The City of St. Louis Climate Protection Initiative

Catherine L. Werner, Sustainability Director

April 2, 2019

ST LOUIS
Historically & Dynamically
SUSTAINABLE

City of St. Louis Sustainability Mission Statement:

The City of St. Louis harnesses the strength and spirit of its diverse community to create an economically, socially and ecologically vibrant City for present and future generations - one that dynamically serves those who live, work, and play in the City's rich and celebrated historic landscape.

City of St. Louis Sustainability Plan & Action Agenda

Sustainability Action Agenda

PRIORITY SUSTAINABILITY PLAN ITEMS

FOR CITY IMPLEMENTATION BY 2018

Urban Character, Vitality & Ecology

- Create a **sustainability resource toolkit for neighborhoods**
- Make LRA land available at no cost for **smart, productive, creative re-use of the land**
- Provide easy access to **greenspace, trails or parks** within a half mile or 10 minute walk
- Increase number of **trees planted** by 16,000, or 15%

Arts, Culture & Innovation

- Promote sustainability practices at all **public arts and cultural events**
- Build Phase II of CORTEX **bioscience and technology research** district
- **Advance use of public transit**, trolleys and streetcars to connect arts, culture and

Empowerment, Diversity & Equity

- **Employ 500 youth** in annual summer job program
- Form a **Mayor's Community Council for Sustainability Implementation**
- Implement Board Bill 297 pertaining to **workforce inclusion**
- Maintain our **premier Municipal Equality Index** rating for LGBTQ

Health, Well-Being & Safety

- **Decrease obesity** by 5% through our Small Changes for Health, Let's Move STL and
- **Reduce crime** by 25%
- **End chronic homelessness**

Infrastructure, Facilities & Transport

- Advocate for transportation plans and funding that allow more **people to be less ca**
- Support **Citywide greenhouse gas emission reductions** of 25% by 2020 and 80
- Achieve a 6% **reduction in fuel use** in City fleet and expand use of alternative fuels
- Increase number of dedicated **bicycle lanes** by 150% and shared road facilities by 35
- **Increase bike racks** by 150%
- Have **single stream recycling** facilities for 100% of City government buildings and **recycling** to 20% participation
- **Reduce** City government **use of water** by 10%
- Use **green custodial cleaning** supplies in 100% of City government facilities

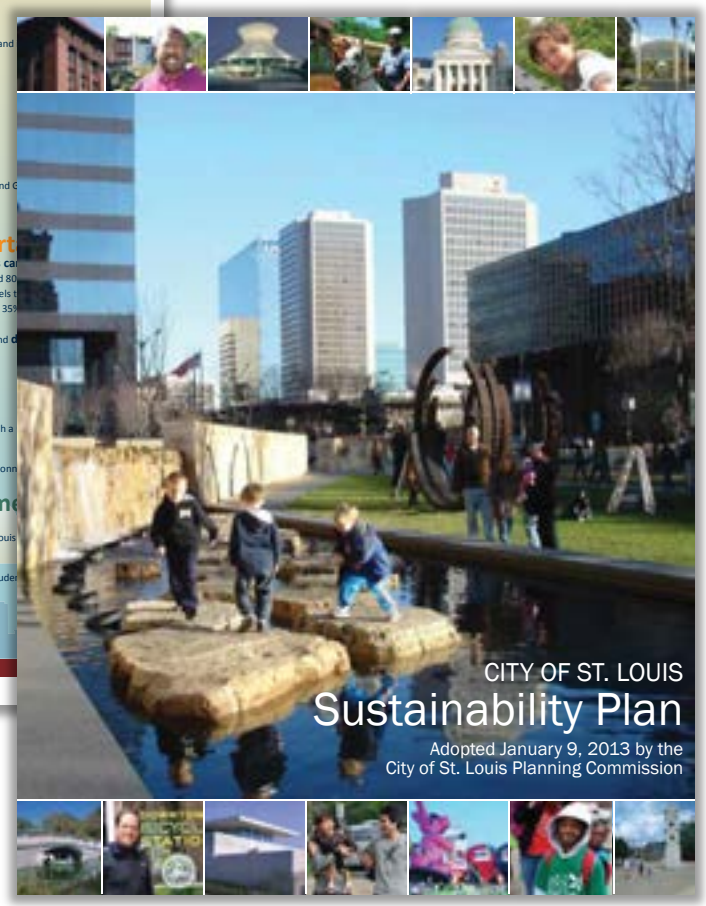
Education, Training & Leadership

- Create an Office of Sustainability in which the City's Sustainability Director works with a to implement and track the City's sustainability initiatives
- Open 20 additional **quality public charter schools**
- Double the current eco-literacy rate by launching a program to foster an enhanced conn **people and urban natural resources**

Prosperity, Opportunity & Employme

- Require a **sustainability impact statement** for all new City development
- **Create** at least 8,500 **new jobs** at Ballpark Village, CORTEX, Carondelet Coke, St. Louis Ammunition Plant, and North Riverfront
- **Remediate** and prepare at least 40 vacant properties **for redevelopment**
- Create an **urban forestry employment training program** for high school studen

http://stlouis-mo.gov/sustainability



Urban Character, Vitality & Ecology

Arts, Culture & Innovation

Empowerment, Diversity & Equity

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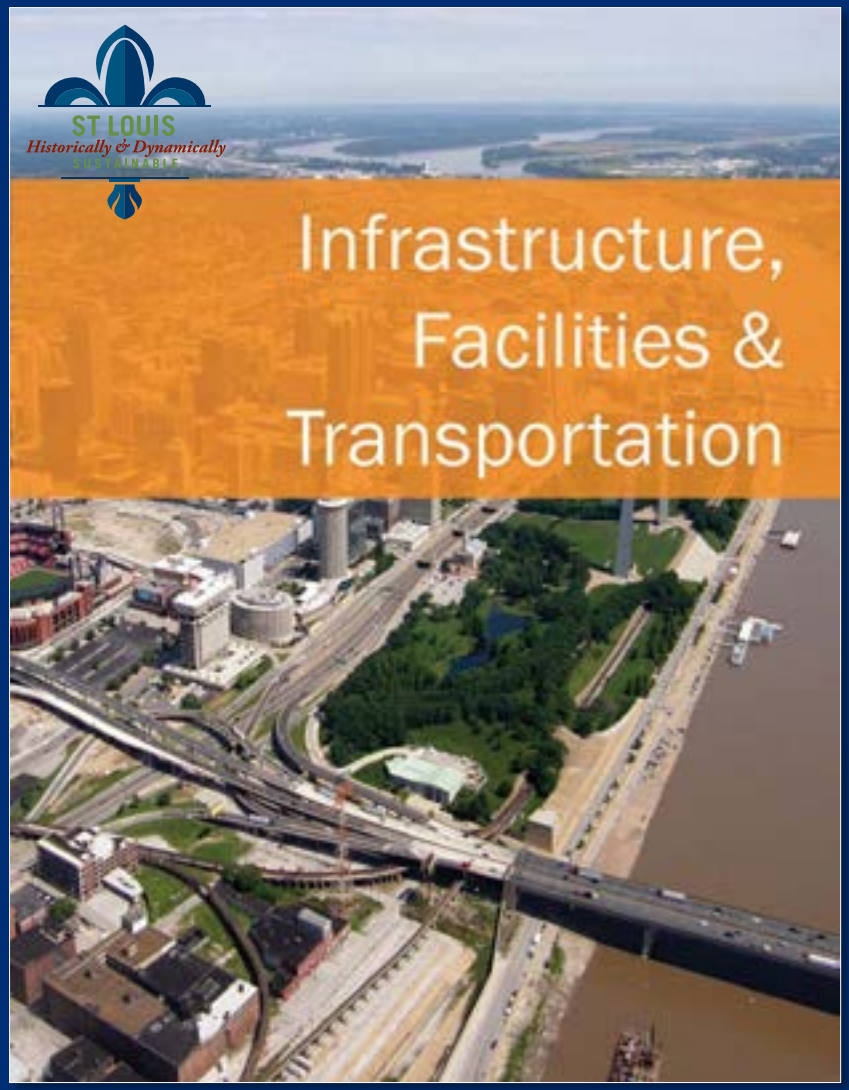
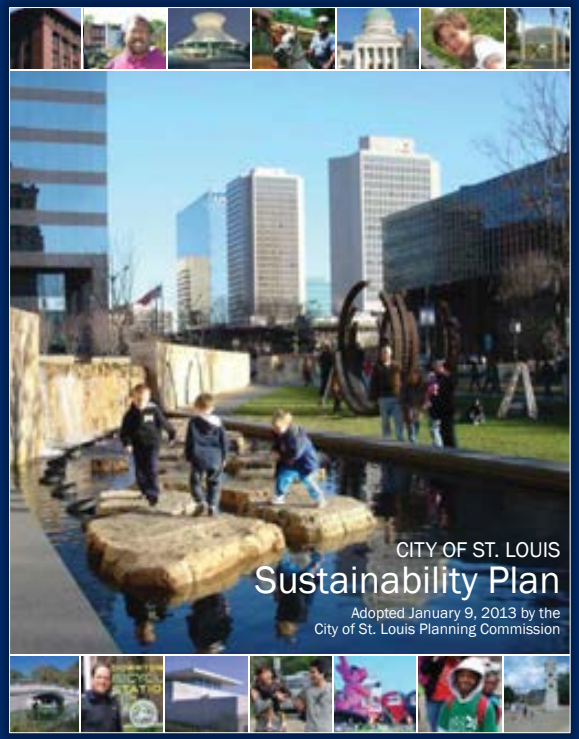
THE COMMON SEAL OF THE CITY OF ST. LOUIS



Objective: **Promote Energy Efficiency and Utilize Cleaner Forms of Energy**

Strategy: **Upgrade streetlights with energy efficient bulbs**



www.stlouis-mo.gov/sustainability

CITY OF ST. LOUIS CLIMATE PROTECTION INITIATIVE

HOW DID WE GET HERE?

There are numerous City climate protection plans, projects and initiatives that are helping make St. Louis a cleaner, healthier, greener and more sustainable place to live, work, learn and play. This infographic outlines the history and goals of the Climate Protection Initiative.

EECBG

2009: An Energy Efficiency and Conservation Block Grant (EECBG) of $3.7 million was awarded to the City of St. Louis to be used for energy efficiency activities. Funds were used to start Set the PACE St. Louis, the Energy Saving St. Louis CFL distribution program, and to pilot LED street lights.

Sustainability Plan

2013: The City of St. Louis Sustainability Plan was formally adopted by the City's Planning Commission. This triple bottom line Plan was developed with input from hundreds of citizens, community groups and City department representatives, charting a sustainable course forward for the City.

City Energy Project

2016: St. Louis received a national award from The City Energy Project. This award led to the creation of the City's energy benchmarking ordinance and program. Studies show benchmarking is an effective driver of behavioral, operational and capital improvements to building energy performance.

Climate Action & Adaptation Plan

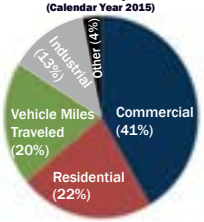
2017: The Climate Action and Adaptation Plan was developed by the Office of Sustainability. This document takes the Sustainability Plan to the next stage, detailing strategies that will be required to achieve the City's Greenhouse Gas (GHG) reduction target.

Climate Vulnerability Assessment

2018: Several health, safety, resilience and sustainability professionals collaborated in creating this document, which takes a closer look at the ways in which climate change is likely to impact vulnerable populations in St. Louis.

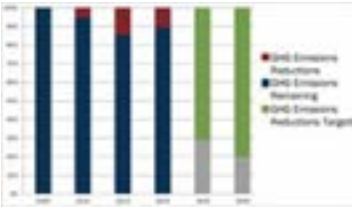
WHERE ARE WE NOW ?

City of St. Louis Community GHG Emissions by Source (Calendar Year 2015)



WHERE DO WE WANT TO GO?

City of St. Louis Community GHG Emissions Reduction Trends and Target Reduction Levels



HOW CAN WE GET THERE?

City of St. Louis The Climate Action & Adaptation Plan

This plan describes objectives, strategies and actions needed to achieve the 80% reduction target. The objectives are divided into two goals: mitigation and adaptation.

ADAPTATION

Preserve & Enhance the Natural Environment
- Improve & Restore Natural Systems for Changed Conditions

Maximize Preparedness Efforts
- Protect People From Temperature Extremes
- Create a Healthy & Cool Built Environment
- Reduce Flood Impact & Risk

Protect Human Health & Safety
- Prepare for Natural Disaster

MITIGATION

Build an Energy Efficient City
- Measure Progress & Equity in Climate Action Planning
- Retrofit & Renovate Existing Built Environment for Energy Savings
- Make Green Building the Standard Practice
- Make Energy Efficiency Measures Affordable

Create Equitable Access to Inter-Modal Transportation
- Integrate Land Use & Transportation for Healthy Compact Development
- Reduce Congestion & Vehicle Emissions
- Support Alternative Fuel Vehicles
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Support Community Well Being
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Protect Natural Resources & Greenspaces
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Accelerate Clean Renewable Energy
- Provide Cleaner More Efficient Energy Sources
- Advance Community Scale Renewable Energy Options

American Cities Climate Challenge (ACCC)

In 2018, the City was awarded an unprecedented opportunity by Bloomberg Philanthropies, to significantly deepen and accelerate efforts to tackle climate change and promote a sustainable future for residents.

The City will be focusing its ACCC work on buildings and transportation strategies, including advancing building energy efficiency, and promoting greater use of solar energy and electric vehicles.

THE ST. LOUIS CLIMATE HANDPRINT

ST. LOUIS CLIMATE HANDPRINT

The St. Louis Climate Handprint focuses on the ways individuals can positively impact the environment through climate actions, at home and at work. The Cimate Handprint recommends a range of "good, better and best" strategies for each of the mitigation objectives in the Climate Action & Adaptation Plan. Listed below are some examples:

Take Climate Action at Home:
- Conduct a home energy audit.
- Install a solar water heater.
- Compost your food and yard waste.
- Install a low-flow showerhead.

Take Climate Action at Work:
- Set personal computers and laptops to an "Energy Saver" mode with timed screensavers and automatic brightness controls.
- Participate in the St. Louis Green Business Challenge.
- Go paperless using electronic recording keeping and electronic billling.

To learn more about the St. Louis Climate Handprint, visit : **stlouis-mo.gov/sustainability**

CREDITS & MORE INFORMATION

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For more information on the Climate Protection Initiative visit:
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Energy Saving Saint Louis 2011 CFL Distribution

Energy Saving Saint Louis 2011 CFL Distribution

- **100,000 CFLs were distributed across the City of St. Louis to more than 25,000 households in 11 different wards.**
- **GHG Emission Reduction: Total energy savings are projected to be 10,000,000 kWh, with an annual savings of 4,648,723 kWh.**
- **By switching to CFLs, residents save $30 in electricity costs over the lifetime of each bulb, because they are 75% more energy efficient and last up to 10 times longer.**
- **Additionally, CFLs produce 75% less heat, which can cut costs associated with home cooling and makes it safer to operate.**

Ward	Estimated # Households	Households distributed	# CFLs Distributed
22	6,900	5,100	20,400
2	4,500	500	2,000
19	5,331	500	2,200
5	4,500	100	400
21	3,500	200	200
20	5,331	5,000	20,000
9	6,000	1,000	4,000
6	3,581	2,000	8,000
7	3,589	2,200	8,800
26	3,000	3,000	12,000
23	5,000	4,500	18,048
Total		**24,100**	**96,048**

✓ **Annual energy cost savings to residents projected to be nearly $450,000.**

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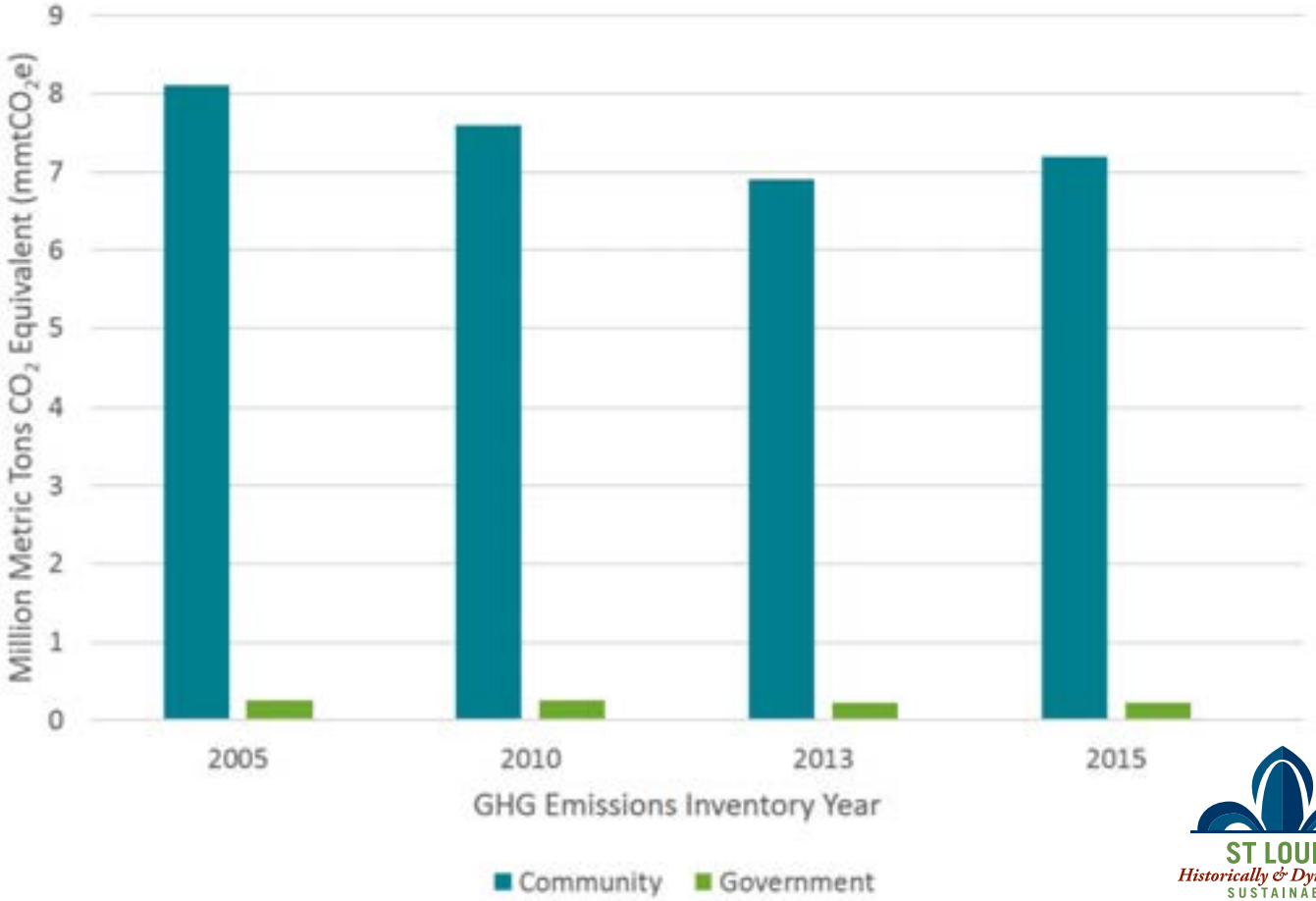
THE COMMON SEAL OF THE CITY OF ST. LOUIS

City of St. Louis
GHG Emissions Reduction Trends 2005-2015



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COP 21 - Global Covenant of Mayors for Climate & Energy

The Compact of Mayors

The Compact of Mayors (COM) is an international effort encouraging mayors to pledge to take action in support of climate protection. Basic elements are to measure and track greenhouse gas emissions, and plan to adapt to changing climate conditions and impacts. There are four phases that a city agrees to complete, and the progress is posted on the COM website. The COM is a project of CDP, Bloomberg Philanthropies and others. President Obama requested at least 100 mayors sign the COM in advance of the 2015 United Nations Climate of Parties (COP21) international climate negotiations in Paris. Mayor Slay signed on to the Compact of Mayors in November 2015. Participating cities are to complete all phases of the COM within three years. The primary expectations of the Compact of Mayors are included in a phased approach that can be addressed in any order.

Phase 1: Commitment
Due November 2015

A city must sign on to the Compact of Mayors and commit to completing all elements within the specified timeframe.

Phase 2: Greenhouse Gas Emissions (GHG) Inventory & Hazards Reporting –
Due November 2016

GHG Inventory: A city is to create a greenhouse gas emissions inventory using a new Global Protocol for Communities (GPC) at least every 3 years.

Hazards Reporting: A city is expected to report on the current and future climate hazards it faces.

Phase 3: GHG Reduction Targets & Vulnerability Assessment –
Due November 2017

GHG Reduction Targets: A city is to set greenhouse gas reduction targets.

Risk/Vulnerability Assessment: consists of a climate change risk assessment to people and/or vulnerability assessment of the community as related to climate issues.

Phase 4: Climate Action Plan & Climate Adaptation Plan –
Due November 2018

Climate Action Plan: A climate action plan should include quantitative and qualitative assessments of how the city will deliver on its commitment to reduce GHG emissions.

Climate Adaptation Plan: A climate adaptation plan should outline intended changes to city systems in response to actual or projected climate change impacts.

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THE COMMON SEAL OF THE CITY OF ST. LOUIS

Climate Hazards, Climate Vulnerability

City of St. Louis Climate Vulnerability Assessment

CITY OF ST. LOUIS
CLIMATE VULNERABILITY ASSESSMENT
2018

Image credit: Climate Central

Temperature Extremes

- **Extreme Hot Days / Heat Waves**
  The City is predicted to experience more days over 90 and 100 degrees Fahrenheit and longer lasting/hotter heat waves.
- **Extreme Winter Conditions / Cold Wave**
  Overall winters are expected to be milder; however, cold snaps and cold waves will occur.
- **Vector-borne Disease**
  Warmer temperatures globally will increase the geographic range and season length for disease carrying insects.
- **Insect Infestation**
  Temperatures affect insect reproduction and mortality. Warmer temperatures can lead to increased insect populations and migration.

Precipitation Extremes

- **Rainstorm**
  Heavy rainfall events are predicted to increase in frequency. The Spring season will see the greatest increase.
- **River flood**
  The City's proximity to the confluence of the Missouri and Mississippi Rivers increase the City's vulnerabilities to river flooding during rain events.
- **Flash / Surface Flood**
  Increased heavy precipitation will lead to more frequent flash flooding and surface flooding caused by stormwater runoff and sewer overflows.
- **Hail / Heavy Snow**
  Changing weather patterns and cold snaps will result in hail and heavy snow events.
- **Waterborne Disease**
  Severe precipitation events can lead to outbreaks of waterborne diseases.
- **Drought**
  Short-term droughts are projected to increase with hotter temperatures evaporating moisture from soil & plants.

Severe Weather / Natural Disaster

- **Tornado / Severe Wind**
  Strong storms are more likely with increased warming, which could increase the frequency of tornadoes due to the temperature patterns associated with climate change.
- **Earthquake**
  The City of St. Louis is located near the New Madrid Seismic Zone. Although earthquakes are not directly related to climate change they create a great risk for the City.
- **Lightning / Thunderstorm**
  More intense thunderstorms and lightning events may increase with global warming.

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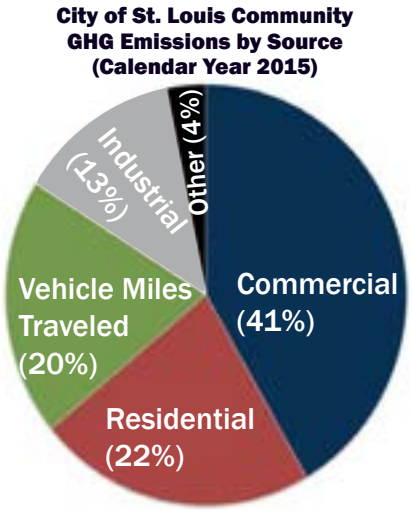
WHERE ARE WE NOW ?



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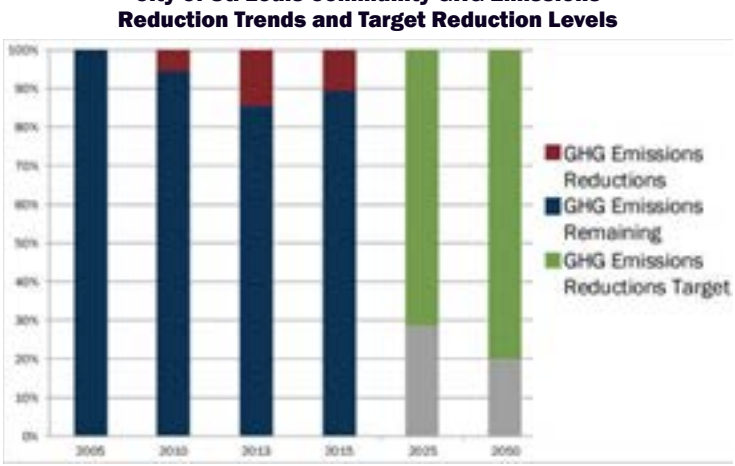
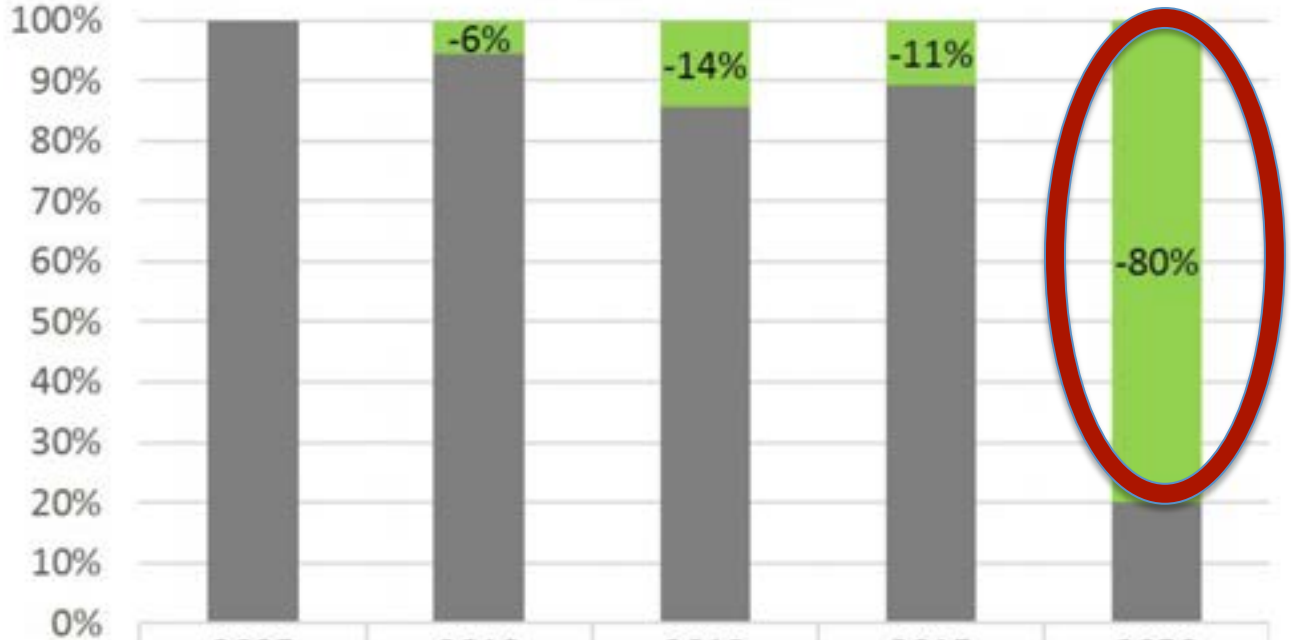


Community GHG Emissions Reductions 2005-2015 & 80% by 2050 Target Reductions



	2005	2010	2013	2015	2050
GHG Emissions Reductions	0	453,071	1,163,492	862,248	6,465,134
GHG Emissions Remaining	8,081,418	7,628,347	6,917,926	7,219,170	1,616,284

*all quantities in $mtCO_2e$

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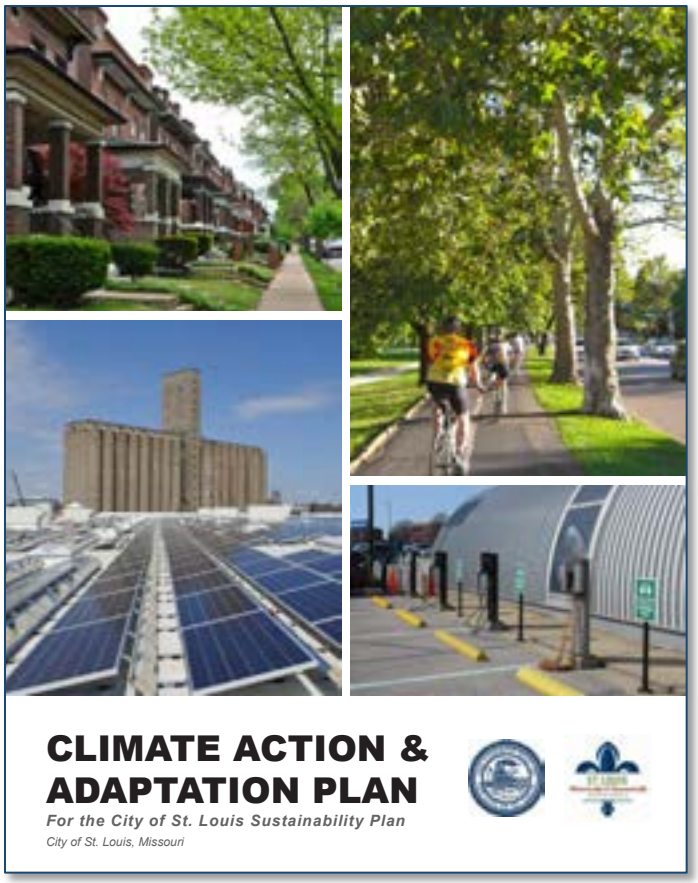
City of St. Louis Climate Action & Adaptation Plan



MITIGATION GOAL: **BUILD A HEALTHY PROSPEROUS & LOW-CARBON CITY**

OBJECTIVES	STRATEGIES
1. **Build an Energy Efficient City**	*1.1 Measure Progress & Equity in Climate Action Planning* *1.2 Retrofit & Renovate Existing Built Environment for Energy Savings* *1.3 Make Green Building the Standard Practice* *1.4 Make Energy Efficiency Measures Affordable*
2. **Accelerate Clean Renewable Energy**	*2.1 Provide Cleaner More Efficient Energy Sources* *2.2 Advance Community Scale Renewable Energy Options & Utilization*
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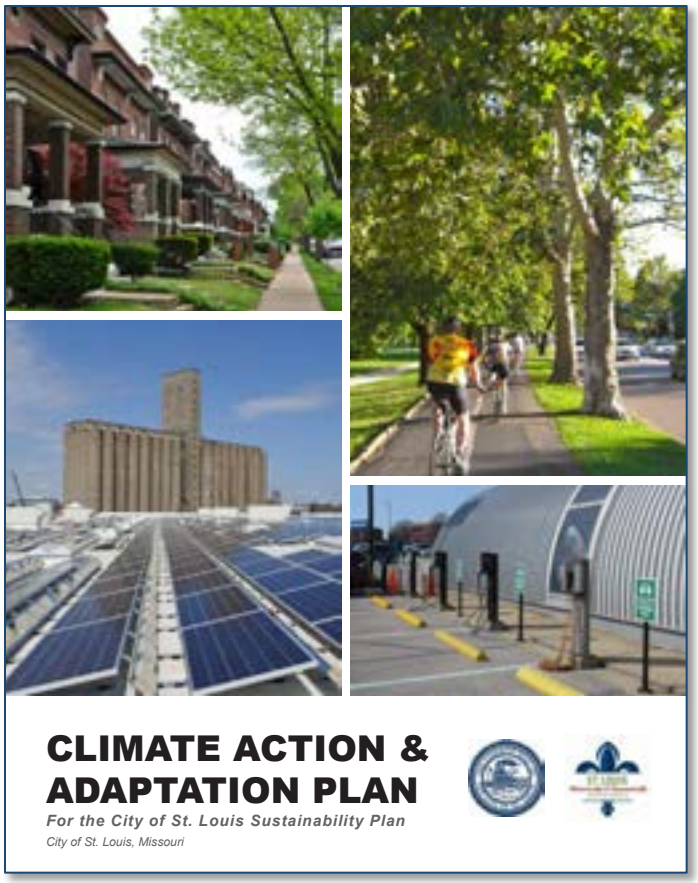

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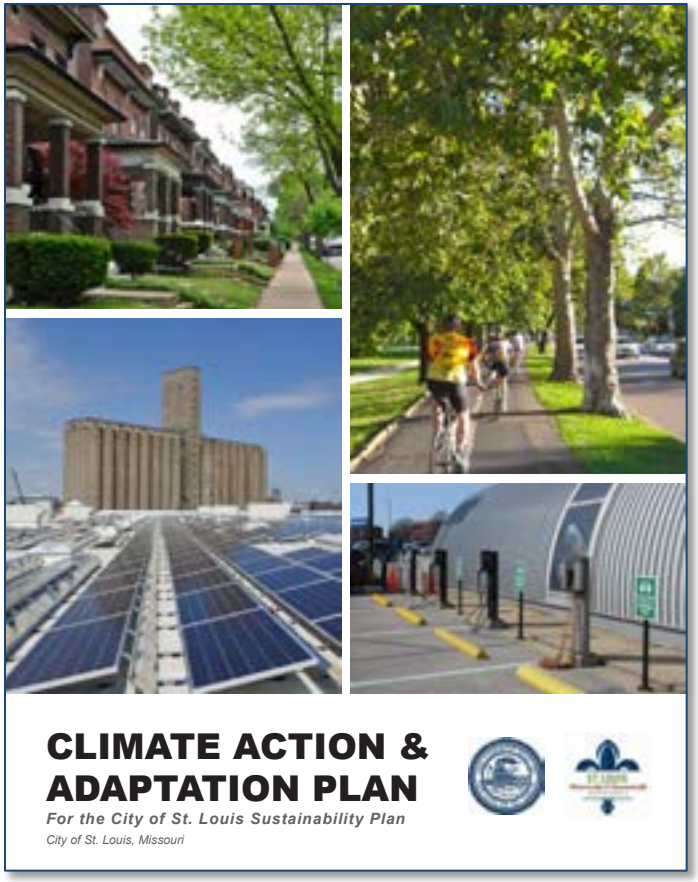

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Strategy: **Retrofit & Renovate Existing Built Environment for Energy Savings**

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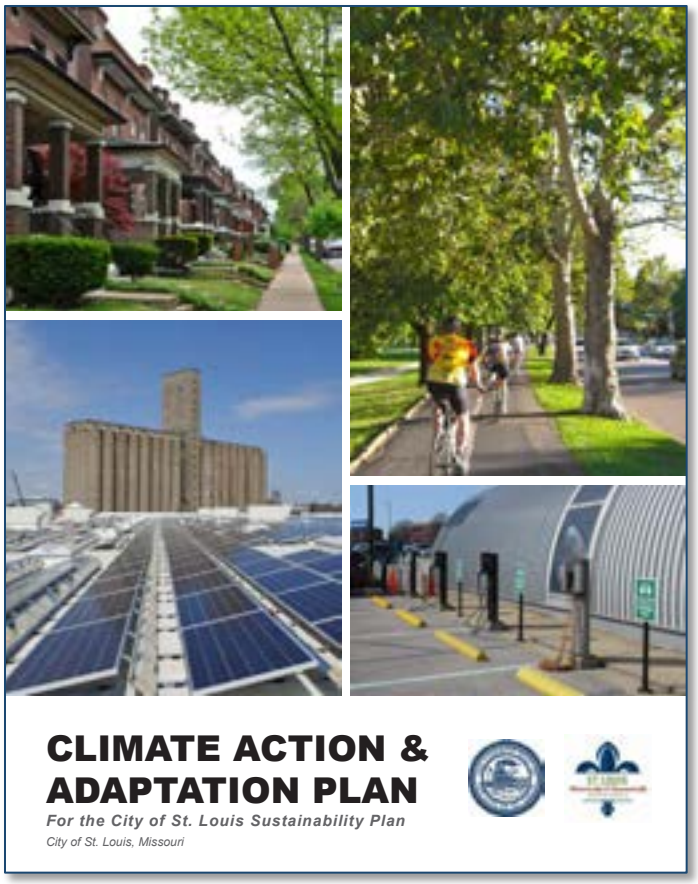

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Objective: **Build an Energy Efficient City**

Strategy: **Retrofit & Renovate Existing Built Environment for Energy Savings**

Action: **Complete LED Street Lighting Program**

LED Light Replacement

- City has converted City Hall Parking Lots
- Phasing out 52,000 High Pressure Sodium street lights
- 10%/year; currently at 40% / Targeted completion 2025

Old Lamps

New Lamps

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LED Light Replacement Benefits

- Save on electricity use and costs
- Reduces greenhouse gas emissions
- Better light color for security cameras

Old Lamps

New Lamps

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Target: Achieve a 6% reduction in fuel use in City fleet and expand use of alternative fuels to 85% of Airport's fleet

- **Lambert Airport is transitioning to Electric Vehicles and fleet that runs on alternative fuels.**
- **The Airport has 5 EV charging stations at Super Park.**

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THE COMMON SEAL OF THE CITY OF ST. LOUIS

Target: Have single stream recycling facilities for 100% of City government buildings and double residential recycling rate.

Between 2013 and early 2017, 124 million pounds of waste were recycled by City residents and government employees.

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Target: Reduce City government use of water by 10%

- **Based on the realized/expected savings of these projects, the City has achieved 99.7% of its 2018 goal (as of early 2017).**
- **The City Water Division has implemented water-saving measures:**
  - Howard Bend Filter Plant Backwash Optimization (2013)
  - Forest Park Waterway System Control/Monitoring (2016)
  - CR Pre-Sedimentation Basin Greywater Cleaning (2016)
  - CR Valve Replacements (2017)

ST LOUIS
Historically & Dynamically
SUSTAINABLE

THE COMMON SEAL OF THE CITY OF ST. LOUIS

Target: Increase bike racks by 150%
Increase number of dedicated bicycle lanes by 150% and shared road facilities by 35%

Between 2013 and 2017:

- **Installed 300 bike racks (+135%) and passed a Bike Parking Ordinance.**

- **Expanded dedicated bike lanes to 47.5 miles (+ 239%) and expanded Shared Lane Markings to 85.5 miles (+ 15.5%)**

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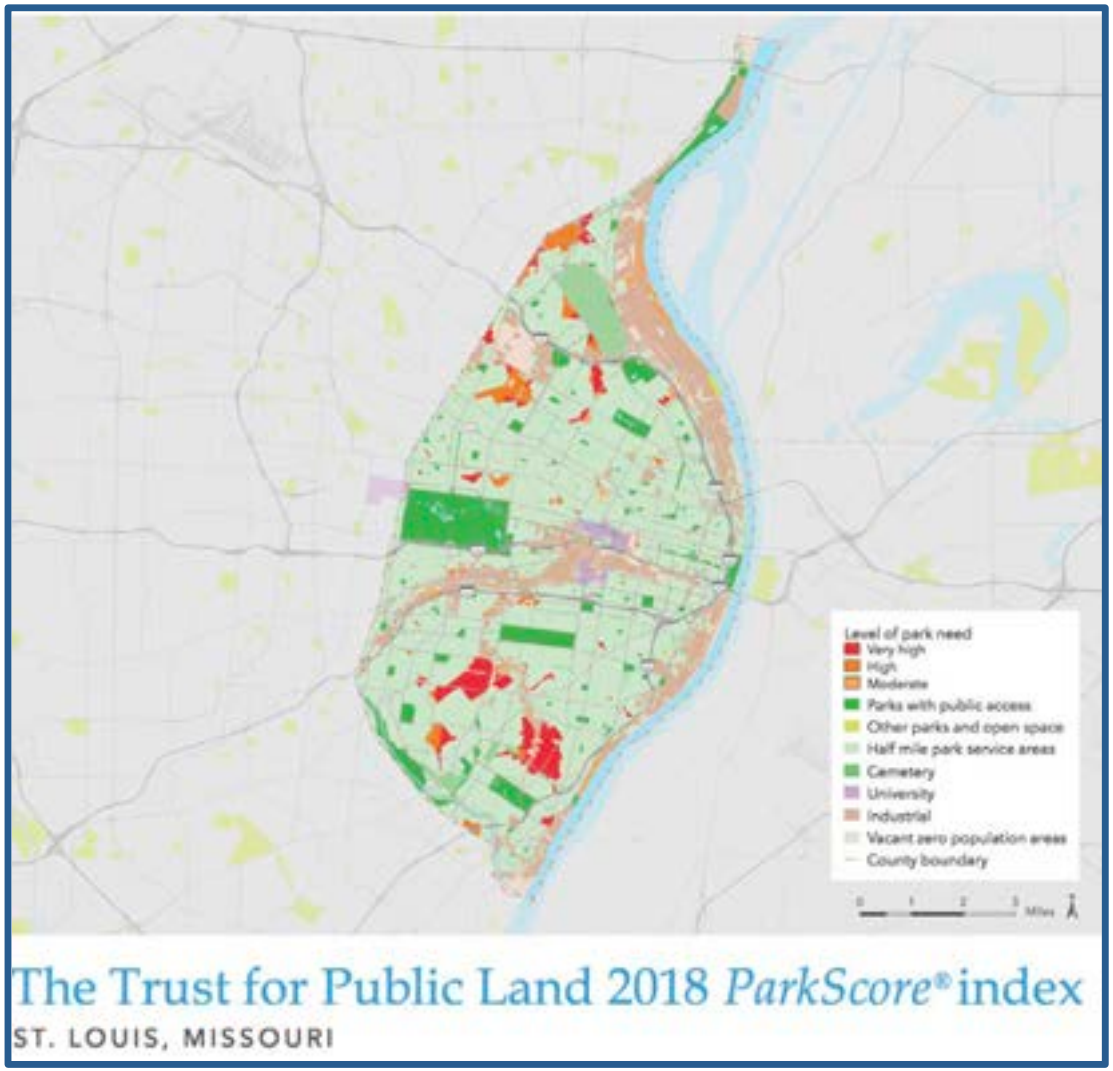
St. Louis City Parks & Recreation

Parks, Greenspace & Trails



2018 ParkScore rated the City of St. Louis 14 out of 100 cities

2018 ParkServe shows 95% of City residents live within ½ mile walk of a park, trail or greenspace

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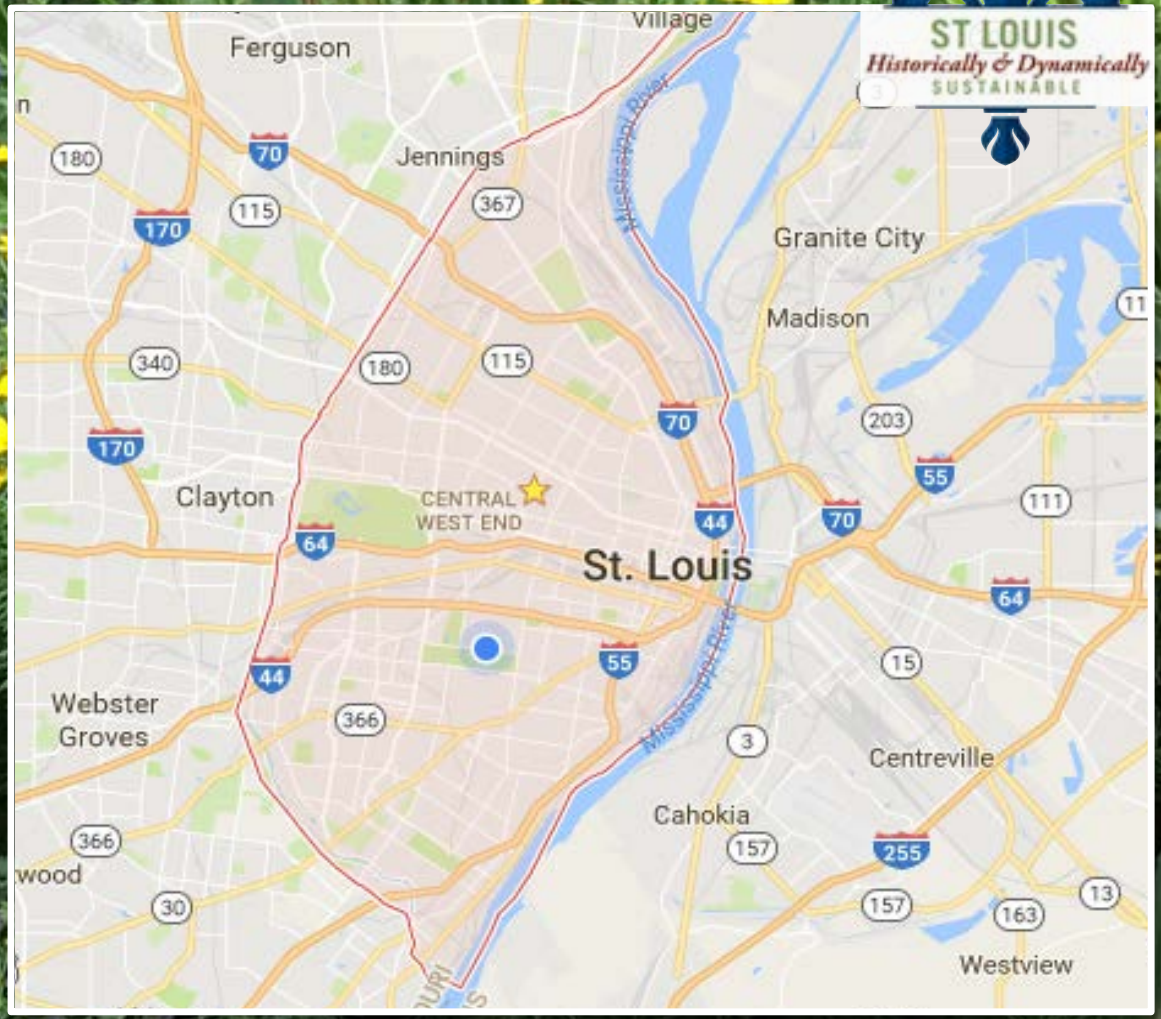
Milkweeds for Monarchs: The St. Louis Butterfly Project

City Hall Monarch Garden

Monarch images taken by Francis Slay

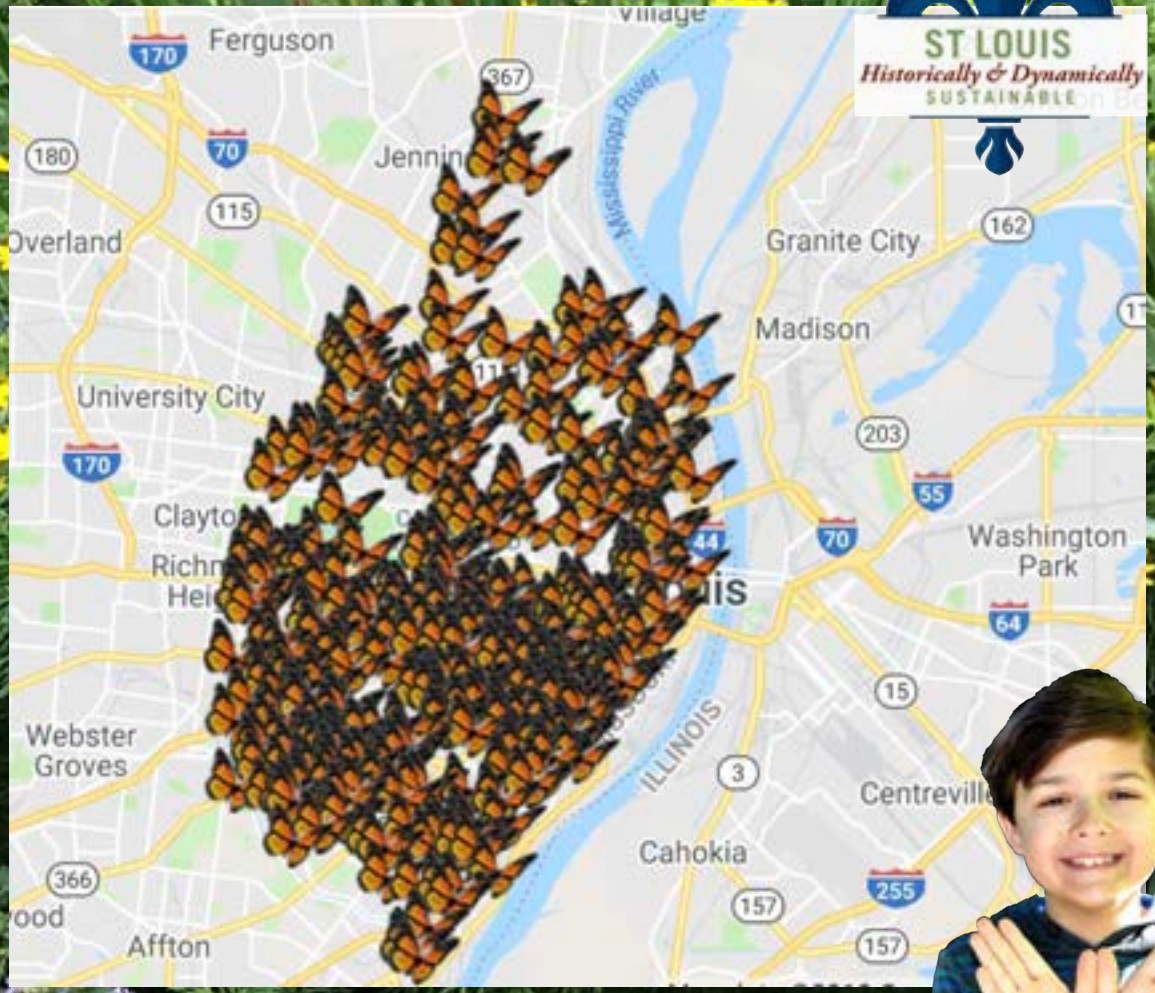
St. Louis Loves Monarch Butterflies

2014 Goal: **250**



Monarch Conservation Taking Flight

2014 Goal: **250;** Current: **402**



St. Louis Riverfront Butterfly Byway

The Saint Louis Riverfront Butterfly Byway

A Pollinator Haven

Join us in creating natural habitats for pollinators and other wildlife.

Ninety percent of flowering plants depend on pollinators–yet many, like the monarch butterfly, are in trouble.

- Female monarch butterflies only lay their eggs on milkweed plants.
- Monarch caterpillars feed solely on milkweed.
- Monarchs also need nectar from native flowers to provide energy for their annual migration.
- St. Louis is an important part of the monarch's migration path.

Native Flowers Provide Pollinator Habitat

Ways to Help Pollinators:

- Plant a nectar- and pollen-rich native flower garden that blooms throughout the seasons. This will also support bees, birds and other important wildlife.
- Minimize or eliminate the use of insecticides, herbicides and fertilizers in your yard.
- Purchase locally grown, pesticide-free flowers, fruits and vegetables.
- Keep your native garden intact throughout the winter; pollinators use spent stems to lay eggs, nest and survive cold temperatures. In the spring, cut the dead plant growth to 15" high.

This habitat area is one of several along the Mississippi River that collectively serve as a pollinator pathway. The City has been promoting urban monarch conservation through ***Milkweeds for Monarchs: The St. Louis Butterfly Project***. Find out more at StLouis-mo.gov/monarchs.

Great Rivers Greenway · brightside St Louis · Missouri Botanical Garden · Saint Louis Zoo Animals Always

connecting WITH NATURE
IN THE
City of St. Louis
take off with the
MONARCHS
DO YOU KNOW
A single brown bat can eat 600 mosquitoes in an hour.
DO YOU KNOW
Rain gardens can absorb 300 more rain than an average lawn.
URBAN VITALITY & ECOLOGY
1000
SPECIES OF POLLINATORS
1 of 3
BITS OF FOOD WE EAT
depend on pollinators
90%
OF THE WORLD'S FLOWERING PLANTS
are pollinated by bees, birds, insects or small mammals
125
PIECES OF NATIVE AND WILD BEES
EVERY DAY IS A NEW ADVENTURE
DAILY
WEEKLY
MONTHLY
ANNUALLY
100 MATURE TREES INTERCEPT about 100,000 gallons of rainfall per year
MISSOURI'S FORESTS STORE MORE THAN 5 million tons of carbon
15%
FEWER REPORTED ILLNESSES
10%
INCREASE IN TREES
IMAGINATION CREATIVITY
INTELLECT RELATIONSHIPS
NATURE
what's in it for me
St. Louis City parks, gardens and greenspaces are vitally important to our economic and physical well-being. From improving health to fostering social interactions, spurring the economy and protecting our fragile environment, our interactions with our city's great urban outdoors are worthwhile investments of both time and resources.
connecting WITH NATURE
in the City of St. Louis

connecting WITH NATURE
IN THE City of St. Louis
26%
NATURE
spaces & places to see
ENJOY
nature's bounty
BE AWED
by champion trees

Thank You, Welcome, and Enjoy Your Time in St. Louis!

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