102.6
Emissions Reductions Total	122.2

[22] The buildings and facilities sector was not included in the target emissions level or projected emissions level.

Buildings and Facilities

As discussed above, the GHG emissions from the City's buildings and facilities will be affected by the move to the City's City Hall however the extent of the impact is unknown. For this reason, though the following strategies for conserving energy in the City's buildings and facilities were included in this report, no estimates of the amounts of energy conserved or corresponding potential emissions reduction could be completed.

Operate Municipal Facility to Optimize Energy Efficient Design

As a LEED certified building, the Wildwood City Hall was designed to operate efficiently. Correctly utilizing the sustainable systems included in the building's design and regularly performing building commissioning to ensure these systems are functioning correctly is the best way to ensure that the facility operates as efficiently as possible.

Implementation Strategies:

- Continue to utilize ENERGY STAR's Portfolio Manager tool to track energy consumption. Sudden changes in energy consumption could alert the City to needs for maintenance and opportunities for greater efficiency.
- Continue to utilize the facility's occupancy, temperature, and light sensors to control building systems. Overriding these systems could potentially increase energy consumption.
- Regularly perform building commissioning to ensure that HVAC and lighting systems are performing as efficiently as possible.
- Educate employees on strategies that will contribute to energy savings, such as turning off computers and monitors each night, unplugging electronics when not in use, and eliminating the use of personal space heaters.

Case Studies and Resources:

- ENERGY STAR's Low Carbon IT Campaign (http://www.energystar.gov/index.cfm?c=power_mgt.pr_power_mgt_low_carbon)
- ENERGY STAR's Bring Your Green to Work Campaign http://www.energystar.gov/index.cfm?fuseaction=bygtw.showSplash
- Members of the Energy Conservation Team at Scott Air Force Base, which pays about $600,000 each month in utility costs, created small stickers for the base's computers, monitors, light switches, and other office electronics. Shaped like a penny, these stickers communicated the cost associated with operating each device. http://www.amc.af.mil/news/story.asp?id=123252646

Use Green Building Techniques in Any Future Construction

Compared with the Cities of Creve Coeur, Richmond Heights, and Clayton, the City of Wildwood created significantly lower levels of local government GHG emissions, especially in the buildings and facilities sector. One potential explanation for this difference in emissions levels is Wildwood's lack of any large recreational facility. 38% of Creve Coeur's emissions are the result of its ice arena, and approximately half of Richmond Heights's electricity and natural gas consumption are the result of The Heights, its recreation center. The City of Clayton's inventory contains limited information about the buildings in operation in 2006, the year of inventory, but it currently operates a both recreational facility and an aquatic center.

The City of Wildwood can limit growth of the buildings and facilities sector of its greenhouse gas inventory by using green building techniques in any future construction. Use of LEED or the Living Building Challenge can ensure that new facilities are designed as efficiently as possible. The City's recently completed City Hall is an excellent example of using sustainable design to minimize the environmental impacts of new construction.

Implementation Strategies:

- Use green building techniques in any future construction. Follow guidance of LEED or the Living Building Challenge to ensure that facilities are designed and constructed to minimize energy consumption and environmental impacts.

Administrative Strategies

Participate in the St. Louis Green Business Challenge or the Sustainable Business Advantage Program

As mentioned previously, the St. Louis Green Business Challenge was developed by the St. Louis Regional Chamber to assist companies and organizations adopt sustainable business practices that can reduce environmental impacts, conserve resources, and reduce greenhouse gas emissions. The challenge includes many aspects of sustainability, such as organizational green teams, internal and external sustainability communication, sustainable purchasing policies, energy conservation, internal environmental quality, solid waste and recycling, water conservation, and workplace commuting.

Implementation Strategies

- Promote the St. Louis Green business Challenge among Wildwood businesses
- Participate in the St. Louis Green Business Challenge or the Sustainable Business Advantage Program. Use resources provided by the Green Business Challenge to support a Citizen Sustainability Commission, if formed, and the development and implementation of green business practices.

Case Studies

- See the Case Studies listed in the *Promote the St. Louis Green Business Challenge* section on page 15 and 16.

City Government Vehicle Fleet

Choose Fuel Efficient Vehicles at Vehicle Replacement

Updated federal fuel efficiency standards issued in 2012 increased the minimum average fuel efficiencies from the current 29 miles per gallon to 54.5 miles per gallon in 2025. In 2020, the minimum fuel efficiency for passenger vehicles will be 36 miles per gallon, for small light trucks it will be 29 miles per gallon, and for large light trucks it will be 19 miles per gallon. Because of the increasing fuel efficiency standards for new vehicles, choosing a fuel efficient vehicle, when replacing aging vehicles, has the potential to create significant cost savings.

Energy Savings, Cost Savings, and Emissions Reductions *(Assumed a 40% increase in fuel efficiency in each replaced vehicle)*			
Vehicles Replaced	***1***	***3***	***5***
Total Estimated Fleet Fuel Efficiency Improvement	8.6%	25.7%	42.9%

TOTAL ESTIMATED FUEL CONSERVED	298 gallons	889 gallons	1,484 gallons
TOTAL ESTIMATED COST SAVINGS(ASSUMED $2.76 PER GALLON)	$812	$2,428	$4,052
TOTAL ESTIMATED EMISSIONS REDUCED	2 mt CO_2e	7 mt CO_2e	12 mt CO_2e

FOLLOW PROPER MAINTENANCE SCHEDULES

Keeping engines properly tuned, ensuring that tires are properly inflated, and using the recommended grade of motor oil can improve vehicle fuel efficiency by 4%[23]. Implementing these changes in Wildwood could potentially save fuel and money, while reducing greenhouse gas emissions.

ENERGY SAVINGS, COST SAVINGS, AND EMISSIONS REDUCTIONS *(Assumed a 4% increase in fuel efficiency if maintenance schedules are ensured)*	
TOTAL ESTIMATED FLEET FUEL EFFICIENCY IMPROVEMENT	4%
TOTAL ESTIMATED FUEL CONSERVED (GALLONS)	138 gallons
TOTAL ESTIMATED COST SAVINGS(ASSUMED $2.76 PER GALLON)	$378
TOTAL ESTIMATED EMISSIONS REDUCED (MT CO_2E)	1.1 mt CO_2e

USE FUEL EFFICIENT DRIVING HABITS

Aggressive driving habits, such as speeding, rapid acceleration, and rapid braking, can lower gas mileage by 5% in the city and by 33% on the highway. Fuel efficiency decreases rapidly above 50 miles per hour; observing the speed limit can significantly reduce fuel consumption. Additionally, reducing excess weight in the vehicle can improve fuel efficiency[24]. The City of St. Louis installed devices in its fleet vehicles that monitor rapid acceleration and idling, which provides the driver with immediate feedback on methods to conserve fuel.

ENERGY SAVINGS, COST SAVINGS, AND EMISSIONS REDUCTIONS *(Assumed a 5% increase in fuel efficiency)*	
TOTAL ESTIMATED FLEET FUEL EFFICIENCY IMPROVEMENT	5%
TOTAL ESTIMATED FUEL CONSERVED (GALLONS)	156 gallons
TOTAL ESTIMATED COST SAVINGS(ASSUMED $2.76 PER GALLON)	$472
TOTAL ESTIMATED EMISSIONS REDUCED (MT CO_2E)	1.4 mt CO_2e

[23] :"Keeping Your Car In Shape," U.S. Department of Energy, accessed April 2, 2013, http://www.fueleconomy.gov/feg/maintain.shtml

[24] "Driving More Efficiently," U.S. Department of Energy, accessed April 2, 2013, http://www.fueleconomy.gov/feg/drivehabits.shtml

Street and Park Lighting

Choose High Efficiency Fixtures At Replacement Or During New Construction

Residential streetlights within the City of Wildwood are owned and maintained by Ameren, Missouri, as is typical for the St. Louis Metropolitan Area. Streetlights in the Town Center are owned and maintained by the City of Wildwood. Installing high efficiency fixtures at the time of replacement could potentially save energy and reduce costs. Choosing high efficiency streetlights in new construction would also contribute to energy and cost savings.

Implementation Strategies:

- Choose high efficiency fixtures to replace existing street lights, park lights, and traffic signals at end of fixture life.
- Choose high efficiency fixtures in new construction.

Case Studies and Resources:

- Cape Girardeau replaced 104 high-pressure sodium street lights and 21 intersection and rail signals with LED fixtures, funded by an Energy Efficiency and Conservation Block Grant (EECBG). The City estimates that it will save 70,000 kWh of electricity and reduce maintenance needs as well[25].

Energy Savings, Cost Savings, and Emissions Reductions *(Assumed a 15% increase in street light efficiency by 2020)*	
Total Streetlight, Traffic Signal, and Park Lighting Electricity Consumption, 2010	74,937 kWh
Total Estimated Annual Electricity Conserved (kWh)	11,241 kWh
Total Estimated Annual Cost Savings	$796
Total Estimated Annual Emissions Reduced (mt CO_2e)	5.1

Contracted Services

Incorporate Fuel Conservation Measures Into Future Contracts

Including fuel conservation strategies in future contracts could reduce emissions associated with contracted services. Contracts could potentially include language encouraging a target level of fuel efficiency, proper maintenance, and fuel-efficient driving habits. Due to a lack of detailed data on contractor's vehicles, this report assumed that including this language would cause a 5% reduction in emissions from contracted services.

[25] "Historic Missouri City Takes Progressive Approach to Lighting" Dialight, accessed April 10th, 2013, http://www.dialight.com/News/Details/Cape_Girardeau_Case_Study

Energy Savings, Cost Savings, and Emissions Reductions *(Assumed a 5% increase in fuel efficiency)*	
Estimated Fleet Fuel Efficiency Improvement	5%
Total Estimated Emissions Reduced (mt CO_2e)	51.3 mt CO_2e

Reduce Idling

Idling vehicles contribute to air pollution, waste fuel, and increase wear and tear on the vehicle's engine. Reducing idling of contractor's vehicles will reduce greenhouse gas emissions, conserve fuel, and save money. Due to a lack of detailed data on contractor's vehicles, this report assumed that reduced idling would cause a 5% reduction in emissions from contracted services.

Energy Savings, Cost Savings, and Emissions Reductions *(Assumed a 5% increase in fuel efficiency)*	
Total Estimated Fleet Fuel Efficiency Improvement	5%
Total Estimated Emissions Reduced (mt CO_2e)	51.3 mt CO_2e

Appendix A: List of Acronyms And Abbreviations

CAP	criteria air pollutant
CO_2	Carbon Dioxide
CH_4	Methane
EPA	US Environmental Protection Agency
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
ICLEI	Local Governments for Sustainability
IPCC	Intergovernmental Panel on Climate Change
kWh	kilowatt hour
mt CO_2e	metric tons of Carbon Dioxide equivalent
MSD	Metropolitan St. Louis Sewer District
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
N_2O	Nitrous Oxide
PFC	Perfluorocarbon
SF_6	Sulfur Hexafluoride
USGCRP	U.S. Global Change Research Program
VMT	Vehicle Miles Traveled
WWTP	Wastewater Treatment Plant

CITY OF WILDWOOD
POLLUTION REDUCTION PLAN

Johanna Ofner
Climate Action Intern
U.S. Green Building Council, Missouri Gateway Chapter

FOCUS ST. LOUIS ROADMAP

1. Commit to Action
2. Assess the Situation
3. Make Plans
4. Implement
5. Measure and Celebrate Success

FOCUS ST. LOUIS ROADMAP

1. Commit to Action
2. Assess the Situation
3. **Make Plans**
4. Implement
5. Measure and Celebrate Success

POLLUTION REDUCTION SUCCESS

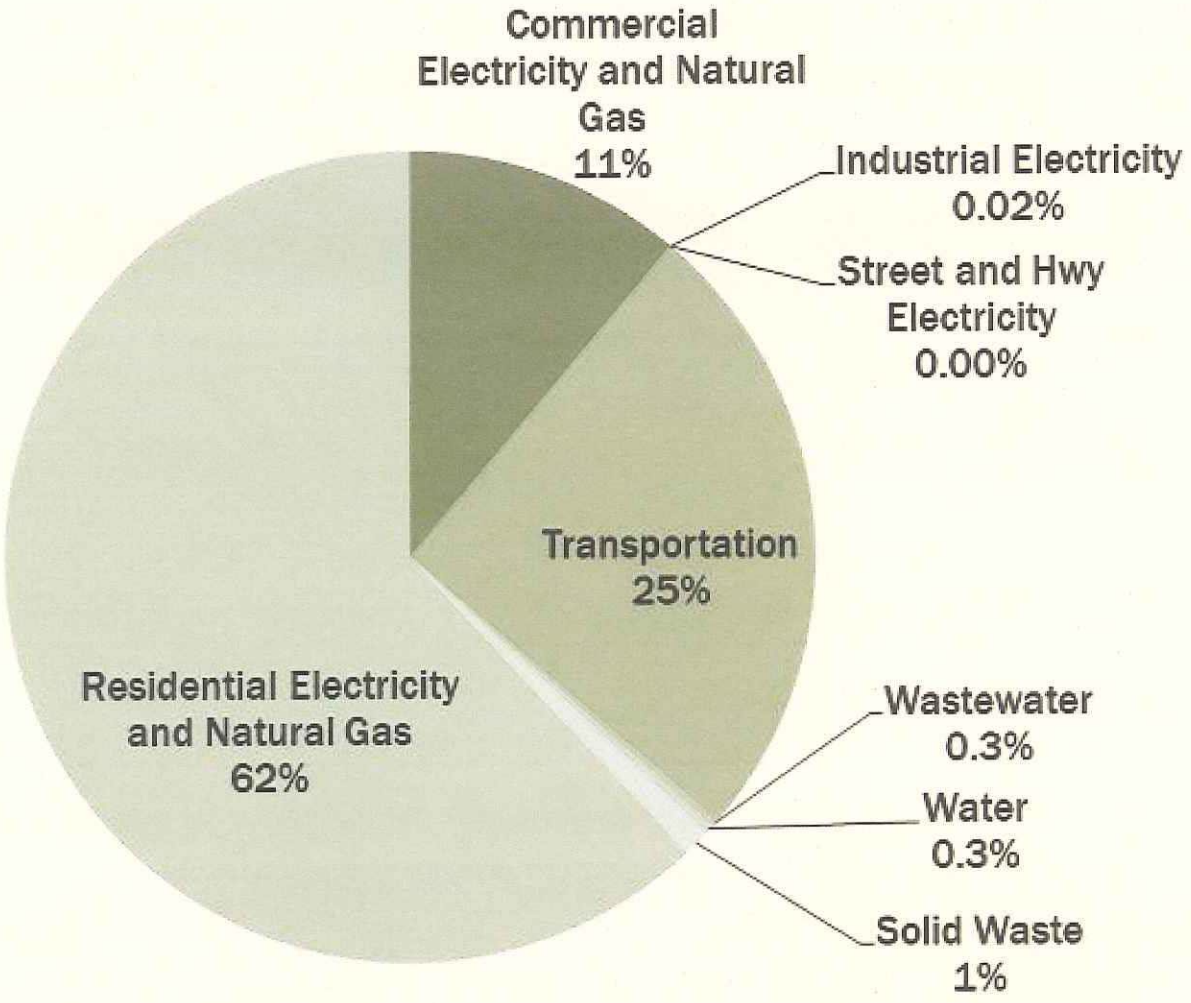
- Comprehensive Master Planning and New Urbanism
- Providing and Protecting Open Space
- Active Lifestyles and Multimodal Transportation
- Recycling Success

COMMUNITY-WIDE GREENHOUSE GAS INVENTORY

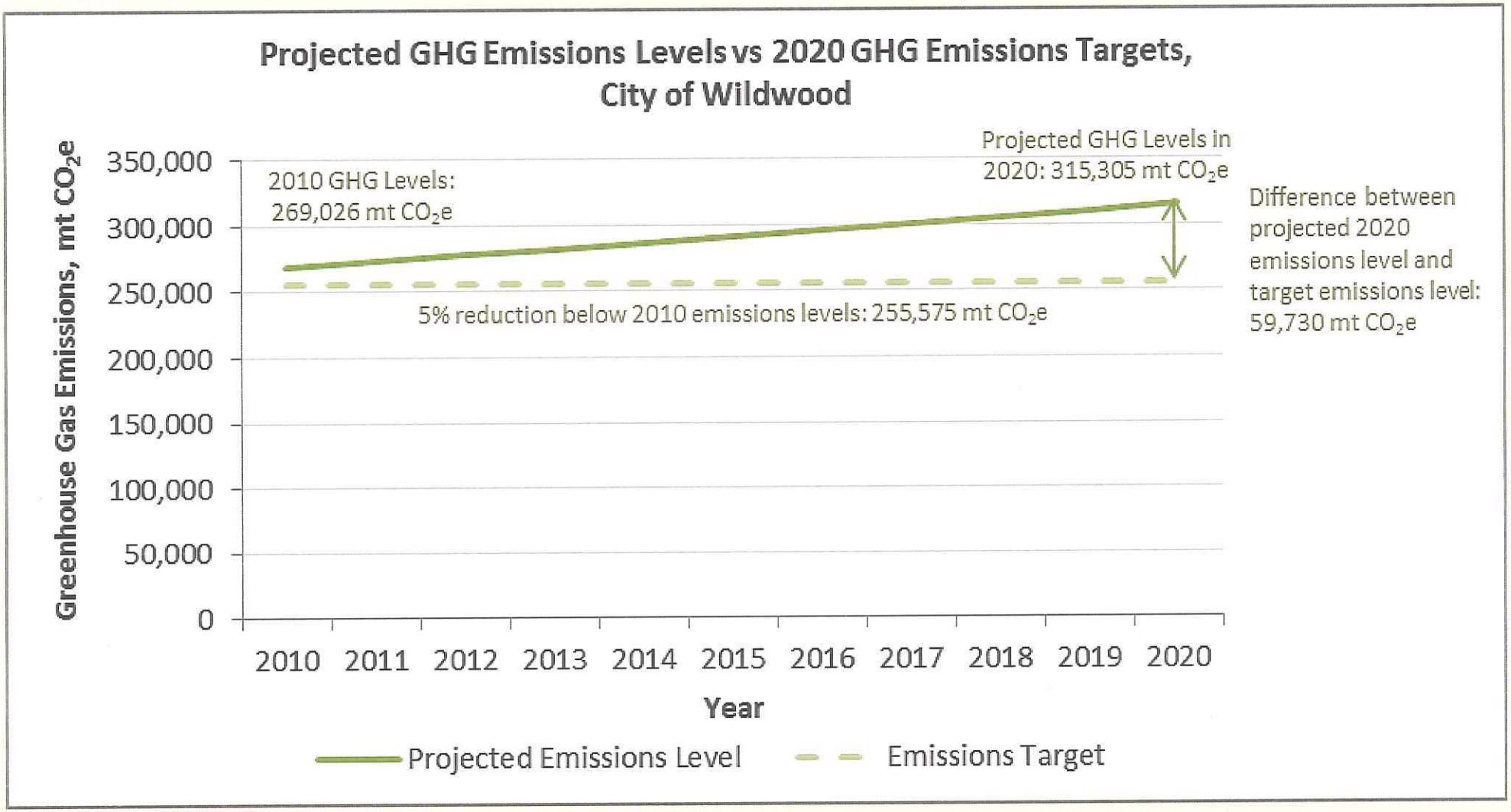
2010

COMMUNITY-WIDE INVENTORY

City of Wildwood Community-Wide Emissions, 2010



REDUCING GREENHOUSE GASES



POTENTIAL POLLUTION REDUCTION STRATEGIES

- Overarching Strategies
- Residential and Commercial Energy Conservation
- Transportation
- Solid Waste Reduction

OVERARCHING STRATEGIES

- Already Occurring:
  - Continue to Preserve Existing Tree Cover
  - Continue to Implement New Urbanist Development Strategies
  - Encourage Multimodal Transportation

OVERARCHING STRATEGIES

- Create a Citizen Sustainability Commission
- Periodically Inventory GHG Emissions.

RESIDENTIAL AND COMMERCIAL ENERGY USE

- Promote Existing Energy Conservation Initiatives
  - St. Louis SAVES
  - Personal Income Tax Deductions
  - Utility Rebates
  - "Change the World, Start with ENERGY STAR"
- Promote Low Cost Energy Improvements
- Promote the St. Louis Green Business Challenge
- Promote the Production or Purchase of Green Power

TRANSPORTATION

- Promote Multimodal Transportation
  - Biking and Walking
  - Ridesharing
  - Transit
- Reduce Idling

SOLID WASTE

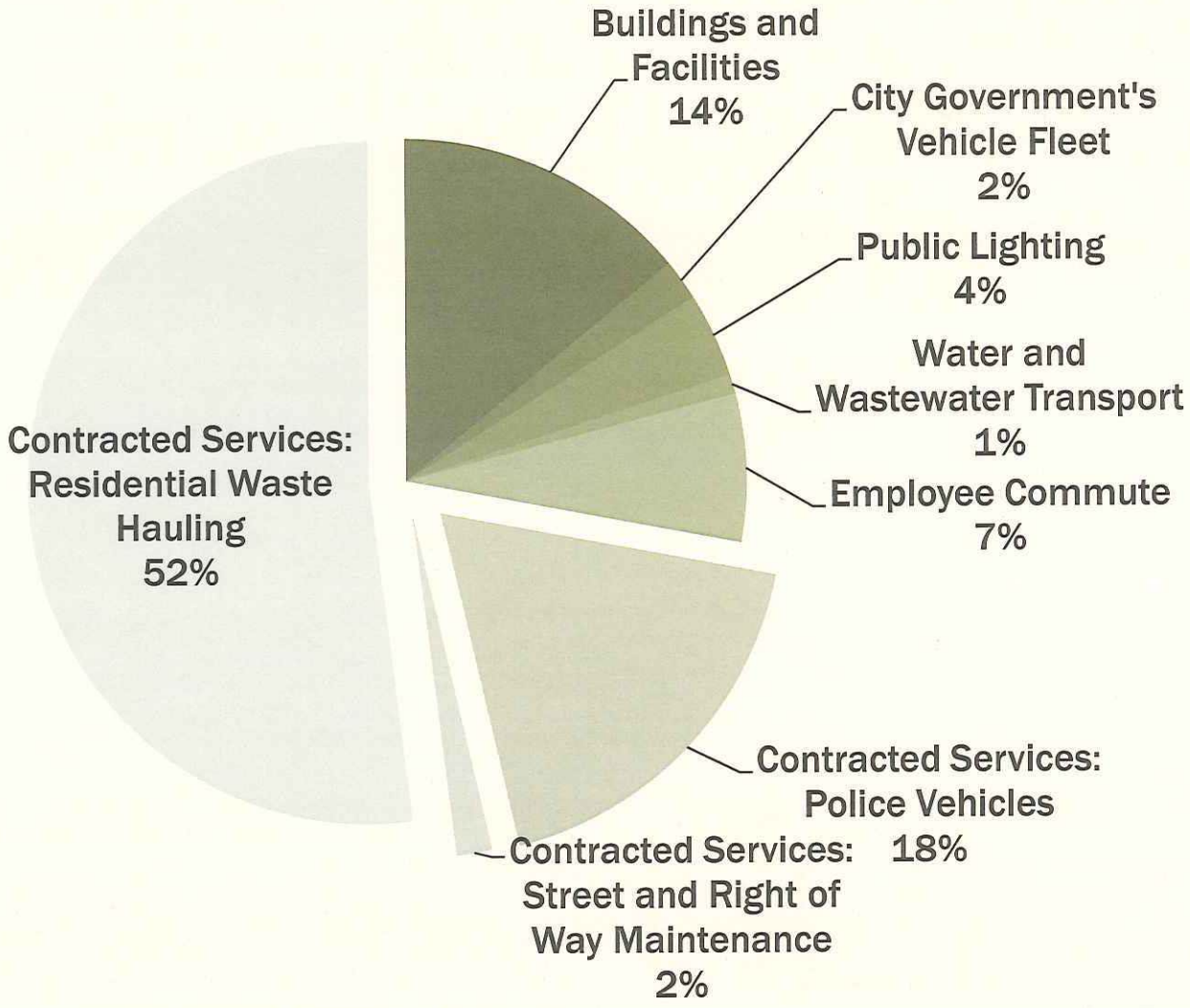
- Continue to promote and support recycling
- Promote residential and commercial composting

LOCAL GOVERNMENT GHG INVENTORY

2010

LOCAL GOVERNMENT INVENTORY

2010 Local Government Greenhouse Gas Emissions by Sector



BUILDING AND FACILITIES

- Operate City Hall to optimize energy efficient design
- Use Green Building techniques in any further construction
- Participate in the St. Louis Green Business Challenge

CITY GOVERNMENT VEHICLE FLEET

- Choose Fuel Efficient Vehicles at Vehicle Replacement
- Follow proper maintenance schedules
- Use fuel-efficient driving habits

- Street and Park Lighting
  - Choose High Efficiency Fixtures At Replacement Or During New Construction
- Contracted Services
  - Incorporate Fuel Conservation Measures into Future Contracts

CONCLUSIONS

- The Pollution Reduction Plan offers a menu of pollution reduction strategies for potential implementation
- Often the implementation of these strategies can conserve resources in the long run, saving Wildwood residents and businesses money.
- A Sustainability Commission or Citizen Green Team could assist the City to prioritize and select strategies for implementation.

QUESTIONS?