

COMPETITIVE. VIBRANT. GREEN.

EDUCATION & AWARENESS
GREEN ENERGY & BUILDINGS
TRANSPORTATION
LAND USE & URBAN FORM
WATER RESOURCES
WASTE MANAGEMENT
FOOD PRODUCTION
GREEN BUSINESS & JOBS



DECEMBER 2011

CLEARWATER
greenprint

A FRAMEWORK FOR A COMPETITIVE, VIBRANT, GREEN FUTURE

ACKNOWLEDGEMENTS

This plan was prepared by the collaboration with many members of the city government and the community who freely shared their ideas and insights regarding the best ways Clearwater can become a sustainable community. We would like to thank them all for their assistance in the development of this document.

CITY OF CLEARWATER CITY COUNCIL

Frank V. Hibbard, Mayor
George N. Cretekos, Vice-Mayor
John Doran
Bill Jonson
Paul F. Gibson

CITY ADMINISTRATION

William B. Horne II, City Manager
Jill Silverboard, Assistant City Manager
Rod Irwin, Assistant City Manager
Pamela K. Akin, City Attorney

PLANNING AND DEVELOPMENT DEPARTMENT

Michael Delk, AICP, Director
Gina L. Clayton, Assistant Director
Tammy Vrana, AICP, Long Range Planning Manager
Lauren Matzke, AICP, Project Manager

GREENPRINT STAKEHOLDER STEERING COMMITTEE

Richard Adelson	Michael Henkel
Ronald Altic	Dr. Marcus Milnes
Lidiya Angelova	Elvira Morgan
Cory Brennan	Mary Morrow
George D. Davis III	JoAnna Siskin
Chris Dulligan	Dr. Joseph Smiley
Blain Enderle	R. Peter Stasis
Michael Engelmann	Alexander Todrow
Mike Flanery	John Ungerer
Jason Green	Thomas Wright
Marc Hayes	

GREENPRINT TECHNICAL ADVISORY COMMITTEE

Nan Bennett	Kevin Garriott
Paul Bertels	Diane Hufford
Tracey Bruch	Sarah Josuns
Rick Carnley	Brian Langille
Kristi Cheatham	Felicia Leonard
Glenn Daniel	Heather Parsons
Allen Del Prete	Himanshu Patni
Leslie Dougall-Sides	John Pittman
Bennett Elbo	Clement Vericker

CONSULTANTS

Renaissance Planning Group
ECO₂ASSET SOLUTIONS

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CLEARWATER

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**Every single day, the
average Clearwater
resident . . .**

***Emits 69 pounds
of greenhouse
gases . . .***



***Drives their
vehicle over 25
miles . . .***

***Produces 7
pounds of solid
waste . . .***



***Uses 81 gallons
of water . . .***

EXECUTIVE SUMMARY

Clearwater Greenprint is a community sustainability plan that identifies a series of tangible actions across eight topic areas that have the potential to reduce energy consumption, pollution and greenhouse gas (GHG) emissions while stimulating the local economy and improving the quality of life. Through creating and implementing Clearwater Greenprint, the City of Clearwater government is leading a community-wide effort to understand the challenges of today with a view toward creating a sustainable future. The strategies included in Clearwater Greenprint provide a framework for government, resident and business actions in the short, medium and long term.

In June 2007, Clearwater Mayor Frank Hibbard joined many other mayors around the nation in signing onto the United States Conference of Mayors Climate Protection Agreement. Under this agreement, the city committed to measure its greenhouse gas emissions and develop an action plan to reduce emissions. Creating a greenhouse gas inventory and reduction strategy and expanding the commitment to addressing greenhouse gas emissions into a broader community plan was an obvious next step. The involvement of the entire community, including residents, businesses, institutions, and municipal government, will be required. The city's primary roles in the implementation of Clearwater Greenprint are that of educator, facilitator, mentor, and model.

Sustainable communities create environmental, economic and social conditions that support the ability of future generations to meet their needs and make plans and decisions that balance the three elements of the "triple bottom line:" economic prosperity, environmental quality and community quality of life.

Natural resources, such as fossil fuels, and financial resources will be significantly constrained in the future. The convergence of these factors will require changes in how consumptive and efficient society is. Communities that prepare for these circumstances will be more stable, resilient and attractive to residents and businesses in the future.

The city's emission reduction targets were established as part of the Clearwater Greenprint planning process and based on actions that could be controlled at the local level. Factors limiting large scale emission reductions include minor potential for physical change in the building stock over the 25-year planning period, current budgetary constraints due to a poor economy, and conservative estimates for community participation in greenhouse gas reduction efforts. Based on the results of the citywide greenhouse gas inventory and the emission reduction potential of the strategies, the city has selected a target of reducing its greenhouse gas emissions 10 percent below 2007 levels by the year 2020 and 25 percent below 2007 levels by 2035. Full implementation of the Clearwater Greenprint strategies will ensure the city achieves its emission reduction targets.

The strategies in this document provide the foundation for addressing sustainability issues over a 25-year planning period and beyond. The strategies focus on actions that can be implemented at the local level over three phases: short term (0-5 years), medium term (6-10 years) and long term (11-25 years). Clearwater Greenprint is intended to be a framework for specific action with built-in flexibility for timing and emphasis. It is a living document that allows for change over time as the city evaluates the success of specific strategies.

The Clearwater Greenprint recommended strategies are organized into eight topic areas: education and awareness, green energy and buildings, transportation, land use and urban form, water resources, waste management, food production, and green business and jobs. These topic areas encompass several policy initiatives that are important to the city including stimulating the local economy, increasing the energy efficiency of existing buildings, setting performance standards for new buildings, shifting energy supply to renewable sources, reducing vehicle miles traveled, encouraging more use of transit, walking and bicycling for local and regional mobility, decreasing solid waste disposal, conserving water resources and creating better access to fresh, locally produced food.



Photo Credit: --Tico-- "Seedlings Common Chickweed" on Flickr



INTRODUCTION

OVERVIEW | ISSUES, OPPORTUNITIES AND CHALLENGES | THE NEED FOR CHANGE

One day you finally knew what you had to do... and began.

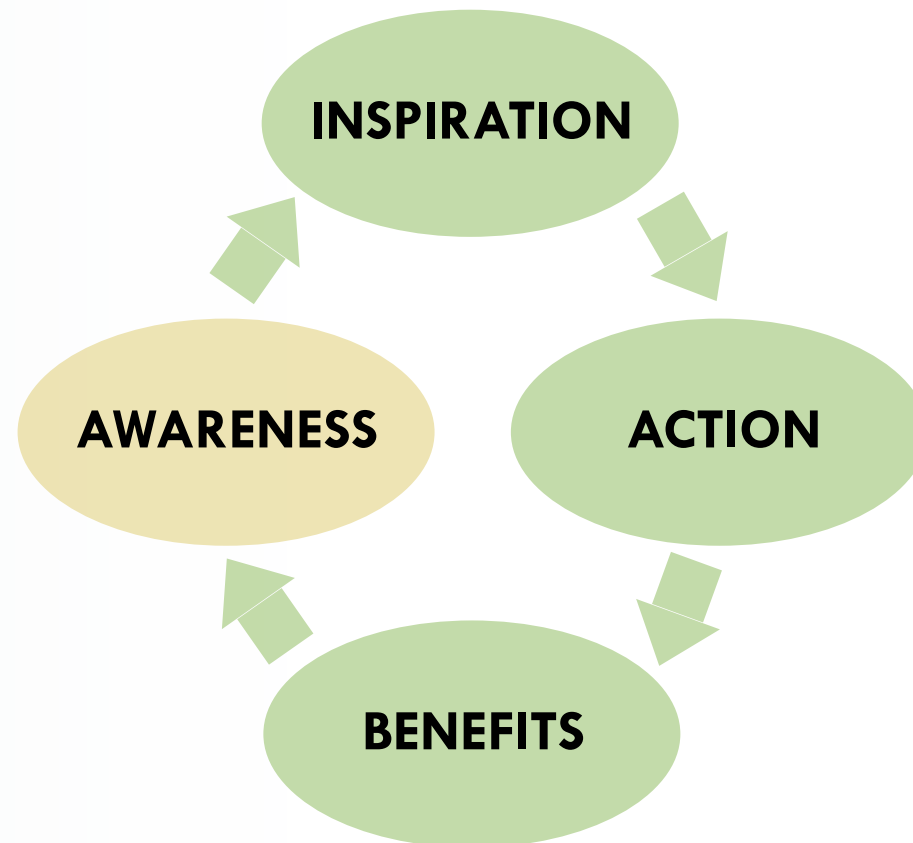
– Mary Oliver

CLEARWATER GREENPRINT

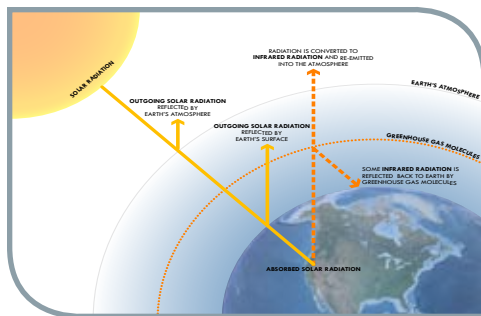
Clearwater Greenprint is a community framework plan for sustainability. It was sponsored by the City of Clearwater, with grant funding from the United States Department of Energy. The plan development process was guided by a city-appointed Stakeholder Steering Committee representing local residents, businesses, and civic groups. The end result of the project is a vision and strategic plan to help all members of the Clearwater community work together to balance economic prosperity with environmental stewardship. The overall goal is to ensure that Clearwater is a vibrant community for everyone who lives here now and for the generations to come.

Clearwater Greenprint includes measurable, achievable strategies that the city, businesses and local residents can incorporate into their daily lives to help accomplish major goals such as making buildings and transportation systems more energy-efficient, expanding mobility choices, maintaining a healthy local economy, creating “green” jobs, reducing the amount of waste that is generated by area residents and businesses, and encouraging shoppers and restaurants to buy locally grown foods.

The City of Clearwater has been taking steps to become more sustainable and address energy efficiency over the last five years. In 2007, Mayor Hibbard signed the U.S. Conference of Mayors Climate Protection Agreement, committing to protect the environment through the reduction of greenhouse gas emissions. The city completed its Greenhouse Gas Inventory for Government Operations in 2008. The community-wide Clearwater Greenprint initiative has allowed the city to take that inventory one step further by expanding the greenhouse gas inventory and analysis to include the entire city, not just municipal operations. The City of Clearwater also became a certified Green City in 2009 through a program administered by the Florida Green Building Coalition that recognizes cities for outstanding environmental leadership. The Clearwater Greenprint process engaged Clearwater residents and business stakeholders to explore new ideas and utilize greenhouse gas emissions data to help the city prepare the recommendations for a more livable and sustainable future and achieve the community’s reduction target goals for 2035.



Through creating and implementing Clearwater Greenprint, the City of Clearwater government is leading a community-wide effort to understand the challenges of today with a view toward creating a sustainable future. Clearwater Greenprint is intended first to raise awareness of the economic, community and environmental issues and opportunities. Only with an understanding of these issues will members of the community be inspired to act. The strategies included in Clearwater Greenprint provide a framework for government, resident and business actions in the short, medium and long term.



Clearwater Greenprint includes a greenhouse gas inventory and analysis for the entire community, and a number of measurable, achievable strategies for reducing greenhouse gases.



A sustainable city is a product of the entire community, working together internally and coordinating its efforts with neighboring municipalities, regions, and the world at large.

Many Clearwater Greenprint strategies will involve coordination with a variety of local and regional agencies responsible for transportation investments, economic development initiatives, and environmental conservation programs. Still others will increase energy efficiency and conservation, reduce greenhouse gas emissions and develop more sustainable transportation systems.

Municipal programs and policies are just one element of the sustainability framework plan. A sustainable city is a product of the entire community, working together internally and coordinating its efforts with neighboring municipalities, regions, and the world at large. Therefore, the Clearwater Greenprint focuses on strategies that everyone can help to carry out - local government departments and employees, residents, business owners, and even visitors. It is a plan for everyone in the Clearwater community to shape, adopt, and carry out together.

The City of Clearwater is committed to implementing the strategies contained in this plan over the next 25 years. The focus of the efforts in the short run will be on organizing city staff to undertake specific policy and program development, developing tools to educate and inform the community about Clearwater Greenprint, and undertaking outreach efforts to specific stakeholders and interested community members in cultivating partnerships to undertake projects at the community level. Given the difficult economic climate that currently exists, every effort has been made to advance strategies and actions that are low cost, cost effective and/or carry a return on investment over time.

This document includes three main sections, starting with the case for why change is needed and the issues, opportunities and challenges that face the Clearwater community. The second section summarizes the public engagement activities conducted to develop Clearwater Greenprint, outlines the technical process used to complete the greenhouse gas inventory and analysis of the greenhouse gas reduction benefits of the strategies and provides information on the costs and phasing associated with the implementation plan. The third part of the document includes a description of the issues and opportunities for each of the topic areas and the strategies associated with each.

Clearwater Greenprint is accompanied by three appendices. Appendix A Strategies Documentation provides further detail on the approach to measuring greenhouse gas reductions for each topic area and the estimated costs in 2011 dollars and staff time associated with implementing the plan. Appendix B Review of Sustainability Initiatives and Trends for City of Clearwater provides a survey and assessment of ongoing activities in city government that fall under the umbrella of sustainability. Appendix C Greenhouse Gas Inventory details the technical process used to generate the 2007 baseline community-wide emissions. Appendix D List of Public Outreach Activities provides a summary of activities completed as part of the comprehensive strategy for engagement.

ECONOMY

At the time of the completion of Clearwater Greenprint, the national economy has not recovered from the Great Recession of 2009. The State of Florida's economy has struggled because of the relatively large portions of the economy that rely on real estate development and tourism. The housing market remains soft and the tourism industry has experienced several difficult years due to the combined effect of the economy and the 2010 Gulf of Mexico oil spill. While the current state of the economy is thought to be attributable to cyclical rather than structural change by most, there is substantial evidence that the city needs to consider and respond to several non-cyclical long-term economic, physical and demographic factors in its approach to economic development and community building. These include:

- Lack of vacant land resulting in reliance on the renovation of existing building stock and redevelopment to house future residents and economic activity;
- Increasing rate of building obsolescence due to rapid growth over past decades using building systems and technology with relatively short useful lives, high need for ongoing maintenance and/or high operating costs;
- The potential for a long term decline in the retiree immigration rate and a retiree population with less fixed and disposable income than generations past;
- The need to attract young or otherwise new workers to the city to live and work;
- Competing with other United States and international cities to attract new jobs including "green" jobs;
- Overcoming the current trend toward lack of public support for new government spending, including major transportation infrastructure investments;
- Difficulty in the near-term accessing commercial and personal credit at previous levels;
- Pending obligations to fund federal entitlement programs

for retirees and retire significant levels of federal and state government debts resulting in leaner government budgets;

- The threat to the national economy given dependence on foreign sources of oil; and
- The outlook for a permanently diminished supply of petroleum-based liquid fuels.

The Clearwater Greenprint strategies provide some specific guidance on how to address these topics. The city, as a leader in integrating sustainability into its practices, will provide an example for the community in how to create economic sustainability and resiliency at the business and household level.

COMMUNITY

The city's approach to sustainability must be linked to quality of life measures that are defined and addressed by the overall policy framework. The ultimate success of the community to remain a vibrant, desirable place to live will rely on the extent to which quality of life factors cast a positive light on the community within the county, region and state. In implementing Clearwater Greenprint, the city needs to account for:

- A lack of community awareness regarding the need to become more efficient, resilient and environmentally responsible;
- The need for community members to have a forum for learning, engagement and self-organizing action on a number of topics;
- Increasing levels of socioeconomic diversification and the resulting need for services and new approaches to community involvement and decision-making;
- The need for buildings to have cost-effective energy efficiency characteristics and retrofits that reduce the ongoing cost of operations;
- The locational efficiency of existing and new housing to jobs ratio and existing and planned transportation infrastructure;



Reducing dependence on foreign sources of oil is vitally important given the outlook for a permanently diminished, unreliable and increasingly expensive supply of petroleum-based fuels.



The city can and should facilitate a holistic strategy for the community to mitigate the effect of human behavior on climate change in hopes of lessening the negative effects of this process.

- The combined cost of housing and transportation, as well as strategies to create affordable options for residents and workers; and
- The potential for significant increases in the cost of fuel and food in the short and long run.

Clearwater Greenprint, if successfully implemented, will be an observable and positive differentiating characteristic for the city in relation to other areas. Establishing a reputation as a forward-thinking, active and engaging community will help Clearwater attract new generations of families and workers. The city, through the City of Clearwater Comprehensive Plan, Community Development Code, communications efforts and economic development strategies will need to facilitate an environment where these quality of life factors can be addressed successfully through public and private actions.

ENVIRONMENT

Public consciousness of the need for environmental stewardship has grown significantly over the past decade and is increasingly affecting how we make collective, corporate and private decisions. There are environmental issues – global, national and local – that warrant specific consideration and response. Scientists around the world are measuring the increasing levels of greenhouse gases in the Earth's atmosphere that result from burning fossil fuels to heat homes, run factories, generate electricity, and travel by gas-powered vehicles. Their research indicates strong links between these atmospheric changes and a host of increasing conditions that interfere with the planet's ability to sustain life as we know it, such as:

- Rising levels of air pollution across urban, suburban and even rural areas;
- Breaks or "holes" in the atmospheric ozone layer that protects us from the sun's harmful ultraviolet rays;
- Rapidly melting glaciers at both poles that are diminishing the habitats of several animal species, and forcing some human communities to find higher ground;
- Worldwide ocean temperature changes that are affecting entire species of marine life; and
- Rising sea levels that are forcing coastal communities across the world to consider the effects of potential higher tides, stronger storm surges, eroding beaches, and increasing amounts of salt in freshwater marshes.

The city recognizes that it is vulnerable to the effects of climate change. The city can and should facilitate a holistic strategy for the community to take specific steps to mitigate the effect of human behavior on climate change in hopes of lessening the negative effects of this process.

THE NEED FOR CHANGE

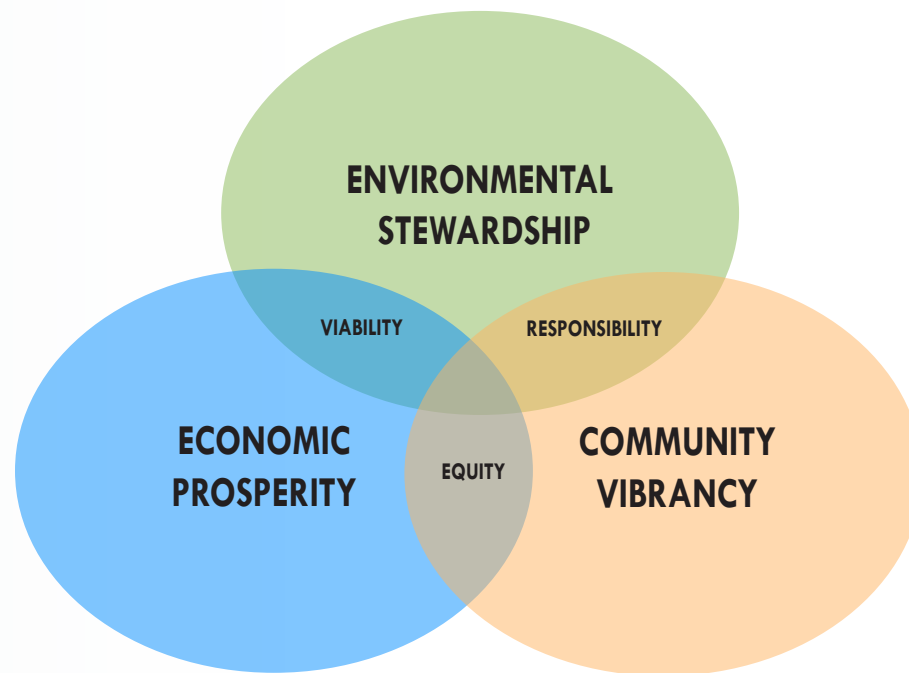
The natural world is a closed system that cannot “take, make or waste” any form of matter. At the global, national and local scale, humankind has to live with everything that is made, changed, or wasted. Humankind must also live with the new substances and conditions that are created by the way natural resources are used, such as pollutants that change the chemical makeup of the air we breathe when fossil fuels are burned. If the properties of natural resources, air and water are altered through endless taking, making, and wasting, people from around the world will be one step closer to altering the planet’s resources to the point where it can no longer provide the environment and conditions necessary to sustain the diversity life and complexity of civilization that currently exists.

Resources that cannot be naturally regenerated, such as the oil that is extracted to make fossil fuels for cars and furnaces, will be in much shorter supply, more expensive and eventually will be depleted well below the reliable supply that is available today. This will require significant change in how efficient and consumptive society is. Change will come not because people want to, but because they have to. The economics of resource extraction and energy production will require it. Ignoring or denying the realities of this situation have the potential to undermine the systems that support the high quality of life and the economic conditions that currently exist in the United States. Communities that prepare for these circumstances will be more stable, resilient and attractive to residents and businesses in the future.

SUSTAINABILITY

Sustainable communities operate within the rules of nature, using resources that can be regenerated. These communities generate no harmful waste, either re-using materials or discharging them safely back into the natural environment. Sustainable communities create environmental, economic, and social conditions that support the ability of future generations to meet their needs and make plans and decisions that balance the three elements of the “triple bottom line:” economic prosperity, environmental quality, and community quality of life.

SUSTAINABILITY IS A BALANCE BETWEEN THE ENVIRONMENT, ECONOMY AND COMMUNITY . . .



As Clearwater looks toward achieving a sustainable future, the solutions involve understanding the relationship between the environment, economy and community. In formulating strategies and policies, it is important to consider how to strike a balance between growth, livability and environmental management. While not necessarily at odds, there are varying types and degrees of trade-offs that need to be considered and responded to. Through informed and responsible actions, the city can create an environment where livability and sustainability are mutually reinforcing within the community at large and achievable over the long term.



Clearwater must protect and enhance the natural beauty of its beaches and improve the character of its urban neighborhoods and commercial districts.



Working together, this community can create a healthy, vibrant way of living that takes no more than what is available, makes no more than what is needed, and wastes none of what is used.

DESIRED RESPONSE

As Clearwater looks toward achieving a sustainable future, the solutions involve understanding the relationship between the needs and limitations of the environment, the opportunities and challenges of creating a healthy local economy and maintaining a high quality of life for the community in the face of change. In formulating strategies and policies, it is important to consider how to strike a balance between growth, livability and environmental management. While not necessarily at odds, there are varying types and degrees of trade-offs that need to be considered and responded to. Through informed and responsible actions, the city can create an environment where livability and sustainability are mutually reinforcing within the community at large and achievable over the long term.

Clearwater's economy and culture depend, in one way or another, upon the natural beauty and peaceful urban environment that attracts tourists, shoppers, residents, and businesses. The City of Clearwater will work with community stakeholders to implement strategies to protect and enhance the natural beauty of Clearwater's beaches and improve the character of its urban neighborhoods and commercial districts. The entire community can help create more sustainable ways for people to go about the business of everyday life: traveling to work, school and stores; heating and cooling buildings; producing and using potable water; and managing waste.

In order for communities such as Clearwater to survive within the constrained reality of the natural world, everyone's help is needed to "close the loops" of unsustainable daily practices. Working together, this community can create a healthy, vibrant way of living that takes no more than what is available, makes no more than what is needed, and wastes none of what is used.

OUTCOME

The Clearwater Greenprint process gave Clearwater residents and businesses an opportunity to assess the reality of the community's current situation, clarify the likely changes that future generations will face, identify strategies to change the conditions that can be affected, and to adapt to the ones that can't be changed. The City of Clearwater, working collectively with community members, has come up with workable, effective strategies that will make Clearwater a livable, prosperous city now and for generations to come. Addressing these issues will assist the Clearwater community in the transition from its current position as a quality livable community to a sustainable community. This will provide community members with new opportunities for economic prosperity, an understanding of environmental stewardship, a framework for community organization, and guidance for making meaningful responses to the challenges and opportunities of today and the future.





CREATING THE GREENPRINT

COMMUNITY PARTICIPATION | SUSTAINABILITY INITIATIVES AND TRENDS | GREENHOUSE GAS INVENTORY AND TARGETS

Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it is the only thing that ever has.

– Margaret Mead

COMMUNITY PARTICIPATION

The city values community participation in the creation of new policy and conducted a comprehensive strategy for engagement during the development of Clearwater Greenprint. The City Council appointed a 21-member Stakeholder Steering Committee comprised of residents, business owners and institutional representatives. The Committee assisted in the development and prioritization of the strategies included within Clearwater Greenprint. The Committee met eight times between August 2011 and March 2011.

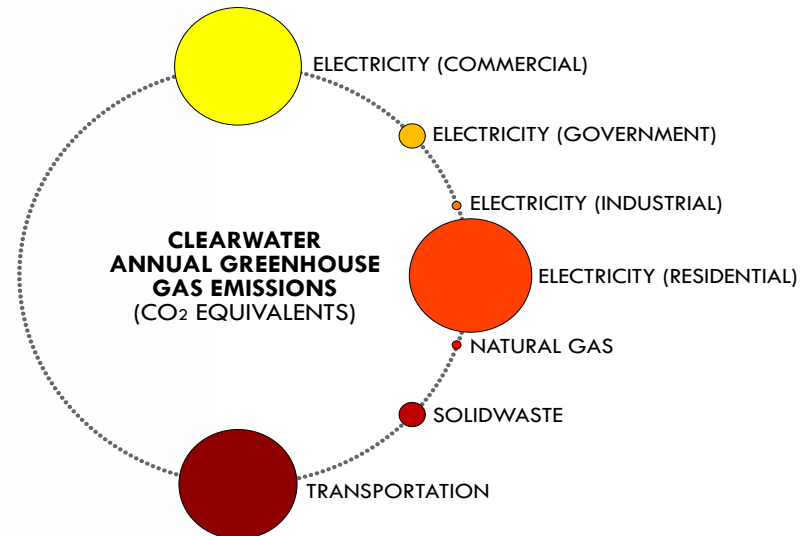
The city also held two community open house events for public input. The first open house was held in September 2010, and a subset of draft strategies was available for public review, which allowed the project team to listen to the public and gauge opinion on the preliminary ideas. The event included a survey that was available at and after the meeting. The results indicated which draft strategies the public perceived to be potentially useful to them and to the community as a whole. The survey also demonstrated awareness of different topic areas related to Clearwater Greenprint.

The second open house, held in March 2011, engaged the public in a prioritization exercise where attendees were asked to prioritize the refined strategies for each topic area. Participants were also given the opportunity to identify recommended strategies to which they were opposed. The results of the meeting are shown in the table on the next page. The results were used along with community capacity and cost information to categorize the strategies into short, medium and long term for implementation.

City staff completed a public outreach campaign that included attending neighborhood meetings in the fall and a formalized Speaker's Bureau in the spring. Project information was presented to 19 neighborhood, business, civic and service organizations and at various community events, including the Downtown Farmer's Market, the city's Blast Friday events, and Sand Key's Spring Fest. This process allowed staff to speak directly with over 320 residents in smaller settings, as well as to promote the community open houses. See Appendix D for a complete list of outreach activities.



Example board from the September 2010 interactive open house.



Technical information and recommended strategies were presented in pictures, graphics and words.

SUMMARY OF RESULTS FROM PRIORITIZATION EXERCISE AT MARCH 2011 OPEN HOUSE



The first open house was held in September 2010. Information on each Clearwater Greenprint topic area and sample strategies were presented for public consideration.



The second open house was held in March 2011. The meeting offered an opportunity to review the draft strategies and assist the city in identifying the highest priority recommendations.

#	Green Energy and Buildings	Rank
1	Energy Finance Program	1
5	Expand Natural Gas	2
9	Energy-Efficient Streetlights	3
4	Performance Standards	4
3	Incentives for Upgrades	5
2	Resource Conservation Programs	6
7	Renewable Energy Challenge	7
10	Municipal Energy Policy	8
6	Local Power Generation	9
8	Renewable Energy Finance	10
12	Municipal Performance Standard	11
11	Municipal Energy Plan	12
#	Transportation	Rank
3	Improved Local Transit	1
4	Low Emission Vehicles	2
5	Congestion Management	3
2	Complete Streets	4
1	Vehicle Mile Reduction	5
#	Land Use and Urban Form	Rank
2	Property Revitalization	1
4	Expand Greenspace	2
1	Development Incentives	3
3	Diverse Housing Options	4
#	Water Resources	Rank
3	Low Impact Development	1
2	Water Wise Landscapes	2
1	Water Conservation	3

#	Waste Management	Rank
3	Expand Recycling Program	1
2	Yard Waste Collection	2
1	Pay As You Throw	3
4	Commercial Recycling	4
7	Municipal Waste Reduction	5
5	Composting Program	6
6	Reusable Goods Swap	7
#	Food Production	Rank
3	Urban Agriculture	1
2	Local Food Program	2
1	Task Force	3
#	Education and Awareness	Rank
2	Community Outreach	1
1	Community Education	2
4	Municipal Staff Education	3
5	Interactive Website	4
3	Green Initiative Reporting	5
#	Green Business and Jobs	Rank
1	Green Business Database	1
3	Green Job Development	2
2	Sharing Best Practices	3
5	Regional Partnerships	4
4	Green Guide	5

Participants at the March 2011 interactive open house were asked to rank strategies within each topic area. The tables on this page summarize the results of that exercise. The rankings are based on a weighted average of votes for first, second and third preference within each topic area. The numbers on the left side of the table correspond to the strategy numbers in this document.

SUSTAINABILITY INITIATIVES AND TRENDS

The first step in the development of Clearwater Greenprint was to review existing programs, projects, efforts, and trends across all eight topic areas in order to estimate and report the impacts of these initiatives on greenhouse gas reduction, energy reduction and cost savings. Detailed findings are summarized in Appendix B Review of Sustainability Initiatives and Trends for the City of Clearwater. Some key programs and trends across the topic areas include:

EDUCATION AND AWARENESS

- The city's "Green Clearwater" website gives web viewers a resource for citywide initiatives, programs, and strategies.
- The city's Green Team, comprised of employees from various departments, meets quarterly to share information on best practices and "green activities" between departments.

GREEN BUILDINGS AND ENERGY

- The residential, commercial and industrial sectors consume more than 90 percent of the energy in the city. Municipal operations account for the remaining energy consumption.
- Between January 2008 and August 2010, Progress Energy completed 5,657 audits citywide, 93 percent of which were in the residential sector.
- In 2009, the city hired an energy service company to perform lighting, heating, ventilation and air conditioning, and building management system upgrades in municipal buildings and facilities. The improvements are projected to save the city more than \$6 million on energy costs and an additional \$3 million in avoided labor costs over 15 years.
- Clearwater Gas continues to support an increasing number of residential and commercial customers who as a result are taking advantage of lower energy costs and greenhouse gas emissions.
- The annual average number of permits issued for installation of solar thermal and solar photovoltaic systems has increased threefold since 2007.
- As of 2010, there were three LEED Gold and one LEED Silver certified commercial buildings in Clearwater.

TRANSPORTATION

- Within Pinellas County, there was a slight reduction in vehicle miles traveled and slight increase in the length of the roadway system between 2004 and 2009.
- Ridership on the Pinellas Suncoast Transit Authority (PSTA) bus system grew two percent between Fiscal Years 2007-08 and 2009-10.
- The city has been adding alternative fuel vehicles to its municipal fleet, which, as of 2011, included 17 hybrid vehicles, three natural gas cars, and one natural gas garbage truck.
- In 2006, the city developed a comprehensive Bicycle and Pedestrian Master Plan to improve the city's bicycling and walking environment.



Clearwater's residential building stock is largely post World War II era construction. Energy efficiency and cost savings can be increased through retrofits and conversion to natural gas.



The city has a comprehensive Bicycle and Pedestrian Master Plan and is committed to improving existing roadways by adding sidewalks and bicycle lanes.

The city has the opportunity to improve its citywide recycling rate to be in line with the state average. In 2008, the citywide recycling rate was six percent.



The Skycrest Neighborhood community garden is being used as a model for other projects. The city is engaging stakeholders to develop a strategy for local food production.



LAND USE AND URBAN FORM

- Clearwater is a built out city with a focus on infill development and redevelopment. As of 2010, the Clearwater area had just over 800 acres of vacant developable land. Of the total developed acres in the city, just under 60 percent is being used as residential.
- Demographic changes over the next twenty-five years will result in the need for different types of housing and more choices for living and working in urban neighborhoods.

WASTE MANAGEMENT

- Between 2006 and 2009, the amount of solid waste generated in Clearwater dropped by 14 percent. During the same period, the city implemented the e-waste and yard waste programs.
- In 2008, the citywide recycling rate was six percent compared to the state and national averages of 29 percent and 33 percent respectively.

WATER RESOURCES

- In 2009, the city's residents and businesses used an average of 11.49 million gallons of water per day, a gross per capita rate of 96 gallons of water per day. 32 percent was produced by the city, while the remaining 68 percent from Pinellas County and Tampa Bay Water.
- Water usage dropped 27 percent citywide between 1990 and 2009.
- The city continues to expand the availability of reclaimed water for use in irrigation.

FOOD PRODUCTION

- The Downtown Clearwater Farmer's Market offers residents the option to purchase local produce and products weekly from October to May. Additionally, there are small-scale community gardens located within the city.
- The city has initiated discussions with community stakeholders to identify opportunities for local food production and access to fresh, locally-sourced food.

GREEN BUSINESS AND JOBS

- In 2008, the Economic Development and Housing Department organized a work plan for a Green Jobs Initiative. The work plan resulted in the formation of a Green Collaborative Team consisting of representatives from the city, Pinellas County Economic Development, University of Florida's Institute of Food and Agricultural Sciences, Tampa Bay Regional Planning Council, the United States Environmental Protection Agency, Worknet Pinellas, and the development community.
- Clearwater is a jobs-rich environment. In 2009, there were just under 60,000 jobs in the Clearwater Planning Area. That same area was home to just under 50,000 residents who were employed at the time.

GREENHOUSE GAS INVENTORY AND TARGETS

Greenhouse gases encourage the trapping of heat in the atmosphere and contribute to the “greenhouse effect,” a natural phenomenon that is responsible for creating the favorable conditions that support life on Earth. Common greenhouse gases include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Since the industrial revolution, human activity has been attributed to an increase in the concentration of greenhouse gases in the Earth’s atmosphere. The predominant human activity responsible for these emissions is the combustion of fossil fuels (e.g., coal and petroleum derived liquid fuels) to generate energy. Other sources include the use of chemical substances such as refrigerants, the decomposition of solid waste, and agricultural practices. The increase in greenhouse gases has been linked to climate change, the observed increase in the average temperature of the Earth.

Without actions to reduce emissions, flooding and erosion from sea level rise threaten many of Florida’s homes, businesses, and ecosystems, including the state’s prized beaches that draw thousands of tourists every year. Locally, the St. Petersburg Coast Guard Station measures the water level of Tampa Bay using a tide guage. These measurements show the water level rose on average an inch per decade since 1947. Scientists estimate that sea level will rise about 10 to 20 inches by 2100. A changing climate may also impact commercial farming and forestry operations through more extreme weather systems (i.e., concentrated rains and droughts). With most of the state’s population living near the coast and an economy highly dependent on tourism and agriculture, climate change poses a significant threat to Florida’s economy and population.

In late 2010, the city conducted a baseline greenhouse gas inventory that measured greenhouse gas emissions from various sources citywide. These sources included electricity, natural gas and propane consumption, transportation, municipal solid waste, and wastewater treatment. The study revealed that for calendar year 2007, citywide greenhouse gas emissions totaled 1,257,037 metric tons of carbon dioxide equivalents (MTCO₂e). Emissions from electricity consumption and transportation fuels were the largest

contributors to the citywide greenhouse gas inventory (63 percent and 31 percent, respectively). Natural gas, municipal solid waste, propane, and wastewater treatment contributed the remaining six percent of citywide emissions. Based on the city’s population of 110,469 in 2007, average greenhouse gas emissions per capita were 11.38 MTCO₂e. Greenhouse gas emissions were forecasted for 2035 relative to the 2007 baseline. Assuming that the city continues its current course, citywide emissions are projected to grow by 4 percent to 1,307,540 MTCO₂e by 2035.

2007 BASELINE GREENHOUSE GAS EMISSIONS BY SOURCE

Greenhouse Gas Source	MTCO ₂ e	%
Total Electricity Consumption	796,121	63%
Residential Electricity	350,999	28%
Commercial Electricity	350,823	28%
Industrial Electricity	19,477	2%
Government Electricity	74,822	6%
Transportation Fuels	388,481	31%
Natural Gas	37,340	3%
Municipal Solid Waste	30,839	2%
Propane	2,299	0.2%
Wastewater Treatment	1,957	0.2%
Total*	1,257,037	100.0%

* Totals and percentages may not always add up due to rounding.

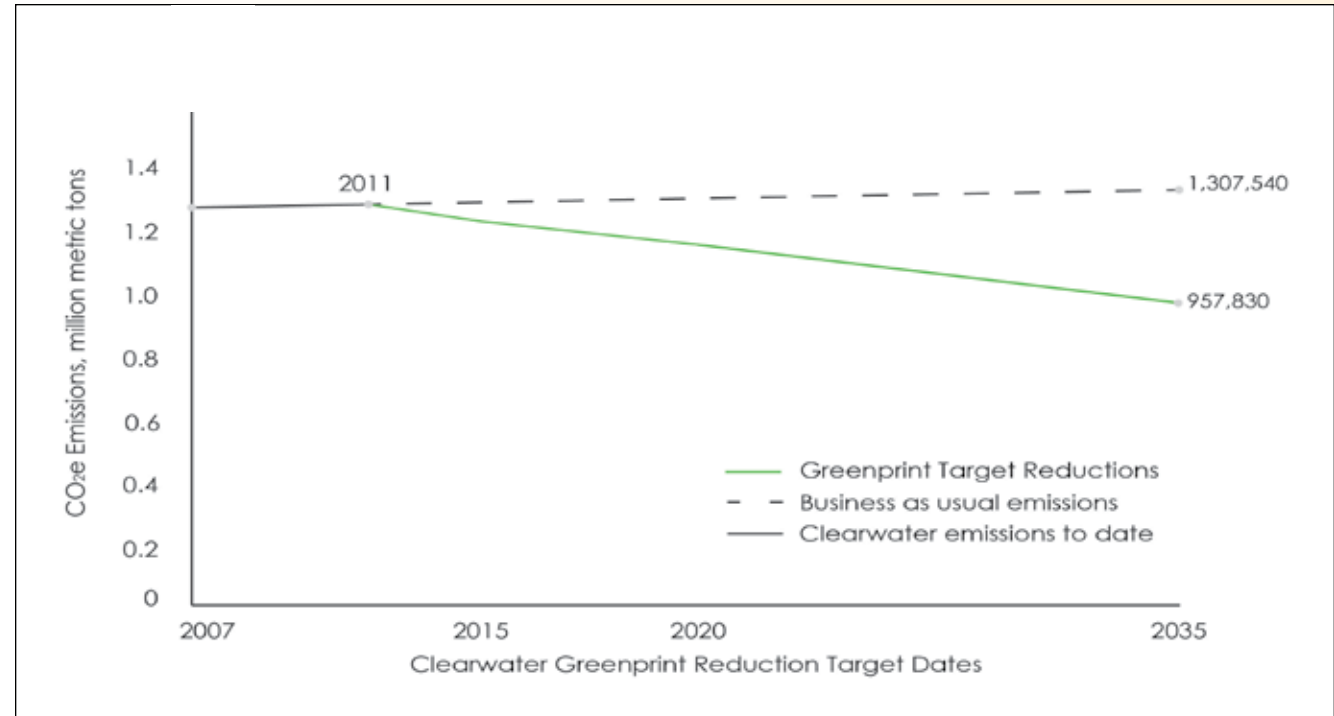
Greenhouse gas emission reduction targets represent achievable goals to reduce citywide emissions. The table on the following page summarizes the percentage of greenhouse gas emission reductions for each phase and for the entire 25 year planning period.

The city's emission reduction targets were established based on actions that could be controlled at the local level. Factors limiting large scale emission reductions include minor potential for physical change in the building stock over the 25-year planning period, current budgetary constraints due to a poor economy, and conservative estimates for community participation in greenhouse gas reduction efforts.

Based on the results of the citywide greenhouse gas inventory and the emission reduction potential of the strategies, the city has selected a target of reducing its greenhouse gas emissions 10 percent below 2007 levels by the year 2020 and 25 percent below 2007 levels by 2035. Full implementation of the Clearwater Greenprint strategies will ensure that the emission reduction targets are achieved.

Beyond the effects of local actions, there is significant potential for further reductions through fundamental changes in the way buildings and vehicles are powered. While these effects were not included in the local reduction strategy, technological innovation and transportation fuel mix change could cut greenhouse gas emissions by at least half over the next 25 years. Structural changes in the energy sector have the potential to double the projected emission reduction achievable through only local action.

GREENHOUSE GAS REDUCTION TARGETS



GREENHOUSE GAS EMISSIONS AND REDUCTIONS BY TOPIC AREA

Topic Area	Baseline (2007) Emissions	Short-Term Reduction	Medium-Term Reduction	Long-Term Reduction	Total 25 Year Reductions
Green Energy and Buildings ¹	835,760	4.40%	4.20%	15.40%	24.00%
Transportation ²	388,481	3.60%	6.00%	14.30%	23.90%
Water Resources	1,957	2.00%	3.00%	2.00%	6.90%
Waste Management	30,839	2.20%	8.10%	8.70%	19.10%
Total	1,257,037	4.10%	4.80%	14.90%	23.80%

Notes:

1. Green Energy and Buildings includes the energy-related reductions from wastewater treatment.

2. Reduction benefits for Land Use are related to reduction in vehicle miles of travel and are included in Transportation.



Photo Credit: National Complete Street Coalition



STRATEGIES

STRATEGIES SUMMARY | EDUCATION AND AWARENESS | GREEN ENERGY AND BUILDINGS | TRANSPORTATION | LAND USE AND URBAN FORM | WATER RESOURCES | WASTE MANAGEMENT | FOOD PRODUCTION | GREEN BUSINESS AND JOBS | IMPLEMENTATION

An organization's ability to learn, and translate that learning into action rapidly, is the ultimate competitive advantage.

– Jack Welch

CLEARWATER GREENPRINT STRATEGIES

Clearwater Greenprint is intended to be a framework for specific action with built-in flexibility for timing and emphasis. It is a living document that allows for change over time as the city evaluates the success of specific strategies. In implementing the plan, the city will monitor and report the success of specific strategies relative to the overall goals of Clearwater Greenprint and how they directly relate to becoming more energy efficient and reducing greenhouse gas emissions. The flexibility in the plan and the monitoring will ensure the city will adapt and respond to changes in available resources, technology, economic conditions and different community needs.

The Clearwater Greenprint strategies are organized into eight topic areas: education and awareness, green energy and buildings, transportation, land use and urban form, water resources, waste management, food production, and green business and jobs. These topic areas encompass several policy initiatives that are important to the city including stimulating the local economy, increasing the energy efficiency of existing buildings, setting performance standards for new buildings, shifting energy supply to renewable sources, reducing vehicle miles traveled (VMT), relying more on transit, walking and bicycling for local and regional mobility, decreasing solid waste disposal, conserving water resources and creating better access to fresh, locally produced food.

In the sections that follow, each topic area contains a brief overview and corresponding goals and strategies to guide the community in implementing Clearwater Greenprint and achieving long-term sustainability. The plan correlates to reducing greenhouse gas emissions. The sections that follow indicate a general measure of effectiveness for each strategy in relation to this goal. The methods and assumptions behind the reductions are included in Appendix A Strategies Documentation.

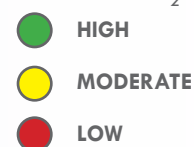
PHASING AND COSTS

The strategies in this document provide the foundation for addressing sustainability issues over a 25-year planning period and beyond. The strategies focus on actions that can be implemented at the local level

over three phases: short term (0-5 years), medium term (6-10 years) and long term (11-25 years). Following the description of the strategies, there is summary information on the anticipated phasing of individual strategies relative to the three phases. The strategies were phased in considering issues of cost, effort to mobilize, effectiveness of reducing greenhouse gases and public preferences garnered through direct outreach and meetings. The implementation summary also includes information on the estimated City of Clearwater staff hours to implement the strategies and manage the Clearwater Greenprint program. The non-personnel costs to implement the strategies are summarized as well. More detailed information about the staff hours and costs can be found in Appendix A Strategies Documentation.

GREENHOUSE GAS REDUCTION EFFECTIVENESS

Individual strategies in some of the following sections have been assessed for their relative impact on the overall greenhouse gas (GHG) reduction strategy. Education and awareness, food production and green business and jobs were not analyzed for their effect on GHG reduction. The following graphics indicate varying levels of effectiveness for each strategy to reduce emissions of CO₂e:



SECTOR INVOLVED

Individual strategies in the following sections relate to different sectors of the community. The following graphics indicate the sectors that will need to be involved to effectively implement the strategies:





ISSUES

One of the most significant barriers to the community embracing and implementing Clearwater Greenprint is not money, time or energy. It is a lack of knowledge and understanding of how our choices today affect the natural environment, economy and overall quality of life now and in the future. While the average person has an ever increasing amount of information available to them on the topic of sustainability, the exposure has not resulted in enormous structural changes in our economy and everyday behaviors. One issue is that structural change takes time to occur. With education and understanding of what is at stake, most people will embrace conservation, efficiency, and environmental stewardship and make those a conscious component of their day-to-day living. However, in order to affect the amount of change necessary to reduce greenhouse gases significantly in the short run, there is a need to catalyze that process with compelling and useful information about Clearwater Greenprint that is tailored to the Clearwater community. A large percentage of the population will have to be aware of the choices available to live more efficiently and sustainably and then be able to act upon those choices. Many choices will require investment of time and money so the information presented must demonstrate to residents and business owners the expected returns on investment from making those choices.

OPPORTUNITIES

By focusing on education and raising awareness, community members of all ages can be provided with the information needed to affect change. Through education and working in partnerships with residents and business interests, the city can help the community replicate the city's success in making buildings and operations more efficient. Clearwater Greenprint itself is a vehicle to illuminate the most pressing sustainability issues facing the community as well as the most effective responses available. The city can incorporate Clearwater Greenprint strategies and initiatives into its ongoing communications activities, creating opportunities to encourage responsibility and foster participation in making Clearwater a sustainable community. The city already offers programs to educate residents and business owners to encourage environmentally responsible behavior such as recycling and water conservation. Opportunities for education and awareness can be realized by different groups working together. These include neighborhood associations, organizations, schools, businesses, utilities, and government agencies.

GOALS

- Educate the Clearwater community on the “triple bottom line” value of sustainability.
- Educate children about sustainability.
- Provide opportunities for hands-on experience with practical actions that respond to the need to be more efficient and conservation-minded.
- Provide clear, concise, credible, and compelling information on sustainability in a wide variety of venues and formats.



Today's children will grow up with an understanding of how our choices will affect the natural environment, economy and overall quality of life in the future.



There is a need to raise community awareness with compelling and useful information that responds to the need to be more efficient and conservation-minded.

STRATEGIES

1. COMMUNITY EDUCATION



The city will identify and meet training and educational needs within each Clearwater Greenprint topic area, recognizing synergistic partnership opportunities.

Each topic area includes some aspect of education, awareness, outreach or partnership development. Some areas such as waste management and water resource conservation have been communicated consistently to the community over many years. Other topic areas have not yet received much attention and will need to be communicated effectively to citizens. There will be significant need for ongoing education and awareness on all Clearwater Greenprint topics, with a link to how each relates to the overall greenhouse gas reduction strategy. Existing forums can be used to convey sustainability information, including community events, neighborhood meetings, and Clearwater's Citizen's Academy.

The city, along with individuals or community groups, can participate in public education and inspiration through print media, community-based websites, e-mail listservs, and social networking websites. Short articles in newspapers and newsletters with frequent accessible information on sustainability will help build greater understanding of local issues and outside forces that affect the community.

The city will create and provide information to educate and involve Clearwater households in green initiatives and sustainable best practices, and inform them of available programs. An effective way to promote action through education is to identify and make guidance available on simple steps that individuals can take and explain how they translate to environmental, economic, and social benefits individually and citywide. The city will create a "savings challenge" checklist that will provide a menu of options with measurable outcomes to empower individual households to conserve energy. This checklist also has the potential to be turned into a pledge, which will enable residents and businesses to identify strategies that work for them and to understand the benefits of specific responses.



Opportunities for education and awareness can be realized in various areas, building greater understanding of local, regional and national issues.



Existing forums can be used to convey sustainability information, including community events, neighborhood meetings, and Clearwater's Citizen's Academy.

2. COMMUNITY OUTREACH



Continue to conduct community outreach and education campaigns that promote sustainability initiatives and best practices.

A successful education initiative must engage Clearwater youth. The city will consider facilitating a committee coordinated with the Pinellas County School Board and made up of local K-12 school teachers, parents, and educational institutions to recommend effective ways to integrate sustainability into current school programs, projects, and curricula. A potential initiative of this group could be to organize an annual sustainability education conference for teachers, parents, and youth that focuses on integrating sustainability and related topics into the classroom. The conference will raise awareness of sustainability among local educators and allow the community to share its successes.

The city along with local businesses will consider organizing and promoting internship opportunities for students interested in sustainability. This will allow students to bring new and innovative ideas to local organizations while gaining valuable job experience. Where possible, the city will provide opportunities for community members to participate in these programs.

The city will consider developing new events that engage the community in sustainability in fun and innovative ways. Examples include art contests, speaker and film series, and neighborhood challenges. Local businesses already have success stories with engaging children around sustainability topics (e.g., decorating bags on Earth Day).



An annual education conference for teachers, parents, and youth can integrate sustainability issues into the classroom and allow the community to share its successes.

3. GREEN INITIATIVE REPORTING



Continue to highlight the city's green initiatives and report the associated benefits.

Tracking the success of existing and new green initiatives is a vitally important component of Clearwater Greenprint implementation. In addition to greenhouse gas emissions, many environmental, economic, and social metrics can be easily collected and reported if integrated into plan implementation from the beginning. The city will design a framework with standard metrics to facilitate data collection, analysis, and reporting of performance for the different initiatives. For example, a waste management initiative aimed at reducing municipal solid waste could measure reduction in tons of solid waste, greenhouse gas emission reductions, etc. The benefits, costs, and lessons learned of the various efforts would be shared with the Clearwater community as well as other local governments.



A Greenprint online forum will allow community members to exchange information about their own sustainable actions, including green efforts at home.



The city will reach out to individuals and community groups with educational print media and community-based web content.



The Clearwater Greenprint brand and associated materials will continue to serve as a clearinghouse for the city's online and direct sustainability outreach.

4. MUNICIPAL STAFF EDUCATION

Educate City of Clearwater elected officials and staff on sustainability issues and best practices.

While City Council and staff have been involved in the development of Clearwater Greenprint, the people who serve the city will change over time. To keep staff and Council members connected to Clearwater Greenprint goals, strategies, and initiatives, as well as rapidly evolving fields of sustainability, the city will organize ongoing educational workshops and presentations to keep decision-makers up-to-date on sustainability initiatives and opportunities. City staff will integrate sustainable practices into daily operations and serve as ambassadors and educators about city sustainability programs and projects as they interact with the public.

5. UNIFIED INTERACTIVE WEBSITE

Create and enhance web-based materials for community education and interaction on sustainability issues.

The city currently maintains two websites for sustainability education and outreach. The Green Clearwater website highlights the city's green initiatives and programs, and the Clearwater Greenprint website educates users on greenhouse gas emissions and ways to reduce these gases citywide. The city should combine these webpages into a single Clearwater Greenprint website to serve as a clearinghouse for the city's online sustainability outreach. While each site provides valuable information about green efforts in the city, they do not allow for community interaction. Within the single website, the city will consider developing a new online forum that will allow community members to exchange information about their own sustainable actions, including green efforts at home, best practices in business, upcoming events, and case studies. The city may consider launching a wiki, like the Sarasota County Wiki, that allows users to easily collaborate with the city and others about sustainability issues and solutions.

ISSUES

The average building in Clearwater is over 30 years old and was built prior to the adoption of the Florida residential energy code in 1979. The majority of buildings in Clearwater were built during a time when electricity was cheap and abundant and less was known about the potential environmental impacts. Developers paid little regard to constructing buildings that used resources and energy efficiently.

In 2007, electricity use was the biggest contributor to the citywide carbon footprint. On average, the majority of electricity consumed is for lighting, heating and cooling buildings. Basic municipal services, such as treatment and transport of water and wastewater and operation of traffic signals also account for a portion of the energy used. Clearwater purchases all electricity from Progress Energy, a private utility company. As of 2009, Progress Energy relied on fossil fuels (i.e., coal, gas and oil) to generate 65 percent of the electricity it produced.

Aside from a minimal amount of solar photovoltaic (PV) systems installed on residential rooftops, there is currently little infrastructure in place to generate renewable energy in Clearwater. With the city nearing build out, the potential for renewable energy expansion will rely on the installation of smaller systems distributed across the city as opposed to large scale centralized plants. Without action, the community will continue to rely on fossil fuels, leading to significant increases in energy costs and greenhouse gas emissions over the next 25 years.

OPPORTUNITIES

The Clearwater community is in a position to reduce energy consumption and build energy generation capacity by implementing such measures as attic insulation, duct leak repair, replacing incandescent bulbs with appropriate fluorescents, and upgrading air conditioning units, windows, and appliances to more efficient ones. However, these measures will require significant participation by residents, businesses, and institutions. The most promising opportunities involve energy efficiency improvements to existing buildings, development of new buildings to high performance standards, and shifting the community's dependence on fossil fuel energy sources to renewable sources of energy.

Retrofitting existing buildings and constructing new buildings to be more energy efficient is vitally important. With a small package of energy efficiency retrofits, building owners can decrease their energy use and operating costs by 20 to 30 percent. The Clearwater community can use local, state and federal rebates and the programs of local vendors and energy utilities to make these retrofits more affordable.

Building science has undergone considerable advancement in the last decade. Sustainable or "green" buildings are designed to be highly resource and energy efficient to significantly reduce environmental and economic impacts over the lifetime of the structure. Depending on the type of building, the benefits of a green building can last up to 80 years. Through the development of national standards, green buildings have become more commonplace and economical. As Clearwater continues to redevelop and



In 2007, electricity use was the biggest contributor to the citywide carbon footprint. On average, the majority of electricity consumed is for lighting and cooling buildings.



Property owners can decrease their energy use by 20 to 30 percent with basic energy efficiency and insulation improvements.



Renewable energy technologies will play a valuable role in reducing the community's reliance on fossil fuels.



New financing solutions are emerging for property owners to make vital energy efficiency upgrades.

add new building stock, advancements in building science will need to be incorporated into building design, construction and operation to ensure a new generation of efficient buildings.

While energy efficiency improvements have the potential to cut energy demand by 30 percent, renewable and alternative energy technologies stand to play a central role in reducing the Clearwater community's reliance on fossil fuel energy. With innovative financing and technological advancements, the Clearwater community has a valuable opportunity to generate a greater share of the local energy supply. Renewable energy sources such as solar, wind and biomass produce far fewer greenhouse gases than coal and oil. While Clearwater will continue to rely on large-scale centralized energy production in the near future, other ways to produce energy to feed the grid or directly supply power to homes and businesses should be explored.

GOALS

- Reduce the energy demand of existing private buildings through energy efficiency upgrades.
- Decrease energy demand of existing city buildings and operations.
- Replace conventional sources of energy with renewable sources.
- Increase the resource and energy efficiency of new public and private buildings.

STRATEGIES

1. ENERGY FINANCE PROGRAM

Assist property owners to obtain capital for energy efficiency and renewable energy improvements through implementation of an energy financing program.

Many properties in Clearwater can reduce energy consumption significantly through basic retrofits, such as insulation, high efficiency appliances (e.g., water heater), and high efficiency lighting. Properties can also generate a percentage of their electricity use through installation of renewable energy systems (e.g., solar photovoltaics and geothermal). While basic energy efficiency improvements are the most economical way to reduce energy use, property owners may be discouraged by up-front investment costs.

The city will consider partnering with public and private organizations to establish an energy finance program that provides property owners with long-term, low interest loans for energy improvements. The program would target older, inefficient residential, commercial and industrial buildings and prioritize retrofits that result in cost savings that exceed, or at least offset, the original investment. Loan payments could be assessed to the property tax bill (e.g., Property Assessed Clean Energy) so that the loan is assigned to the property instead of the property owner.



2. RESOURCE CONSERVATION PROGRAM



Partner with local organizations and vendors to create a Resource Conservation Management Program to recommend energy-saving solutions and products to commercial and industrial businesses.

Commercial and industrial properties are responsible for nearly half of the electricity use in the city. While Progress Energy provides energy audits free of charge, the assessments are limited in scope and recommendations are primarily focused on physical upgrades. Many businesses can achieve energy and cost savings by implementing simple conservation practices and energy efficiency upgrades. The city, in concert with private companies and local educational institutions, will develop and implement a program that performs comprehensive energy evaluations, recommends conservation practices and upgrades, provides basic information on financing options, and measures the environmental and economic benefits after implementation. Program partners, such as local vendors and utilities, could offer discounted products.



Clearwater's commercial and industrial buildings are low hanging fruit for making energy efficiency gains through new technology and operations systems.

3. INCENTIVES FOR UPGRADES



Provide incentives for energy efficiency upgrades on commercial properties.

Major renovation in Clearwater provides a prime opportunity to update existing buildings with energy efficiency improvements. To encourage both retrofits on existing buildings and building preservation, the city will consider implementing a "feebate" program, a self-financing system of fees and rebates that would reward developers that renovate buildings to a nationally recognized high performance standard using fees charged to developers that do not.

4. PERFORMANCE STANDARDS



Encourage all new residential and commercial developments to meet a nationally recognized, high-level performance standard.

As Clearwater approaches build out, the city has shifted to renewing and restoring areas that have already been developed (i.e., redevelopment). During redevelopment projects, the city will work with and encourage developers to incorporate green building practices and standards into their design, construction, and maintenance and operation plans. For example, a builder could construct solar-ready homes to facilitate installation of solar panels by the property owner. The city will encourage the use of national building performance standards, such as Leadership in Energy and Environmental Design (LEED), Florida Green Building Coalition and Energy Star.



There are many established best practices in national performance standards for developers to use when constructing new buildings to be energy efficient.



Natural gas is a more efficient energy source that emits lower levels of greenhouse gases than electricity from standard generation sources.



There is ample space and opportunity for installing renewable energy systems (e.g., solar photovoltaic and geothermal) throughout the city.

5. NATURAL GAS EXPANSION

Continue to expand natural gas service and offer incentives to residents and businesses to convert from electricity to natural gas.

Clearwater Gas System launched several programs in 2010 to increase the amount of residents and businesses that use natural gas to power appliances (e.g., water heater and range). Natural gas is more efficient and has lower greenhouse gas emissions than electricity generated from standard sources. Clearwater Gas System will continue to offer these programs to increase the use of natural gas as an alternative to electricity and will continue to educate and encourage the community to adopt natural gas powered appliances as service becomes available.



6. LOCAL POWER GENERATION

Explore options for electrical generation of low-carbon and renewable energy from existing citywide resources.

The city has the potential to generate energy from a variety of local sources, including natural gas, biogas from wastewater treatment facilities, and biomass (i.e., yard and food waste). Additionally, Clearwater's land, sun and wind are also resources that can be utilized to generate energy through installation of renewable energy systems. The city will request proposals from private companies to design, build, install and operate small-scale energy technologies that can utilize available resources to generate electricity and/or heat energy. The most viable technologies will generate energy at a competitive rate for the city while also reducing other sources of greenhouse gases such as solid waste and biogas.



7. RENEWABLE ENERGY CHALLENGE

Set a community challenge to install renewable energy systems on 10 percent of residential properties and 15 percent of commercial, industrial and city properties.

While there is limited vacant land in Clearwater to accommodate renewable energy projects, there is ample space for installing renewable energy systems (e.g., solar photovoltaic and geothermal) on residential, commercial, industrial and city properties. The city will prepare a marketing and outreach campaign to challenge residential and nonresidential property owners to install renewable energy technologies. As part of the challenge, the city will strive to meet the goal by purchasing and installing renewable energy systems that are economically viable and that have the quickest return on investment.

To assist residential, commercial and industrial property owners in meeting the challenge, the city will support



code changes that remove obstacles to installing renewable energy systems and provide information to assist the consumer in purchasing renewable energy equipment. Information may include local, state and federal incentives, local contractors, economic and environmental benefits of the technology, potential ways to finance the systems and a website that allows the Clearwater community to view and post where installations have been made.

8. RENEWABLE ENERGY FINANCE



Investigate options for public/private partnerships to finance renewable energy systems.

Aside from energy finance programs (Green Energy & Buildings Strategy #1), there are other public and private financing mechanisms that can be used to lower up-front costs of renewable energy systems for property owners. Some financing mechanisms include clean renewable energy bonds, power purchase agreements, net metering, and bulk purchasing of renewable energy systems. The city will investigate various financing mechanisms for expanding renewable energy generation and share its findings with the community at large.

9. ENERGY-EFFICIENT STREETLIGHTS



Collaborate with local governments and the local electric utility to convert streetlights to solid state lighting.

The city experienced significant energy and cost savings by replacing traffic and pedestrian signals with light emitting diode (LED) lamps, a type of solid state lighting. With support from local governments such as Pinellas County and St. Petersburg, Clearwater will approach Progress Energy to request conversion of the electric utility's streetlights to solid state lighting. Compared to conventional lighting, solid state lighting can reduce energy use by 50 percent and requires less maintenance.

10. MUNICIPAL ENERGY POLICY



Develop energy management policy for all city buildings and operations.

The city will develop a formal energy management policy for city buildings and operations with the intent to reduce electricity intensity (kilowatt-hours per square foot) an additional 10 percent by 2015. The policy will set reduction targets and dates, standardize operation practices (e.g., thermostat set points), establish energy benchmarking protocol and specify acceptable and prohibited equipment use and purchases, building upon the city's existing policy requiring that natural or propane gas furnished by the Clearwater Gas System be used in all city facility applications wherever such use is economically justified.



Net metering, an incentive for consumer investment in renewable energy generation, allows customers to receive retail prices for the excess electricity they generate.



Compared to conventional lighting, solid state lighting (e.g., LED) can reduce energy use by 50 percent and requires less maintenance.



The city will establish a re-commissioning plan to make adjustments at regularly scheduled intervals to optimize the performance of its buildings.



The city will lead by example by building all new municipal facilities to a nationally recognized, high-level performance standard.

Best practices and results will be shared with the business community in an effort to expand the energy efficiency practices citywide.

As part of the policy, the city will establish a baseline of each city building's electricity and natural gas use and continue to monitor energy usage on an annual basis. This process of benchmarking allows the city to prioritize building energy retrofits and maintenance and measure its progress towards energy reduction goals established in the energy management policy. The city will consider installing a web-based energy tracking system to acquire real time energy consumption data of individual buildings, which will allow for more detailed analysis on the performance of its buildings.

11. MUNICIPAL ENERGY PLAN



Implement a re-commissioning plan for all city buildings.

The city has made investments in energy efficiency upgrades of its buildings and is expected to save millions of dollars in energy and operational costs over the next 15 years. However, the full energy savings will not be achieved without ongoing maintenance of the equipment. The city will establish a re-commissioning plan to inspect, test and make proper adjustments at regularly scheduled intervals to optimize the performance of its buildings and equipment. Where necessary, the city will provide training to key staff that do not currently have the appropriate skills to test the equipment.

12. MUNICIPAL PERFORMANCE STANDARD



Construct all new municipal facilities to conform to a nationally recognized, high-level performance standard.

The city will lead by example by building all new municipal facilities to a nationally recognized, high-level performance standard such as LEED, Florida Green Building Coalition or Energy Star. Within a chosen standard, the city will prioritize energy and water efficiency features.

ISSUES

Transportation is a key sustainability issue. The ability to easily and affordably travel using multiple forms of transportation is essential to a healthy local and regional economy. Providing safe, convenient, and affordable transportation options for residents, workers, and visitors is an important component of Clearwater Greenprint. Having true transportation choice requires continued investment in 'complete streets' that accommodate pedestrians, bicyclists, transit, and cars and creating built environments that makes these transportation options viable.

Clearwater's roadway network provides a significant amount of capacity for vehicles through a grid network of major arterials, local collectors, and neighborhood streets. The size and configuration of the network has been able to support the growth of Clearwater and Pinellas County to date, despite some areas of congestion. The key issue with the roadway network is the inability to add capacity through street widening. Most of the major streets in Clearwater have been widened to the maximum extent feasible. New widening projects are not possible in most areas due to prohibitive right-of-way acquisition costs and potential undesirable impacts to adjacent neighborhoods. The constraints and limitations on the vehicle capacity of the street network will require greater reliance on alternatives to automobile travel to meet the future travel demand. The pattern and design of the urban environment should better support walking, transit and bicycling. At the same time, the design and function of the street network need to be reconceived to achieve a balance between the needs of all users of the transportation system.

Emissions from motor vehicles are responsible for approximately one-third of all local greenhouse gases. While there is a shift toward diversity in motor vehicle types, almost all of the existing vehicle fleet is powered by fuels derived from petroleum. Oil is getting more and more expensive to locate and extract from the Earth and worldwide production of conventional crude oil has peaked due to extraction outpacing new discoveries of recoverable reserves. Because of the supply of oil and its greenhouse gas emissions characteristics, it is vitally important that the city prepare for alternative sources of fuels and promote travel options to create a more sustainable economy and environment.

OPPORTUNITIES

The city has the opportunity to continue playing a leadership role in countywide and regional discussions related to future transportation investment. City elected officials, staff and citizens actively participate in the Pinellas County Metropolitan Planning Organization (MPO) and the Tampa Bay Area Regional Transportation Authority (TBARTA). Along with the Pinellas Suncoast Transit Authority (PSTA) and other local governments within Pinellas County, these agencies have compiled a long-range vision of the future needs of the local and regional transportation network. For the Clearwater area, this vision includes significant investment in bus and rail transit, pedestrian and bicycle facilities and roadway operations and capacity improvements. Expansion of the transit system in particular will require new sources of funds that



Providing safe, convenient, and affordable transportation options for residents, workers, and visitors is an important component of Clearwater Greenprint.



Emissions from motor vehicles are responsible for approximately one-third of all greenhouse gases produced within the Clearwater community.



The city has a unique opportunity to support the use of alternative fuel vehicles. Clearwater Gas System has constructed a compressed natural gas filling station.



In addition to safety benefits, the city's roundabouts reduce congestion and intersection idling. This example is located on Clearwater Beach.

are not currently available. As the Pinellas community prepares for a referendum to establish a sales tax to fund transit and other transportation improvements, the city has an opportunity to assess the costs and benefits of the planned investments.

The city has committed to creating a local transportation system that supports different modes of travel and increases the efficiency of the street network. The city works internally and in coordination with its transportation partners to implement an intelligent network of coordinated traffic signals, roundabouts, intersection improvements, and facilities for pedestrians and bicyclists. Despite these efforts, there is still much to do to create complete streets throughout the community that safely and effectively serve different users of the transportation system. Clearwater Greenprint is an opportunity to not just demonstrate the need for doing this, but to quantify the relative benefits of different approaches to providing transportation facilities.

The city has a unique opportunity to lead by example in supporting the use of alternative fuel vehicles. Clearwater Gas System recently constructed a compressed natural gas filling station, which is one of only a few in the state. Many new city fleet vehicles will run on natural gas, which emits less than half the greenhouse gases of gasoline engines. During the development of Clearwater Greenprint, the city approved its first purchase of a natural gas garbage truck and committed to retrofitting trucks already in use. The city also has an opportunity to prepare for an increase in the number of plug-in electric and hybrid vehicles and encourage alternative fuels when they are shown to produce fewer greenhouse gases than gasoline or diesel.

GOALS

- Encourage the use of transit, walking, and cycling for a greater percentage of overall travel.
- Reduce the greenhouse gas emissions of the vehicle fleet by shifting to cleaner fuels and more fuel efficient vehicles.
- Reduce the number and length of vehicle trips and reduce congestion.

STRATEGIES

1. VEHICLE MILE REDUCTION

Set a 10 percent challenge for businesses and individuals to reduce motor vehicle miles of travel (VMT) with web-based tracking and recognition of success.

If the Clearwater community is going to succeed in meeting short-term greenhouse gas reduction goals, it will require a large number of people committed to conservation through reducing the amount of driving they do. The city will initiate a VMT reduction campaign that will engage potential participants through



education. By setting a challenge to reduce VMT by 10 percent, businesses and residents who participate will consciously consider the amount of driving they do and take specific steps to reduce it. The city will promote a web-based VMT reduction challenge tool that will track goals and results and encourage individuals and businesses to develop their own VMT reduction plans. The city will lead by example through an internal VMT reduction program for their employees to precipitate behavioral change in how they get to work and conduct city business.

2. COMPLETE STREETS



Enact a Complete Streets policy, establishing transit, walking and biking as priority policies.

The city has a long-standing commitment to pedestrian and bicycle-friendly infrastructure, which reduces transportation-related greenhouse gas emissions, reduces traffic congestion and promotes a healthier lifestyle for Clearwater residents. Providing sidewalks, multi-use paths and bike lanes along city streets is a matter of policy for the city. These facilities are controlled through design standards that are implemented by the city or through working with the Florida Department of Transportation and Pinellas County to make sure each street modification project built in the city includes facilities and amenities for all users. Improvements can be small scale or part of larger transportation projects. A Complete Streets policy will be crafted and adopted by the city to serve as an impetus and framework for action. As part of implementing a Complete Streets policy, the city will classify the street network according to function and create multimodal design guidelines for each street type. The guidelines will include guidance on how to size and locate the component parts of the street, establishing a comprehensive resource for how to design sidewalks, bicycle lanes, trails and transit infrastructure in harmony with motor vehicle travel lanes, speed, operations, and capacity.

The city will continue to promote walkability throughout Clearwater. Pedestrian activity will increase by making walking safer and more comfortable with sidewalks, accessibility ramps, benches, bulb-outs at intersections, landscaping, conveniently located transit stops, and pedestrian-oriented redevelopment. The city will promote bicycling by adding improvements that make bicycling safer, more convenient, and more enjoyable. The city will monitor opportunities for incorporating sidewalks and bicycle lanes during resurfacing and other roadway projects. The city will ensure the proper amenities for bicyclists to further promote bicycling for transportation.

The city will advocate for increased funding for transit, bicycling and pedestrian facilities. The city will continue to implement, monitor, review, and update the City of Clearwater 2006 Shifting Gears Bicycle and Pedestrian Master Plan, placing an emphasis on investments in multi-modal facilities and creating partnerships with other agencies that plan, design and implement transportation projects. In addition to implementing larger projects, it will be important to continue to infill sidewalk gaps citywide.



Well designed pedestrian and bicycle infrastructure will reduce greenhouse gas emissions, reduce traffic congestion and promote a healthy lifestyle for Clearwater.



A Complete Streets policy will improve the convenience of major roads, such as Gulf to Bay Boulevard. Numbers of transit patrons, pedestrians and cyclists will continue to grow.



Improving the bus transit system will give residents, employees and visitors more options, providing access to jobs, services and tourist destinations.



The city will continue to play a central role in implementing passenger rail, including rail connecting Clearwater to Pinellas County's Gateway area, St. Petersburg and Tampa.

3. LOCAL TRANSIT IMPROVEMENT



Continue to support the improvement and expansion of the Pinellas Suncoast Transit Authority (PSTA) system.

The city will participate in the ongoing efforts to plan for and implement the 2035 vision for the regional transit system. Improving the transit system will give residents, employees and visitors more options, providing access to jobs, services and tourist destinations. The city will continue advocating for more funding to increase transit frequencies on existing routes, which will improve ridership by increasing convenience. As PSTA expands the existing system, the city will assist them in identifying underserved areas where new service will expand economic opportunity for local residents and employees. The city will continue to emphasize the need for new transit service to connect downtown with Clearwater Beach, using the Beach Trolley, and creating a bus rapid transit network that spans the city's arterials and connects to major traffic trip origins and destinations.

The city will continue to play a central role in the implementation of passenger rail in the Tampa Bay region. The city will coordinate with TBARTA, PSTA and the MPO to plan for and implement specific transit investments that are being considered, including rail connecting Clearwater to Pinellas County's Gateway area, St. Petersburg and Tampa. The city should proactively educate citizens on the components, costs, and benefits of the transit solutions being proposed.

The city will assist PSTA in making the rider experience as enjoyable and easy as possible. The city will work with PSTA to improve attractiveness of bus stops to ensure a comfortable and safe atmosphere that will attract more riders by enhancing bus stops citywide with benches, shelters, trash cans, easy to read wayfinding signs and other amenities.

4. LOW EMISSION VEHICLES



Prioritize low-to-zero emission transportation modes such as electric and natural gas vehicles in policy plans and ordinance development.

The city will create an environment where low-to-zero emission vehicles have public and private infrastructure that supports them. This includes opportunities for different fueling, parking and operational needs. High fuel efficiency combustion engine vehicles of all kinds have a place in the future community vehicle fleet mix. This includes high fuel efficiency cars, smart cars, hybrid vehicles, motorcycles, mopeds, scooters, and golf carts.

Public efforts and public-private partnerships to prepare for vehicles that do not run on conventional fuels should commence immediately. With the coming wave of plug-in vehicles, there will be the need

for charging stations to be available throughout the city. This effort can be coordinated with initiatives of all kinds to produce more energy locally on a small scale. For example, a solar panel installation at an existing parking deck or lot could be used to generate electricity for daytime vehicle charging stations. The city will consider changes to the Community Development Code relative to parking and other accommodations for alternative fuel vehicles. An example requirement would be the provision of charging stations for electric vehicles in new developments. Through readiness, the city will provide residents and local businesses encouragement to shift to electric vehicles and lower their transportation-related greenhouse gas emissions.

The city will continue to improve the municipal fleet by replacing vehicles with models that have higher fuel efficiency, hybrid gas-electric, natural gas, electric, or other alternative vehicles. The city will lead by example through the upgrade of vehicle fleet that will result in fewer emissions and ensure that 50 percent of the city fleet is fueled by alternative fuels/technology by 2020.

The city and Clearwater Gas System will identify other vehicle fleets that can utilize the compressed natural gas fueling station for their operations. The city will continue its program allowing individual residents and businesses to use the filling station for their vehicles. In the short run, there is an opportunity to capture a market for vehicles that are used almost exclusively for local travel that will be able to function with limited local access to filling stations.

5. CONGESTION MANAGEMENT



Continue to plan for and implement congestion management activities and other improvements to increase the operational efficiency of the transportation system.

The city will continue to participate in the countywide effort to implement congestion management projects and the planned Intelligent Transportation System (ITS) in Pinellas County. Congestion management projects include turn lanes, dynamic messaging signs and the use of adaptive signal timing software as well as the standard coordinated traffic signals. Projects that reduce congestion and idling have a significant effect on greenhouse gas emissions from vehicles. Transit system ITS improvements such as signal coordination with bus routes and up-to-the-minute messaging about bus schedules and wait times will enhance the user experience and increase ridership.

The city will also work to implement roundabouts for new road construction projects that will result in reduced frequency and severity of crashes, reduced traffic delays, increased traffic capacity, reduced long-term operational costs, and reduced emissions and noise.



The city will create an environment where low emission vehicles have infrastructure that supports them. High efficiency vehicles of all kinds have a place in the future vehicle fleet.



Projects to improve roadway capacity are increasingly difficult to implement. Intelligent Transportation Systems will reduce congestion on existing facilities.



Photo Credit: Top Left: National Complete Streets Coalition, Top Right: cafemama "flexcarpost" via Flickr, Bottom Right: PSTA

ISSUES

The City of Clearwater's urban form was shaped during a period when energy was cheap and abundant and driving was the primary mode of transportation. These conditions resulted in low-density, automobile-oriented development throughout much of the city. Clearwater is largely built out and reliant on infill development, redevelopment, and building rehabilitation and reuse to accommodate growth. Creating conditions that optimize this type of growth requires thoughtful consideration of the relationships between land use and transportation options.

There are many parts of the city where significant physical change is not anticipated in the near future. Many commercial areas and neighborhoods are either stable or are attracting new building activity at a very slow rate. Where redevelopment is not occurring, buildings will need to be maintained, repurposed or retrofitted to ensure quality housing, jobs, goods and services are available throughout the community. This is one of the biggest long-term challenges facing the city. There will be an increasing rate of building obsolescence due to rapid residential and commercial growth over past decades using building systems and technology with relatively short useful lives, a high need for ongoing maintenance, and systems that require a significant amount of energy to operate. The present and future stewards of the current building stock will be challenged to invest enough money to successfully maintain the building shell while upgrading and renewing building systems and fixtures to be more energy efficient and operationally cost effective.

In addition to challenges that exist in the existing building stock, there are demographic trends that need to be considered in crafting a sustainable approach to land use. According to United States Census Bureau estimates, the permanent Pinellas County population has not grown substantially since 2000 and has been in decline since 2004. In addition to this short-term population trend, there is the potential for a long-term decline in the retiree immigration rate. Clearwater will continue to attract new retirees over time, but it will most likely be a retiree population with less disposable income than generations past. If the retiree immigration rate declines over time, that population will need to be replaced by a different demographic to keep the local economy growing and strong. Over the long term, there will be a need to attract young or working age people to live and work in the city.

The built environment and demographic issues raised in this section have implications for land use and urban form. City policies and regulations will need to strike a balance between engendering high quality, energy-efficient development and maintaining an economic environment where it is attractive to develop new residential units and create jobs. At the same time, the city will need to incentivize reuse and revitalization of the existing structures so they can remain viable over the long term.

OPPORTUNITIES

There are many important sustainability components of land use including housing choices and availability, a jobs-to-housing balance, connected neighborhoods where residents can work, shop, and play, and



Clearwater is largely built out and reliant on infill development, redevelopment, and building rehabilitation and reuse to accommodate growth.



Clearwater will continue to attract new retirees over time, but there will also be the need to attract young or working age people to live and work in the city.



There are numerous places to accommodate new medium and high density development in the city. The city will create a policy framework for energy-efficient growth.



The city will continue to increase the tree canopy through its own plantings and encouraging plantings on private property, which will improve quality of life.

affordable and efficient patterns of living. Focusing on these objectives is an opportunity to improve the overall quality of life in Clearwater and move from heavy dependence on automobiles to more walking, bicycling, and transit use. The greater Clearwater area (i.e., the Clearwater Planning Area, and the immediately adjacent unincorporated areas of Pinellas County) had a permanent resident population of more than 134,000 and workforce of more than 91,000 in 2006. Forecasts show growth in the population and workforce to more than 150,000 and 100,000 respectively by 2035. There will be demand for new, rehabilitated, and repurposed residential and commercial buildings to accommodate this growth over the next 25 years. There are plans to make major rail and bus transit investments in the region within this time frame. The city will benefit from the enhanced transportation system in part through the ability to attract location-efficient, transit-oriented development to accommodate new jobs, residents, and businesses.

Commercial corridors, existing activity centers and downtown provide the best opportunities to accommodate new growth. There are over 600 acres of land in the Clearwater area that are prime for redevelopment (i.e., parcels where land value is more than twice the value of the buildings on it). There are also over 800 acres of vacant land in the Clearwater area.

There are numerous places to accommodate new medium and high density development in the city. Clearwater Greenprint has created the opportunity to link existing policies for redevelopment areas and corridors with the identification of Energy Conservation Areas and Corridors that will require less energy to operate than the typical existing mixed-use areas. The city will create new incentives and policies in the Community Development Code and through special area plans that will link these initiatives and provide a framework for new growth.

Finally, the city has the opportunity to improve quality of life and mitigate greenhouse gas emissions through improving or transforming land area that is currently underutilized. The city will continue to increase the tree canopy through its own plantings and encouraging plantings on private property. It will also continue to seek opportunities to create and maintain areas for recreational purposes and protect environmental resources.

GOALS

- Create vibrant, mixed-use, walkable, transit-supportive neighborhood activity centers to link people with jobs and services and reduce the need for automobile travel.
- Reuse and recycle land through infill development and redevelopment.
- Protect and add to the amount of natural areas, public parks and urban greenspace.
- Fully utilize public and other property to sequester carbon and reduce the heat island effect.

STRATEGIES

1. DEVELOPMENT INCENTIVES



Develop incentives for energy-efficient infill development and redevelopment in activity centers and commercial corridors.

One of the primary land use outcomes of Clearwater Greenprint will be establishing Energy Conservation Areas and Corridors and associated policies. These areas will be defined in the Comprehensive Plan and will complement policies and investments in existing redevelopment areas, activity centers and redevelopment corridors. The city will complete special area plans to define specific boundaries and create strategies that address land use and urban form and are integrated with transportation initiatives and resource conservation measures. Potential Energy Conservation Areas include several districts within the city: Clearwater Beach, the downtown area, North Greenwood area, Hercules Industrial area, Morton Plant Hospital Area and the areas around Countryside Mall and Clearwater Mall. Corridor strategies for energy conservation will also be developed for Drew Street from N. Highland Avenue to S. Bayshore Boulevard, Gulf to Bay Boulevard from N. Highland Avenue to S. Bayshore Boulevard, U.S. 19 from Countryside Boulevard to Belleair Road and S. Missouri Avenue from Court Street to Belleair Road.

The city will update the Community Development Code to include provisions for Energy Conservation Areas and corridors relating to permitted uses for localized energy production, including solar installations on buildings, and food production, landscape requirements, transportation facilities, site lighting and parking requirements. The city will consider supplementing the Community Development Code provisions specific to Energy Conservation Areas by creating a Zoning Overlay District that includes site development standards, density and intensity requirements, energy efficiency and conservation measures for new construction and substantial renovation, parking requirements to include parking for electric vehicles, and level of service standards for sidewalks, bicycle facilities and transit.

In addition to policies specifically designed for Energy Conservation Areas, the city will continue to provide for mixed-use development in livable, transit-oriented neighborhoods in the Comprehensive Plan and Community Development Code. The city will work to improve regulation, investment and incentives that will fulfill residents' dwelling and transportation needs.

The city adopted transit-oriented development (TOD) policies for the Comprehensive Plan. As the city coordinates major transit investments in rail and bus rapid transit, it will provide clear design standards for TOD in station areas and transit service corridors. TOD will not just promote transit use. It will lead to more efficient development patterns and increased rates of walking and bicycling. Promoting infill development will improve the local economy and provide more housing, employment, shopping and entertainment choices in the city.



The city will complete special area plans to address land use and urban form considerations that are integrated with transportation initiatives and conservation measures.



Transit-oriented development policies will not just promote transit use, they will lead to increased rates of walking and bicycling.



A sustainable built environment provides a mix of building types, sizes and ages to increase flexibility in initial use and be available for long term use.



Affordable, energy-efficient and location-efficient housing choices in a range of prices will attract residents in all life stages and income levels.

2. PROPERTY REVITALIZATION



Transform vacant and other underutilized properties from liabilities to assets that provide long-term economic, social and environmental benefits.

A sustainable built environment provides a mix of building types, sizes and ages to increase flexibility in initial use and reuse. New buildings should be designed with flexible space to maximize the potential for reuse in the future. This reduces vacancy and reduces the need for costly demolition and wholesale repurposing of land with obsolete buildings. In addition to economic benefits, construction and demolition waste makes up a large percentage of the waste stream. Restoration and reuse prevents this waste. The city will encourage restoration and reuse of buildings rather than demolition. The city will also maintain the historic designation process, which helps ensure certain properties and neighborhoods are stable, maintained and available for long term use. The city will continue to implement its brownfield program and identify tax credits and other incentives for brownfield and greyfield development. Financial incentives will offset some of the cost of remediation and promote reuse of these usable but sometimes abandoned lands.

3. DIVERSE HOUSING OPTIONS



Create policies and strategies to improve the citywide balance of housing to jobs and encourage the development of housing to enable residents to remain in the city as their housing needs change.

The city will work to create a more self-sustaining community and local economy that will reduce the need for driving while increasing convenience and accessibility to employment. In order for this to work, the residential market will need to provide a variety of housing choices in a range of prices to attract residents in all life stages and income levels. Affordable, energy-efficient and location-efficient housing will increase the chances that Clearwater will continue to maintain and attract a diverse population. Monitoring and working toward creating the right mix of housing type and cost will create a balance of housing supply to jobs and reduce the need for Clearwater residents to commute outside the city to work. This balance carries with it an attractive quality of life element and supports affordable choices for moderate and low income populations. Creating an environment where people can live closer to where they work also greatly reduces greenhouse gas emissions from driving.

4. GREENSPACE EXPANSION



Increase the amount of urban greenspace, natural areas and tree canopy through planting, preservation, community education and outreach programs.

The city will support and expand the community's capacity to manage, develop, and enhance green spaces for natural habitat, recreation, gardening and outdoor education opportunities. This includes improving and maintaining public property, creating public-private partnerships to transition underutilized land to these uses and enabling and encouraging these uses on private property through public policies and programs. Enhancing and expanding green space will result in better stormwater management, higher carbon sequestration, and a better quality of life for residents.

The city will develop a program to educate community members on the benefits of planting trees and recognize residents and businesses that participate. The city will consider piloting a forest carbon sequestration project on municipal land, which along with other existing landscape installations will sequester carbon to offset a portion of the community's annual greenhouse gas emissions. Carbon sequestration is the process by which atmospheric carbon dioxide is taken up by trees, grasses, and other plants through photosynthesis and stored as carbon in biomass (trunks, branches, foliage, and roots) and soils. The sequestration of carbon in forests and wood products helps to offset sources of carbon dioxide to the atmosphere, such as fossil fuel emissions. The planting program should be developed under an existing urban forestry project protocol to allow for recording and reporting the results of the program. The city will continue to maintain active membership in the Tree City USA program administered by the Arbor Day Foundation and meet the standards established by the program.



The city will support and expand the community's capacity to manage, develop, and enhance green spaces for natural habitat, recreation, gardening and outdoor education opportunities.



The city will implement strategies to protect and enhance the natural beauty of Clearwater's beaches and walkable urban neighborhoods and districts.



Photos Credit: Top Right: RACTOD "Dallas Addison Circle" via Flickr

ISSUES

Water has economic, social, and political implications that make it a unique and challenging natural resource to manage. Our habits, practices and expectations about the availability of fresh water threaten long term enjoyment of this vital resource. As the city cannot pump enough groundwater to meet the potable water demand, it must purchase approximately two-thirds of what is used from other suppliers, such as Pinellas County and Tampa Bay Water. In response, the city is adding more reverse osmosis plants to treat brackish water to supplement its potable water supply. While this technology will produce potable water at a less expensive rate than buying from other suppliers, the treatment process is energy intensive and will require significant amounts of electricity to operate the facilities. Transporting and treating water is already the highest energy user and greenhouse gas emissions source of all the municipal operations. As a coastal community, it is also important to consider the future possibility of sea level rise in Clearwater, which could cause seawater to infiltrate freshwater aquifers currently used for potable water.

OPPORTUNITIES

The treatment and transport of potable water and wastewater requires a significant amount of energy. Water use and the energy demand associated with it can be reduced through behavioral change. There are many behavior-related conservation strategies that can be implemented as first steps toward achieving a more sustainable water resource management system. These types of strategies simply require awareness of the issue and the corrective action, along with personal or organizational desire to be part of the solution.

Although Clearwater residents use significantly less water per capita per day (81 gallons) than the national average (98 gallons), water conservation measures can still result in savings. Beyond behavioral changes, there is the installation of water saving devices in homes and businesses. These low cost investments pay dividends through savings, especially when coupled with reducing the need for hot water, which requires a significant amount of energy to produce.

Limiting water used for irrigation is essential to reducing water use. While requiring a certain level of knowledge, planning and investment, landscapes can be created to use small amounts of water and irrigation systems operate only where and when needed. One example is to install rain shutoffs on irrigation systems.

Clearwater's potable water distribution system was initially set up to provide water for buildings and landscape areas. Up to 50 percent of a typical community's drinking water is used for irrigation. As an alternative, residents and businesses can use treated wastewater, or reclaimed water, for irrigation and other non-potable uses. The city continues to expand its reclaimed water system to provide a more sustainable water source for irrigation.



Our habits, practices and expectations about the availability of fresh water threaten long term enjoyment of this vital resource and the natural systems that rely on it.



With proper planning, landscapes can be created to use small amounts of water and irrigation systems can be designed to operate only where and when needed.



The city provides reclaimed water to an increasing number of neighborhoods and commercial areas to reduce the waste of irrigating with potable water and to reduce energy use.



The city will promote the use of on site installations that capture, retain and treat stormwater runoff from parking lots, driveways and roads.

GOALS

- Develop and support water conservation policies and programs, including incentive programs.
- Reduce water consumption and stormwater runoff through conservation and low impact development measures.
- Educate residents and businesses about the costs, both personal and public, of wasting water.
- Promote landscape installations and irrigation systems that conserve water.

STRATEGIES

1. WATER CONSERVATION



Assist high volume water consumers across residential, commercial and industrial sectors to employ water conservation measures.

The city will continue to develop and implement programs that assist high volume water consumers across residential, commercial and industrial sectors in developing water conservation plans. Additional assistance will come through providing and educating community members about the availability of water saving devices and rebates for higher cost devices such as low flow toilets and high efficiency irrigation systems. These incentives have been popular in the city and Pinellas County and result in significant water savings. The city will continue to expand reclaimed water service to more neighborhoods. Current reclaimed water projects include an expansion of the Skycrest area as well as those in the Glen Oaks/Palmetto and Clearwater Harbor neighborhoods.

On an annual basis, the city will continue to consider changes to water use regulation and fees. The assessment will include continuing to evaluate rate restructuring options to promote water conservation. While potentially contentious and complicated, charging the true cost of water through a more nuanced rate structure will encourage heavy water consumers to invest in water conservation. The city will encourage residents and businesses to adopt water conservation standards such as Florida Water Star for existing and new construction and consider developing year-round water restrictions that are more stringent than Southwest Florida Water Management District restrictions.

2. WATERWISE LANDSCAPES



Provide education and incentives to create landscapes that integrate water saving principles.

The city will use code-based incentives (e.g., accelerated site plan review time) to encourage community members to create landscapes concurrent with new development or redevelopment that integrate water saving measures such as Florida-Friendly Landscaping™ principles. Along with incentives, the city will promote and facilitate neighborhood-based projects that train residents on Xeriscape™ practices. The city will partner with neighborhoods and local organizations to recognize existing xeriscaped yards and highlight effective and affordable xeriscaping techniques. Community members also have access to rain harvesting and water conservation workshops through Pinellas County.



The city will encourage community members to develop landscapes that integrate water saving measures such as Florida-Friendly Landscaping™ principles.

3. LOW IMPACT DEVELOPMENT



Develop a low impact development plan with the ultimate goal of capturing rainfall from 10 percent of impervious surfaces.

Rainwater harvesting is a great untapped strategy for reducing the use of treated water for landscape irrigation. Distribution systems, especially from roof areas, are easy to install and there are a variety of sizes and styles (i.e., underground and above ground) of rain barrels and cisterns for rainwater storage. The city will identify and prioritize potential retrofits to municipal facilities for rainwater capture. Additionally, the city will create guidance for private property owners to develop and implement rainwater harvesting plans with a goal of capturing runoff from at least 10 percent of impervious surfaces. The focus of the efforts should be on roof area, but might include installations that capture, retain and treat stormwater runoff from parking lots, driveways and roads. Rainwater catchment systems in combination with greywater reuse will reduce demand for and expense of piped water for landscape irrigation.

As part of the overall sustainable water resources program, integrating low impact development principles into building and site designs, such as swales, rain gardens and vegetative areas, and vegetated swales, will go a long way toward raising awareness of water resource issues. Example guidance and practices exist, such as the Light Imprint New Urbanism principals. Low impact development has many non-water saving benefits, including conserving green space and stormwater retention.



Rainwater catchment systems in combination with greywater reuse will reduce demand for and expense of piped water for landscape irrigation.



Photos Credit: Top Left: Clair Enlow, Bottom Left: Arlington County "Green Roof at Walter Reed CC" via Flickr

ISSUES

Traditional waste management involves the collection and transport of solid waste from homes and businesses to facilities such as landfills and waste-to-energy plants. The facilities are costly to build, notoriously difficult to site, tedious and costly to manage, even after closure, a consistent source of pollution, and linked to human health problems such as increased rates of cancer. Once a landfill has reached capacity, the community usually faces greater costs by having to transport wastes farther distances.

Over 75 percent of the solid waste generated in Clearwater is transported to and processed at the Pinellas County Waste-to-Energy Facility in St. Petersburg, Florida. While the waste-to-energy process reduces the amount of solid waste deposited in landfills and generates electricity, it also produces greenhouse gas emissions from the burning of plastics, tires, and other carbon-based waste materials.

Given this set of conditions and challenges, the community's best course of action is to reduce solid waste by addressing both the producer and consumer ends. Producers can make products using less toxins and packaging while increasing use of packaging that is recyclable or compostable. Consumers can better manage household and business waste by recycling, composting, and properly disposing of electronics and other hazardous waste.

In 2009 alone, Clearwater residents and businesses generated 109,711 tons of solid waste and recycled 5,777 tons of plastic bottles, aluminum cans, steel cans, mixed paper, and newspaper. This tonnage of solid waste generated by the city represented 11 percent of the overall waste produced in Pinellas County. While the city offers recycling and education programs, the local recycling rate was lower than averages for Pinellas County, the State of Florida and the United States. A central issue affecting recycling rates is lack of awareness by residents and businesses on the journey of trash beyond the curb and the associated social, economic and environmental impacts. Education is essential to raising public awareness and, when aligned with the right incentives and policies, will boost participation in the solutions while saving the city money.

In 2008 the Florida Department of Environmental Protection set a statewide recycling goal of 75 percent of all solid waste by 2020. The goal, which applies to state and local governmental entities, private companies and organizations, and the general public, is a clear indicator that everyone must be involved to increase recycling rates and reduce the solid waste stream.

OPPORTUNITIES

Clearwater has an opportunity to reduce tons of solid waste generated by residents and businesses. The city continues to expand solid waste services to divert more waste from the Pinellas County landfill. In 2010, the city significantly increased the amount of yard waste collected from residents and will begin collecting glass in 2012 for recycling purposes.



Traditional waste management involves the collection and transport of solid waste from homes and businesses to facilities such as landfills and waste-to-energy plants.



Over 75 percent of the solid waste generated in Clearwater is transported to and processed at the Pinellas County Waste-to-Energy Facility in St. Petersburg, Florida.



Clearwater residents and businesses can reduce consumption of products that generate large amounts of waste and choose to reuse items rather than placing them in the trash.



The city will consider implementing a Pay-As-You-Throw program, one of the most effective ways to reduce the solid waste generated community-wide.

Other communities in the Tampa Bay Region and Florida have implemented innovative waste management solutions. For example, Sarasota County instituted a Pay-As-You-Throw (PAYT) program and now has the highest recycling rate in Florida (41%). Clearwater can explore best practices from other communities and customize solutions for local application.

A 2007 study revealed that 19 percent of solid waste (by weight) in the Pinellas County landfill was yard and food waste. Approximately 37 percent of solid waste in the landfill was comprised of recyclable paper, plastic, aluminum, and glass products. Combined, these two sources represent over 56 percent of materials that could be diverted from the landfill.

Clearwater residents and businesses can reduce consumption of products that generate large amounts of waste and choose to reuse items rather than placing them in the trash. Consumers can also become more sustainable by buying products that contain post-consumer recycled content, recycling more of what is discarded, and avoiding use of products that are not recyclable.

GOALS

- Increase the rate of recycling in the city.
- Reduce the amount of solid waste generated by residents, businesses, and institutional operations.
- Create economic opportunities for local businesses through increased waste reuse and recycling.

STRATEGIES

1. PAY-AS-YOU-THROW

Test the feasibility of a Pay-As-You-Throw program that charges residents based on the amount of trash thrown away.

The city will consider implementing a Pay-As-You-Throw (PAYT) program, one of the most effective ways to reduce the solid waste generated community-wide. Similar to other utilities (e.g., energy and water), residents would be charged based on how much of the service they use. Thus, households that generate less waste through conscientious buying practices, recycling, and composting will pay a lower price. PAYT programs have been highly successful in many municipalities across the United States in reducing solid waste and increasing the recycling rate. In Florida alone, Gainesville, Sarasota, and Plantation have adopted PAYT programs with great success. With a higher recycling rate, the city provides opportunities for local businesses to process and sell recycled materials.



2. YARD WASTE COLLECTION



Continue to expand yard waste collection service to residents.

Until recently in Clearwater, yard waste was combined with household garbage and sent to the Pinellas County solid waste facilities. In 2010, the city implemented a yard waste program that diverted five percent of solid waste by sending it to a composting facility in Hillsborough County. The program has reduced operating hours and tipping fees paid by the city's Department of Solid Waste/General Services. The city will continue to offer yard waste collection to residents, encourage more households to participate, and investigate opportunities for collection of other organic waste such as food waste for composting.



The city recently implemented a yard waste program that diverted five percent of solid waste to a composting facility that turns waste into mulch and soil.

3. RECYCLING PROGRAM EXPANSION



Expand the number and types of materials that can be recycled through local business partnerships.

Currently, the city provides recycling service that is limited to number 1 (polyethylene) and number 2 (high-density polyethylene) plastics, aluminum, steel, mixed paper, and newspaper. While these are the most commonly recycled materials, the city will continue to explore ways to expand the number and type of materials that it recycles. Securing markets to sell recycled material will be essential to 'closing the loop' and making expanded recycling programs viable. Starting in 2012, the city will begin accepting glass from Clearwater residents.



Although the recycling rate of businesses was slightly higher than the residential sector, it still remains relatively low at six percent.

4. COMMERCIAL RECYCLING



Propose an ordinance to require commercial recycling.

The city will continue to educate the commercial sector on waste management. Although the recycling rate of businesses was slightly higher than the residential sector, it still remains relatively low at six percent. To divert a greater amount of the solid waste generated by businesses to the recycling stream, the city will propose an ordinance to require basic recycling by commercial establishments.

The city will also consider establishing a minimum percentage of construction and demolition waste recycling for construction projects. According to the Florida Department of Environmental Protection, up to 44 percent of construction and demolition waste is recyclable. This mandate would require proof of compliance from the contractor as part of the building permitting process.



The city will consider developing a pilot composting program to divert food scraps from the landfill and demonstrate the viability of a citywide program.



The city will improve its own waste reduction policy and goals that address recycling, green procurement, and printing practices.

5. COMPOSTING PROGRAM

Consider developing pilot commercial and residential food composting programs.

The city will consider developing a pilot composting program to divert food scraps from the landfill and demonstrate the viability of a citywide program. The pilot program will initially target the commercial sector, with preference for high volume generators of food waste including hospitals, schools, and restaurants for on-site or collection composting programs. Information on participation rates, challenges, benefits, and costs will be tracked and monitored. If demonstrated that the program's economic, environmental and social benefits outweigh the costs, the study may be expanded to select neighborhoods in the residential sector.



6. REUSABLE SWAP GOODS

Investigate viability of an annual “Trash to Treasure” event to encourage recycling or swapping of reusable goods.

Similar to websites like FreeCycle and Craigslist that provide a network to give away or exchange used goods, the city will consider organizing an annual community event for swapping reusable goods. The event, like the Clearwater Community Swap held in downtown in 2010, would serve to divert reusable goods from the solid waste stream and could be combined with an educational and awareness campaign on waste management.



7. MUNICIPAL WASTE REDUCTION

Develop a municipal waste reduction policy.

The city offers recycling at many of its facilities and is in the process of moving to paperless (i.e., electronic) systems in some departments. The city's next step will be to adopt a formal waste reduction policy and goals that address recycling, green procurement, and printing practices. Also, standards for events held on municipal sites could be developed to reduce waste generation and increase recycling by thousands of event goers in Clearwater each year.



ISSUES

A sustainable community provides healthy food for its people. The quality of food, health, and the natural environment are interconnected. Strategies to make food healthier and food production more energy-efficient are critical elements of Clearwater Greenprint. The availability of healthy foods directly influences what people eat and therefore their physical well-being. Local foods are generally fresher than foods transported long distances. Most locally-produced food also uses fewer toxic chemicals, which can impact community health and the natural environment.

Consuming locally-grown foods is an important strategy to reduce greenhouse gases. Scientists have shown that approximately one-third of all greenhouse gas emissions come from the inputs, byproducts, and energy used in food production. Food transport consumes approximately 22 percent of the total energy used to get food from farm to market. Household storage and preparation of food consumes approximately 30 percent of the total energy used for the food supply. Local foods are transported shorter distances from farm to consumer tables, ensuring fresher foods while reducing greenhouse gas emissions. Local foods also tend to be less processed and require less refrigeration, which also reduces greenhouse gas emissions.

Most municipal codes for urban areas do not address activities associated with urban agriculture (i.e., cultivating, processing and distributing food in or around a city). As codes were developed, it was not envisioned that these kinds of activities were necessary in the urban environment. However, there is growing awareness of the direct and indirect costs of food produced in distance places which has lead many communities to add provisions to their codes that support a sustainable local food supply. Clearwater should consider local food production as an activity that is integral to overall community sustainability.

OPPORTUNITIES

In spite of its urban character, there is potential in Clearwater for urban agriculture and increased food production. Most land can support some kind of food cultivation, whether in or above ground or in horizontal or vertical arrangements. On the approximately 800 acres of vacant land in Clearwater (both public and private), enough fruits and vegetables could be grown to feed 6,400 people. Additionally, if 15 percent of all residential lots were devoted to kitchen gardens, an additional 1,400 acres of land would be available for food production to feed 11,200 more people. From these examples, it is not difficult to see how approximately 40 percent of the fruits and vegetables produced in the United States during World War II were from victory gardens.

While younger generations have grown up without great awareness of where their food comes from, there are many people in Clearwater that have substantial knowledge about small-scale food production that could provide guidance for community gardening. This presents a significant opportunity for learning, experimenting, and knowledge sharing within the community and even bridging cultural and generational divides.



Scientists have shown that approximately one-third of all greenhouse gas emissions come from the inputs, byproducts, and energy used in food production.



Most people lack an understanding of the relationship between food quality, nutritional health and the environmental consequences of large-scale agriculture.



Creating the environment for a local food system provides an opportunity for knowledge sharing within the community, bridging cultural and generational divides.



Local agricultural networks will facilitate the delivery of a unique set of services and products, create economic activity and generate interest in Clearwater.

In its efforts to be a sustainable community and increase the local food supply, the city can explore the various methods of urban agriculture such as hydroponics, aquaculture, aquaponics, and rooftop growing to discover which are best suited to local conditions and preferences. There may be interest in community supported agriculture like the Gateway Organic Farm in Pinellas Park where members participate in growing food and share in the harvest.

By creating a supportive environment for urban agriculture in its many forms, the city will facilitate the delivery of a valuable and unique set of services and products, create economic activity, and strengthen its sustainable community image.

GOALS

- Enable and encourage urban agricultural initiatives, projects, and programs.
- Identify areas with potential for food production.
- Encourage citizens to grow their own food and ensure they have access to locally sourced food.
- Create markets and incentives to buy local food products.

STRATEGIES

1. TASK FORCE

Create a task force (e.g., Urban Agriculture Task Force) to recommend and implement methods to advance local food production.

A new task force organized and facilitated by the city will assist in developing and implementing recommendations for expanding local food production. The task force will develop partnerships among non-profits, ministries, neighborhood associations and private interests to increase local food production and commerce, funding opportunities, and pooling of resources. Partnerships will increase opportunities for grant funding for planning and project start-up activities. The U.S. Department of Agriculture Community Food Planning Grant Program is an example of a funding program which can be used for food systems planning. This and other opportunities for funding will be monitored and pursued by the city and community organizations, as appropriate. The task force could create an educational campaign to bolster awareness and use of existing initiatives that promote local food consumption.



2. LOCAL FOOD PRODUCTION



Identify foods and other agricultural products that are produced locally.

The task force should define what is “local” in the context of food production and the community’s needs and develop a “foodshed” program in collaboration with regional partners to increase the availability of local foods. A “Buy Fresh Buy Local” program will serve as a model program for strengthening local and regional markets. It will identify and highlight local growers, exposing them to the local Clearwater market. It will also provide general information on the benefits of locally-sourced food. The program would create multiple food growing, processing, storing, and selling opportunities, increase awareness, and provide linkages between farmers, consumers and organizations.



The city will conduct an inventory of lands that would be suitable for food production for the purpose of identifying sites for food production pilot projects.

3. URBAN AGRICULTURE



Identify spaces throughout Clearwater where food production would be viable and amend the Community Development Code to support food production activities.

The city will conduct an inventory of public and semi-public lands that would be suitable for food production for the purpose of identifying sites for food production pilot projects. The city will amend the Community Development Code to allow and support community gardens and other forms of urban agriculture. Amendments will address hydroponics or other food production facilities in existing and new buildings.



A “Buy Fresh Buy Local” campaign will create multiple food growing and selling opportunities, and provide linkages between farmers, consumers and organizations.



Photo Credit: Top Left: USDAgov "Peoples Garden" via Flickr, Top Right: Dane Brian "Vertical Plantas Wall" via Flickr, Bottom Left: Phil LaCombe "Buy Fresh Buy Local" via Flickr

ISSUES

A green economy fosters businesses that help protect, restore, and enhance our natural environment. By encouraging green businesses, Clearwater's economy can thrive and prosper while achieving community goals of generating less waste and pollution, saving energy, restoring green spaces, growing food locally, and conserving water. Green businesses could include companies that develop renewable energy or alternative fuels, grow organic produce locally, or make products from recycled materials. Traditional companies that modify their practices to be more resource efficient, such as builders who learn to use energy-efficient, environmentally sustainable materials and construction practices could also meet the definition of green business.

The terms "green job" and "green business" are not defined by federal or state law. Some organizations have developed their own definitions for these terms. For example, Workforce Florida defines a green job as one that "increases the conservation and sustainability of natural resources for the benefit of Floridians. This includes jobs that reduce energy usage or lower carbon emissions, and protect Florida's natural resources. Green jobs should provide worker-friendly conditions, pay sustainable wages and offer opportunities for continued skill training and career growth."

OPPORTUNITIES

The green economy is projected to grow nationally. In 2007, Florida ranked among the top 10 states for jobs in the clean energy economy with over 30,000 jobs and \$117 million in venture capital over a span of three years. Encouraging the expansion of green businesses and jobs is especially crucial at a time when Florida's economy has been struggling. According to the Bureau of Labor Statistics, Florida had an unemployment rate of 10.7 percent as of August 2011.

The city has investigated opportunities to develop green businesses and jobs. In 2008, the Economic Development and Housing Department organized a work plan for a Green Jobs Initiative. The work plan resulted in the formation of a Green Collaborative Team consisting of representatives from the city, Pinellas County Economic Development, University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS), Tampa Bay Regional Planning Council, the United States Environmental Protection Agency (USEPA), Worknet Pinellas, and the development community.

GOALS

- Promote and support existing green businesses in Clearwater.
- Grow the number of green jobs in Clearwater.
- Attract new green businesses to Clearwater and the Tampa Bay Area.



A green economy fosters businesses that help reduce energy use and protect our natural environment, such as builders who use energy-efficient materials and equipment.



Green businesses could include companies that develop renewable energy or alternative fuels, grow organic produce locally, or make products from recycled materials.



The city will need continued investment in new buildings and renovations over the long term, maintaining jobs in construction and creating an opportunity for building systems innovation.



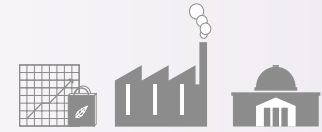
The city will partner with others to offer workforce training programs in green job skills, such as renewable energy, energy efficiency, food production and waste reduction.

STRATEGIES

1. GREEN BUSINESS DATABASE

Establish an online database of green businesses and existing green jobs.

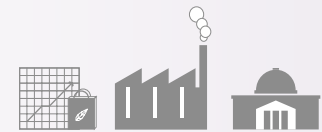
The city will develop a database of all green businesses and the number and types of green jobs in Clearwater. The city will need to establish criteria for classifying green businesses and jobs, allowing for flexibility as new developments in green industry and business practices arise. This data can be collected through surveys, online business searches, and phone interviews with the development community and industry organizations. Clearwater can use the business tax receipt application and renewal process to facilitate data collection.



2. BEST PRACTICES SHARING

Profile businesses that are taking steps to become more “green.”

The city website recognizes businesses that have received green certifications from Leadership in Energy and Environmental Design (LEED), the Florida Green Building Coalition (FGBC), the Florida Green Lodging Program, and the Green Restaurant Association. The city will develop a system to recognize and profile other businesses that are taking steps to become more sustainable and resource efficient without pursuing certifications. The profiles will highlight best practices and the environmental, economic and social benefits of different companies' efforts.



3. GREEN JOB DEVELOPMENT

Connect people in need of employment opportunities to new green jobs.

In conjunction with generating green jobs locally, the city can also work to connect people who may be unemployed or underemployed to these new opportunities. The city will partner with existing institutions and organizations (e.g., St. Petersburg College and Worknet Pinellas) to offer workforce training programs in green job skills, such as renewable energy, energy efficiency, waste reduction, food production, and green building. The program will be implemented in tandem with programs and initiatives that are available in Clearwater to ensure that training results in job placement.



4. GREEN GUIDE



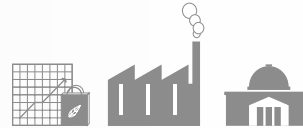
Partner with local tourism businesses and agencies to develop a green guide to Clearwater businesses.

Many businesses in Clearwater rely on tourism, including local hotels, restaurants, real estate rentals, tour operators, and visitor travel outlets. The city will partner with these tourism-based businesses and other local tourism agencies to create a green guide that promotes local businesses that have made a commitment to green practices. This partnership can also create participation in green business designation programs for the hospitality industry, such as the Florida Green Lodging Program, and for other types of businesses that qualify under programs such as Pinellas County's Green Business Partnership. The city may choose to create its own designation criteria or registration program in implementing this strategy.



The city will partner with businesses and agencies to create a green guide that promotes local businesses that have made a commitment to green practices.

5. REGIONAL PARTNERSHIPS



Partner with local and regional economic development organizations to attract new green businesses to the Tampa Bay Area.

Economic development plans are being developed at many levels in the Tampa Bay region, from local municipalities including the city up to regional levels like the Tampa Bay Partnership which encompasses eight counties. The city can partner with local and regional organizations and devise new strategies to attract green businesses to the area. Resources such as the Young-Rainey Star Center, an economic development center run by Pinellas County, can be leveraged to spur local economic development in the green business sector. The Tampa Bay Innovation Center, a non-profit organization, is another resource in Pinellas County. The center is committed to cultivating entrepreneurs and developing technology startups.



Resources such as the Young-Rainey Star Center can be leveraged to spur local economic development in the green business sector.



Photo Credit: Top Left: greenforall.org, Top Right: Sandpearl, Bottom Right: Masspaths.net, Bottom Left: Jim Parish

Success in reaching the greenhouse gas reduction targets will ultimately depend on the extent of strategy implementation and the amount of community participation. The involvement of the entire community, including residents, businesses, institutions, and municipal government, will be required. The city's primary roles in the implementation of Clearwater Greenprint are that of educator, facilitator, mentor and model.

The city already has staff working with and across departments to implement policies, programs and projects that fall under the umbrella of sustainability. Coordination of these efforts to date has been managed through regular meetings of a Green Team. Until such time as the city identifies a sustainability coordinator, the Planning and Development Department will track the implementation of Clearwater Greenprint. The need to manage the implementation efforts into the future warrants designation of city staff to oversee the Greenprint program. There will also be the need for city staff to create and disseminate relevant public information and organize or enable self-organizing community projects. The strategies and topic areas provide the opportunity for new types of grants and funding sources that can support staff time and defray other program costs.

PLAN IMPLEMENTATION COSTS

The tables that follow provide a summary of the Clearwater Greenprint implementation plan showing the phasing for individual strategies within each topic area. The individual strategies are described in more detail within each topic area description in the preceding sections.

Estimated costs and city staff hours required to fully implement Clearwater Greenprint are outlined for each topic area in Appendix A Strategies Documentation. A summary of the direct (non-personnel) costs and work program hours associated with the implementation of Clearwater Greenprint over the 25-year plan time frame is provided in the tables below. The costs are shown in 2010 dollars.

SUMMARY OF STAFF WORK PROGRAM HOURS

Time frame	Total Work Program Hours for Period ¹	Average Annual Work Program Hours
Short (0-5 years)	19,481	3,896
Medium (6-10 years)	18,428	3,686
Long (11-25 years)	88,335	5,889
Total	126,243	

Notes:

¹Staff hours are anticipated to be accomplished with current staffing levels within the context of departmental work programs.

SUMMARY OF NON-PERSONNEL COSTS

Time frame	Total Non-Personnel Costs for Period ¹	Average Annual Non-Personnel Costs for Period
Short (0-5 years)	\$188,750	\$37,750
Medium (6-10 years)	\$436,250	\$87,250
Long (11-25 years)	\$7,052,550	\$470,170
Total	\$7,677,550	

Notes:

¹In 2010 dollars

SHORT TERM IMPLEMENTATION PLAN (0-5 YEARS)

Topic Area	Strategy	Description
Green Energy and Buildings	1	Energy Finance Program
Green Energy and Buildings	3	Incentives for Upgrades
Green Energy and Buildings	4	Performance Standards
Green Energy and Buildings	5	Natural Gas Expansion
Green Energy and Buildings	9	Energy-Efficient Streetlights
Green Energy and Buildings	10	Municipal Energy Policy
Green Energy and Buildings	11	Municipal Energy Plan
Transportation	1	Vehicle Mile Reduction
Transportation	2	Complete Streets
Transportation	3	Local Transit Improvement
Transportation	4	Low Emission Vehicles
Transportation	5	Congestion Management
Land Use	1	Development Incentives
Land Use	2	Property Revitalization
Land Use	3	Diverse Housing Options
Land Use	4	Greenspace Expansion
Water Resources	1	Water Conservation
Waste Management	2	Yard Waste Collection
Waste Management	3	Recycling Program Expansion
Waste Management	6	Reusable Goods Swap
Food Production	1	Task Force
Food Production	2	Local Food Production
Food Production	3	Urban Agriculture
Education and Awareness	1	Community Education
Education and Awareness	2	Community Outreach
Education and Awareness	3	Green Initiative Reporting
Education and Awareness	4	Municipal Staff Education
Education and Awareness	5	Interactive Website
Green Business and Jobs	1	Green Business Database
Green Business and Jobs	2	Best Practices Sharing
Green Business and Jobs	3	Green Job Development
Green Business and Jobs	5	Regional Partnerships

MEDIUM TERM IMPLEMENTATION PLAN (6-10 YEARS)

Topic Area	Strategy	Description
Green Energy and Buildings	2	Resource Conservation Program
Green Energy and Buildings	6	Local Power Generation
Green Energy and Buildings	8	Renewable Energy Finance
Green Energy and Buildings	12	Performance Standard
Water Resources	2	WaterWise Landscapes
Waste Management	1	Pay-As-You-Throw
Waste Management	7	Municipal Waste Reduction

LONG TERM IMPLEMENTATION PLAN (11-25 YEARS)

Topic Area	Strategy	Description
Green Energy and Buildings	7	Renewable Energy Challenge
Water Resources	3	Low Impact Development
Waste Management	4	Commercial Recycling
Waste Management	5	Composting Program
Green Business and Jobs	4	Green Guide

NOTES

This image shows a single sheet of white paper with horizontal blue or grey ruling lines, typical of notebook paper. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

[illegible]



CLEARWATER GREENPRINT - www.myclearwater.com/greenprint